XIII.—Historical Notes on the Introduction of various Plants into the Agriculture and Horticulture of Tuscany: a summary of a work entitled *Cenni storici sulla introduzione di varie piante nell'agricoltura ed orticultura Toscana.* By Dr. Antonio Targioni-Tozzetti. Florence, 1850.

The investigation of the origin and introduction of the vegetable productions raised for the use of man, is not only an interesting study in a critical, historical, or geographical point of view, but it may be applied to practical use by the cultivator. In showing how very few of these plants are to be met with naturally in the state in which we grow them, and how by careful and persevering cultivation, their natural properties have been modified, so as to suit the purposes they are applied to, a stimulus is given to our exertions in the still further improvement of those already known, as well as for the introduction and conversion of new species or varieties to the use of man. At the same time the knowledge of the readiness with which, in some instances, a worthless weed has been changed into a valuable esculent, and of the lengthened period which has at other times been required to effect the conversion, may often suggest to us the *modus operandi* to be attempted on future occasions.

But this enquiry is often attended with no small difficulty. However readily we may trace the process by which our European cabbages and carrots, or apples and pears, have been received into our gardens and orchards, and there made to produce the luxuriant vegetables and fruits of modern days; however authentic may be the records of the introduction of the tobacco, the potato, and other additions to our esculent, economical, or ornamental plants, since the discovery of America, and the invention of printing, it is a very different matter to trace with any great degree of plausibility the origin of the majority of the Cerealia and fruits of more ancient cultivation, and which still supply so important a part of our agricultural and horticultural productions. Tradition ascribes "the East" as the source from whence many of them sprung, and so much is this relied upon, that in all cases where a plant, known to have been cultivated in early ages, cannot now be found growing wild, there is a natural tendency to assign as its probable native station some unknown district among the mountains of Central Asia. It is indeed probable, that the populous herbivorous nations which early occupied the

warmer climates of that continent, had become cultivators for ages before the wilder and more carnivorous hordes which wandered over the colder regions of Europe, and that civilisation, as it spread from the former over the latter, carried with it the more useful Cerealia and fruits then known. But all were already in a state of cultivation, that is, more or less modified by human labour and skill. It seldom has occurred in modern days, still less is it likely to have happened in early ages, that a wild plant has been brought from a distant country to be grown in our own, for the use of man. The conversion must have been gradual, and generally, if not universally, in the district where the species was indigenous.

Wherever, therefore, the origin of a plant, cultivated in a given country, is involved in doubt, all enquiries tending to clear up that doubt must resolve into the following queries :—

1. When was it first known to have been there cultivated ?

2. In what countries, if any, was it previously cultivated, and if so, when and how could it have been from thence transported ?

3. What are the plants indigenous to the region where it was first made use of, which could have been the wild origin of the cultivated varieties ?

The answers to the two first questions may be derived from actual record, or from collateral historical evidence. But in early ages agricultural and horticultural nomenclature was exceedingly vague, and the allusion to vegetable productions is often so slight in ancient works, that it requires very great critical acumen to form any plausible opinion as to the identity of the plants mentioned. The conclusions come to require moreover to be constantly checked by a judicious study as well of geographical botany and local floras, as of the general principles of vegetable physiology as applied to horticultural and agricultural metamorphosis ; and these geographical and physiological studies can alone supply the answers to the third of our queries.

Professor Targioni-Tozzetti's work applies more especially to the two first questions ; and he has bestowed great pains in the historical investigation of the more important species and varieties now cultivated in Italy, and more especially in Tuscany. He appears to have carefully consulted and critically examined all the works bearing upon the subject which he had within his reach, including the writings of the ancient Greeks and Romans, those of Italian naturalists from the fifteenth century down to our own day, and a considerable number of modern French,

English, and German books of reference. He does not appear, however, to have had access to all the works of Royle and others in our own country, which have thrown so much light on the botany of the Bible, and of the early Asiatic nations, nor yet to numerous memoirs on detached points, which have appeared in French and German Transactions and periodicals. He is thoroughly acquainted with the agricultural botany of his own country, but has necessarily but a slight knowledge of the actual floras of those Eastern regions which are supposed to have poured forth so many vegetable treasures. Whilst, therefore, he has in the present work collected a great mass of valuable historical information, which should be consulted by all who are engaged in these investigations, he has contributed comparatively little to the solution of our third question.

Following the order he has adopted, partly systematical partly economical, though scarcely definite enough to be called a method, the *Gramineæ* and especially the *Cerealia*, as the most important, are the first treated of, although with less detail than some others. No conclusion is come to as to the real origin of our four staple species, *Wheat*, *Barley*, *Rye*, and *Oats*. They are all shown to have been amongst the earliest grains cultivated in Italy; it is admitted that none of the indications of stations where they have been supposed to have been indigenous are to be relied upon, yet it seems still to be presumed that these cultivated forms are distinct species, which still exist, or have existed, wild in some hitherto unknown regions, with the same characters which they exhibit in our fields. The recent investigations of Mr. Fabre, of Agde, as to the effect of cultivation upon *Ægilops*, and the conclusions to be deduced from them, if accurate, appear to be unknown to him. Yet, however little the remarkable changes observed by Mr. Fabre may be credited by some, they bear so strongly upon the question, that, until refuted, they must be taken into account by all who would write on the subject.* We ourselves have no hesitation

* The various specimens of *Ægilops* grown in the botanical garden of Avignon, where the late M. Requien had bestowed particular attention to the genus, showed modifications produced by culture which were many years since most puzzling to us as to the intermediates between *Ægilops ovata* and *Triticum sativum*. One great character relied upon as the strongest proof of the impossibility of their having a common origin, the articulation of the rachis in *Ægilops*, has always a tendency to disappear by luxuriant cultivation, not only in the ears of the *Gramineæ*, but also in the pods of *Leguminosæ* and *Cruciferæ*, and in other parts of various

in stating our conviction, as the result of all the most reliable evidence bearing upon the subject, that none of these *Cerealia* exist, or have existed, truly wild in their present state, but that all are cultivated varieties of species now growing in great abundance in Southern Europe or Western Asia. We believe that most, if not all, of our cultivated varieties of wheat originally sprung from one botanical species of *Ægilops* (*Æ. ovata*), excepting the smaller spelts of southern Europe, which are modifications of *Ægilops caudata* and *Crithodium ægilopoides*; that our barley and oats now grow wild in Europe in the form of some one of the recognised species of *Hordeum* and *Avena* respectively, although data are still wanting to determine precisely which is in each case the true type, and how many of the forms described as species it should include; and that our rye is a South European and Asiatic plant chiefly from the neighbourhood of the Black Sea, the *Secale montanum* of Gussone and *S. fragile* of Bieberstein being varieties at least of the original botanical species.

The different *Millets* mentioned as cultivated in Tuscany belong to four botanical species, the *miglio* (Panicum miliaceum), the *panico* (Setaria italica), the *saggine in spiga* (Penicillaria spicata), and five varieties (or, according to some, species) of *saggine* proper, (Sorghum). Of these the *Panicum miliaceum* and the *Setaria* were already known to the ancient Romans from a very remote period; the black-seeded *Sorghum* is recorded as having been introduced from India in the time of Pliny; and the other varieties, as well as the *Penicillaria*, are of more recent introduction from India or from Africa, All four species appear to have supplied grain for food, in periods of very remote antiquity, in Egypt or India, where their wild prototypes must be sought for. The *Panicum miliaceum*, and some varieties of the *Penicillaria*, are but little altered from the original forms as still found in those countries. The *Setaria italica* is not unlikely to be a luxuriant cultivated form of the *S. glauca*, a most abundant weed in all warm countries. As to the cultivated *Sorghums*, most botanists distinguish several species, although none are to be found in a wild state, except perhaps those which have a more diffuse panicle with less crowded flowers, and which come the nearest to the more luxuriant specimens of the *Sorghum halepense*, which is

plants. The fact that wheat, cultivated as it is in all climates where it can be made to grow, will nowhere propagate itself as a weed of cultivation, is a further proof that it is in a state much altered from its original wild form.

very abundant wild in some parts of Southern Europe, and all over Africa and India. Indeed, we believe it to be the opinion of an eminent agrostologist who has shown the soundest judgment in the investigation of East Indian and other *Gramineæ*, an opinion in which we fully concur, that the described species of *Sorghum* are mostly, if not all, mere varieties of the *Sorghum halepense*, produced by extensive cultivation during a long series of ages.

Maize or *Indian Corn* (Zea mays) now so widely spread over the South of Europe, does not appear to have been introduced from America till near a century after the discovery of that continent, though mentioned as a valuable article of food in the West Indies by several travellers of the 16th century; it is shown to have been still unknown in Spain at the close of that period, and it was not until after the year 1610 that it found its way through Spain and Sicily into Italy. Professor Targioni-Tozzetti satisfactorily shows that all supposed mention of this grain by earlier writers before the discovery of America referred to other kinds of grain, though under some of the names since given to the Maize. We are not yet sufficiently acquainted with the American flora to ascertain, with any probability, what is the original indigenous form of this, apparently, the earliest cultivated American grain.

Rice was in the year 1400 still only known in Italy as an article of import from the East. Its cultivation was introduced into Piedmont and Lombardy in the end of the 15th or commencement of the 16th century, either directly from India by the Portuguese, or through Spain and Naples by the Spaniards. Some of the varieties now grown in India appear to be but little removed from their wild prototype.

The *Sugar-Cane* is merely alluded to because its cultivation was attempted in Tuscany in the 16th century, but found totally unsuited to the climate. Of Asiatic origin, where the wild type is not uncommon, it was carried to the West Indies, and thence introduced into Sicily in the time of the Saracens. It was also, perhaps, for a short time cultivated in Calabria, a point which has been much disputed, although of no importance, as no success attended the experiment if made.

Leguminous plants, either as forage or as pulse, cover a wide extent of the fields of Tuscany, and in the latter shape form a much greater proportion of the food of the inhabitants than in our own country. The introduction of most of the kinds into Italy

dates from a period of very remote antiquity, for Professor Targioni finds them mentioned by nearly all the ancient Greek and Latin writers on Georgics, and their origin is difficult to trace. Some of them, indeed, are but little altered from the wild forms not uncommon in Italy; but whether these be indigenous, or have become naturalised there in consequence of their cultivation, remains doubtful. Taking them in the order in which they are here mentioned: the *Pea* has been stated by several authors to be a native of Italy, and Professor Targioni admits this to be the case with the *field pea*, or *rubiglio* (Pisum arvense), but with most botanists, insists on the *garden-pea*, or *pisello* (Pisum sativum), being a distinct species of unknown origin. In this conclusion we cannot join; all our cultivated Pisums are surely referrible to one species, which is most probably really indigenous only in the more eastern of the districts, where it is now found apparently wild.

Of the *Haricots*, or *French beans*, *Fagioli* (Phaseoleæ), only two are mentioned as grown in Tuscany, both indigenous to and introduced from East India, where the cultivated species are very numerous.* One is our common *Haricot*, or *French bean* (Phaseolus vulgaris), so well known in all civilised countries; the other is the *Fagiolo del' Occhio* (Dolichos melanophthalmus of Savi), a mere variety of the *Dolichos* or *Vigna Sinensis*, much cultivated in India and Egypt, but only very sparingly so in Southern Europe, and entirely unknown in this country.

The common *Bean* (Vicia Faba), has been vainly sought for in a wild state. The vague indication of supposed habitats in Persia, or on the shores of the Caspian, have not been confirmed by modern researches. May it not, however, have had its origin in the Vicia Narbonensis? a species not uncommon in the Mediterranean region from Spain to the Caucasus, and very much resembling the Bean in every respect, except in the thinness of the pod and the smallness of the seeds.

* These, however, are not nearly so numerous as is generally supposed; thus, the *Phascolus vulgaris* includes at least eight of the commonly adopted species of modern botanists, the *P. lunatus* four, the *P. Max* or *Mungo* (which is either dwarf or climbing, like the *P. vulgaris*) five or six, the *P. Truxillensis* three or four, *Dolichos* (or rather *Vigna*) *Sinensis* four or five, *Lablab vulgaris* at least as many, *Canavalia gladiata*, two or three, and so on. This multiplication of species has not been owing entirely to the considering as botanical species what are mere varieties of cultivation, but in several instances it has arisen from the same varieties having been received from Asia, Africa, and America, and separately described without adverting to their common origin.

The seven following are stated to be all spontaneous in Asia, and slightly improved by long cultivation in European fields, being all mentioned by ancient Greek and Roman writers, viz.: the *Lupin* (Lupinus albus), the *Mochi* (Lathyrus cicer, Pois cornu of the French), the *Cicerchie* (Lathyrus sativus, or Gesse of the French), the *Leri*, or *Zirli* (Vicia ervilia), the *Vetch* (Vicia sativa), the *Cece* (Cicer arietinum, or Pois chiche), and the *Lentil* (Ervum Lens). Several of these are now wild also in Italy, and the two *Lathyri*, and the common *Vetch*, may be indigenous; but they may with equal probability be only naturalised, as they are evidently so little altered by cultivation, that they may readily propagate naturally when they meet with a genial soil and climate. All of these are more or less eaten by the Italians as pulse, but few would be palatable to the English tastes. The *Cicer* indeed, though rather coarse, is very fair when properly dressed and seasoned, but the only one really deserving importation is the *Lentil*, which is both wholesome and nutritious, and excellent *en purée*, in various stews and made dishes, &c. It is very much consumed all over Southern Europe, and constitutes, in all probability, that much puffed article, so absurdly disguised for the purpose of sale under the high-sounding name of *Revalenta arabica*, an evident corruption of *Erba lenta*.

Numerous as are the *Leguminosæ* used for forage in Southern Italy and Sicily, four only are mentioned as cultivated for that purpose in Tuscany: the *Lucern* (Medicago sativa), introduced, according to the ancient writers, from Media into Greece, in the time of Darius, and thence into Italy; the *Sainfoin* (Onobrychis sativa), the *Sulla* or *Lupinella* (Hedysarum coronarium, or French honeysuckle), and the *Trafogliolo* (Trifolium incarnatum), the three last indigenous to Italy, and of comparatively modern cultivation. Allusion is made to the confusion and frequent interchange of names between the Lucern and the Sainfoin, which appears to be as prevalent in Italy as it is in many parts of France, and has often led to error in regard to their agricultural statistics. No mention is made of our common red or white clovers, nor of the Medicago lupulina, so much cultivated in Britain and Central Europe.

Four esculent *Solaneæ* are extensively cultivated in Tuscany: the *Potato*, the *Tomato*, the *Egg-plant*, and the *Capsicum*, the two first of American origin, the third East Indian, and the fourth either American or African, or both.

The history of the introduction of the *Potato* (Solanum tube-

rosum), is well known. Although mentioned occasionally by American explorers of the 16th century (by some confounded with the *sweet potato*, a convolvulaceous plant), it was not otherwise known in Europe till brought to England by Sir Walter Raleigh in 1586. Two years afterwards, Clusius at Vienna obtained two tubers through the Prefect of Mons, in Belgium, from a servant of the Pontifical Nuntiate in the Low Countries. It may have been transmitted to Italy at about the same time from the same source. At any rate, it was certainly in cultivation in Tuscany at the commencement of the 17th century, for Father Magazzini of Valombrosa, in a work on Tuscan agriculture, published in 1623, after his death, gives directions as to its cultivation, which he alludes to as being then habitual, having been introduced from Spain and Portugal by the barefooted Carmelite monks.

Professor Targioni, led into error by the insertion of the *Tomato* (Solanum Lycopersicum), in the first floras of Cochin-China and Amboyna, considers it as a native of India, as well as of Peru, and expresses, therefore, some surprise that it should have been unknown to the ancients. But, if ever found wild in the Eastern Archipelago, it is only as spread from cultivation, for it is now ascertained to be exclusively of Peruvian origin, and was not known in Europe until after the discovery of America. It appears, however, to have preceded the more useful maize and potato, for Matthioli mentions its introduction in his days, that is, in the commencement of the 16th century. It was first cultivated rather for ornament than for food, which may, perhaps, explain its more rapid introduction.

The *Melanzane* or *Petonciani* (Solanum Melongena, Aubergine of the French, the Egg-plant * or Bringall of the West Indies) is most probably a native of Asia or Africa, although the precise original indigenous form has not as yet been satisfactorily made out. Many of the supposed botanical species of the most recent monographist are mere cultivated varieties, and their connection with allied forms stated to be wild in India or in America requires much critical investigation. Its cultivation in Italy cannot have been extensive before the discovery of America. It is indeed generally supposed to be referred to by Theophrastus

* This name is generally given in our gardens to the short white-fruited variety which we grow merely as an object of curiosity. It is the long purple-fruited variety that is so much cultivated in the South as an article of food.

under the name of *Strychnos*, by Avicenna under that of *Bedangian*, and especially by St. Hildeguarda, Abbess of Bingen, who died in 1180, under that of *Megilana*, yet the identity is in no case placed beyond doubt, and requires collateral proof to be derived from the botanical and geographical investigation of the original wild type of the species.

There is still greater uncertainty as to the real native country of the *Capsicum* or *Hot-pepper* (Capsicum annuum, Peperoni of the Italians, Piment of the French), now so universally spread over all tropical countries. Although long known under the name of *Indian Pepper*, it appears not to be indigenous in Asia, and there is no authentic record of its cultivation in Europe before the discovery of America. It is said to be really wild in that continent, and Cæsalpin and Clusius, late in the 16th century, both speak of it as introduced from thence. Yet, in the time of Matthioli, early in the same century, and consequently, at a period when very little of the natural productions of the New World had been transplanted to the Old, we find at least three varieties well established and abundantly cultivated in Italy under the name of Indian pepper, which is hardly probable if it had been really introduced from America, then so recently discovered.

A curious instance of the slowness with which the use of culinary vegetables is spread, is afforded by the large green mild variety of *Capsicum*, which is so much eaten over a great part of Spain and some of the adjoining French departments. It was carried by the Spaniards into Naples during their dominion in the 16th and 17th centuries, and has ever since remained in common use there without spreading further. In Tuscany it is scarcely known, except as an object of curiosity in botanical gardens. It makes an excellent salad, having all the flavour of the capsicum without the slightest pungency.

The cultivation of the *Sweet potato* or *Batata* (Ipomœa Batatas or Batatas edulis) has been at various times attempted in different parts of Italy, but as yet without success, notwithstanding the strongest and repeated recommendations of its importance. In a wild state, it is one of those maritime plants which is spread over the shores of both the New and the Old World, within or near the tropics, but its cultivation appears to have originated with the Americans. It was evidently unknown to the ancients, and the first mention of it on record is by Pigafetta, who found it used as an article of food in Brazil, where

he landed in 1519. Its first introduction into Europe was probably by Oviedo, after whose return to Spain, in 1526, it was cultivated at Malaga, and from thence sent out to different parts of Europe. Clusius purchased some fresh roots in London in 1581, to carry with him to Vienna. Since then, various attempts to turn the Batata to account, have been made in Tuscany, in Lombardy, at Rome, and in other parts of Italy; but have all failed, either from the ungenial climate or still more from the difficulty of preserving the roots through the winter. The Marchese Ridolfi is said more recently to have discovered a mode of treatment, by which these obstacles may be in a great measure removed, and to have given an account of it in the Acts of the Academy of Georgofili of Florence. Yet the cultivation of the root is certainly not yet carried to any extent in Italy.

In his note on the *Jerusalem artichoke* (Helianthus tuberosus) Professor Targioni repeats the common tale of its being of Brazilian origin and deriving its French name of *Topinambour* from that of the tribe of Indians occupying the district of which it is supposed to be a native. But this assertion, copied by one writer after another, appears to rest solely on a dictum of Clusius, and certainly no traveller in the land of the Topinambas has found anything approaching to it in botanical affinity or in physiological constitution. It is a hardy plant, introduced into Europe from the more temperate regions of North America, and it is amongst the *Helianthi* of that continent, and more especially of the Mexican dominions, that its wild prototype must be sought for. It was carried from France into Tuscany in the end of the 16th or the commencement of the 17th centuries, and is now sparingly cultivated there under the name of *tartufi di canna*, or *cane truffles*.

The *Artichoke* (Cynara Scolymus) is a mere cultivated variety of the *Cardoon* (Cynara Cardunculus), of which the still more reduced wild form is common over Southern Europe and a portion of Central Asia. What part of this wide district may have been its original native country cannot well be now ascertained; for, like all thistles, it spreads with remarkable facility wherever it finds a genial soil. Carried out from Europe to the gardens of Buenos Ayres, and escaped from them over the country, it is said to constitute that gigantic thistle of the Pampas so feelingly described by Sir Francis Head. To the ancient Romans it was only known in the shape of the Cardoon, cultivated as a culinary

vegetable, the part eaten being the petioles of the leaves. In Italy the first record of the artichoke cultivated for the sake of the head, or rather the receptacle of the flower, was at Naples, in the beginning or middle of the 15th century. It was thence carried to Florence, in 1466; and at Venice, Ermolao Barbaro, who died as late as 1493, only knew of a single plant grown as a novelty in a private garden, although it soon after became a staple article of food over a great part of the Peninsula.

Lettuces, *Chicory* and *Endive*, appear all to have been in cultivation ever since the times of the ancient Greeks and Romans, without any record of their first introduction. The numerous varieties of the *Lettuce* have been referred by modern botanists to three supposed species, (Lactuca sativa, L. capitata, and L. crispa), and, as no plants so characterised are now to be found wild in our own quarter of the globe, their origin is vaguely assigned, as usual, to East India. That country may, however, be well ransacked before cabbage- or cos-lettuces are met with growing wild in the mountains. Their prototypes may be sought for with much better chance of success amongst the common wild *Lactucæ* of the Mediterranean region, but can only be determined with any degree of probability by a more correct knowledge of the changes produced by luxuriant cultivation on their foliage than we now possess. The cultivated *Chicory* is universally acknowledged to be but a slightly altered variety of the wild plant (Cichorium intybus) so common over a great part of Europe; the *Endive*, on the contrary, is always enumerated as a distinct species (Cichorium endivia) of unknown origin, unless it be "East India." We fear it must share the fate of the Lettuces, be erased from the list of botanical species, and reduced to the rank of a cultivated variety of the Chicory.

Umbelliferæ abound in the hot regions which surround the Mediterranean, and the strong flavour which pervades every part of many species has brought several of them into use in very early ages, either as condiments, or as articles of food. Some of them, either from inattention, or from not being considered of sufficient value to cultivate, have remained unaltered, and their use has not been extended beyond the limited circles in which they are found wild, whilst in others man has succeeded in producing such a development of the tap-root, or of the lower part of the stem and leaves, with a corresponding softening down of the asperity of the flavour, as to supply excellent culinary

vegetables. Hence the *Carrot* (Daucus Carota), the *Parsnip* (Pastinaca sativa), and the *Celery* (Apium graveolens), in universal use among European races, and the *Finocchio* (Anethum fœniculum), more especially appreciated in the Italian peninsula. All of these are indigenous to Southern Europe, and are now found in a wild state in most countries colonised by European races.

Professor Targioni's researches convince him that the *Carrot* and *Parsnip* were both known to, and cultivated by, the ancient Greeks and Romans; but that, until the middle ages, as far as can be traced from the vague descriptions of early writers, the parsnip was very much more general than the carrot, although since then the proportions have been everywhere reversed. The carrot, indeed, appears much more susceptible of improvement under the enlightened cultivation of modern days, and the readers of our "Horticultural Transactions" will recollect, in the second volume of the second series, a paper of Vilmorin-Andrieux's, in which he gives an account of the manner in which he succeeded, in the course of a very few years, in converting the thin, wiry, useless white roots of the wild carrot into a crop of fine, well-shaped, rich-coloured roots, equal to our best garden varieties; whilst in the case of the parsnip he has, we believe, never yet succeeded in effecting any perceptible change.

Celery was known to the ancients, but was considered rather as a funereal or ill-omened plant than as an article of food. By early modern writers it is mentioned only as a medicinal plant. Even as late as the 16th century it is spoken of as such by Alamanni, who praises at the same time the *Maceroni* (Smyrnium Olusatrum) for its sweet roots as an article of food. It is certain, however, that celery was already begun to be grown for the table in Tuscany at about the same time, and has now entirely superseded the Maceroni which was once much cultivated in Italian gardens in a similar way.

The *Finocchio*, so highly prized by the Italians, especially in the southern portion of the peninsula, is comparatively a modern vegetable. It has however produced several marked races or permanent varieties, amongst which the principal are the *finocchio forte*, but little removed from the common wild fennel, the *finocchio dolce* or sweet fennel, and the *finocchio di Bologna* or *finocchione*, with the lower part of the stem (or *head*) much enlarged and succulent. These three varieties are considered by modern Italian botanists as so many distinct species, the two last

stated to be of unknown but probably of "Grecian or Syrian" origin. But Professor Targioni admits that they are not mentioned by any Greek writers, and that the finocchio di Bologna was a new vegetable brought to Florence from Bologna in the middle of the sixteenth century. They are surely all cultivated varieties or races of the common fennel, which is truly wild in most parts of Mediterranean Europe.

Four other Umbelliferæ are cultivated in Tuscany as condiments. *Parsley* (Apium Petroselinum), a native of Southern Europe as well as of other countries, was cultivated for its leaves by the ancient Greeks and Romans, and has maintained its ground with little alteration to the present day. *Aniseed* (Pimpinella Anisum), now much grown in Tuscany, appears to have been formerly imported as an article of trade from Crete and Egypt, where it is indigenous. The first mention of its culture in Italy is by Palladius under the Roman empire. *Dillseed* (Anethum graveolens) and *Coriander* (Coriandrum sativum), natives of Southern and Eastern Europe, are also cultivated in Tuscany for their seeds, but are little appreciated in Western Europe. The *Caraway* (Carum Carvi), though as common in a wild state in Italy as in other parts of Europe, is not mentioned among Tuscan products.

The *Cruciferæ*, notwithstanding their importance in culinary and rural economy, are dismissed in a few words, the *Cabbage*, the *Turnip*, the *Rapeseed*, and the *Radish* being the only ones mentioned. The *Cabbage* (Brassica oleracea), which in some Northern countries constitutes a principal item in the food of the peasantry, is almost lost among the variety of culinary vegetables of the more favoured South. It is indigenous to the rocky shores of the Mediterranean and Black Seas, and has been brought into cultivation from the remotest ages. There is perhaps no species of vegetable which sports so readily, and of which a greater number of more or less permanent races and varieties have been established in our gardens. For a detailed account of the most important of them, the reader is referred by Targioni to De Candolle's well known dissertation.

The *Turnip* (Brassica napus) is still less appreciated in Italy; indeed the climate appears to be scarcely suitable for its extensive agricultural cultivation, and in southern gardens it turns out a hard fibrous strong-tasting root, which we cannot blame them for neglecting. In its wild state it is so widely spread a weed, that it is impossible to say from data as yet recorded, what is its

original country. The *Rapeseed* or *Colza* (Brassica rapa), cultivated for the oil extracted from its seed, is mentioned by Columella and Martial. It is probably of a similar origin, and is indeed by some supposed to be a mere variety of the same species.

Radishes (Raphanus sativus) find in the South and East, climates much more genial to their constitution than with us, and the roots acquire a large size, red, white or black (although we have never seen any of those yard-long black radishes mentioned as having been exhibited at Moscow), but the flavour is seldom so mild and delicate as in our gardens. Both the long and the turnip-rooted were known to the ancient Romans, and Professor Targioni, reading in botanical works that Raphanus sativus is a native of China, appears somewhat puzzled to imagine in what remote times it could have been imported from thence to Rome. The fact is, there are no more wild succulent-rooted radishes in China than elsewhere, and any one who observes with an unprejudiced eye the varieties of shapes assumed by the pod of the R. raphanistrum on the shores of the Mediterranean, can scarcely fail to come to the conclusion, that he sees in that species the wild prototype of our garden radish.

The innumerable varieties of *Cucurbitaceæ* cultivated in Tuscany, are reducible for the most part to five botanical species, the *Gourd* or *Pumpkin* (Cucurbita Pepo), the *Bottle-Gourd* (Cucurbita lagenaria), the *Water-Melon* (Cucumis Citrullus), the *Cucumber* (Cucumis sativa), and the *Melon* (Cucumis Melo). They are none of them indigenous in Europe, but were all introduced in very early times from Asia or Africa. They all, as well as some other species not known in Europe, have from time immemorial been cultivated all over the warmer parts of Asia, yet some of them are positively stated never to be found there wild. Very little however is as yet known on the subject, for sufficient care has not been taken to investigate how far the characteristic forms are due to cultivation, nor to distinguish the real botanical species, so as fairly to compare them with the wild ones. We have no data at present for discussing the question, which can only be satisfactorily resolved when taken up by some intelligent Indian botanist, who will not rest satisfied with the validity of a botanical species till he has traced it to its really wild form.

The first introduction into use of *Alliaceous bulbs* is lost in the remotest ages of antiquity. They were cultivated as objects of adoration by the ancient Egyptians. The Greeks had many varieties, of which several are recorded by Theophrastus under

names derived from the Asiatic towns whence they were introduced, and they were also in common use among the Romans. Of the five species mentioned as now grown in Tuscany, the *Chives* (Allium schœnoprasum), a common European plant, already cultivated in the time of Theophrastus, is the only one admitted to be indigenous, but the *Leek* (Allium porrum) is evidently a mere variety of the Allium ampeloprasum, which also ranges over a great part of Europe. The *Shallot* (Allium ascalonicum) was very early introduced from Syria or Asia Minor, where it is still found wild. The *Onion* (Allium cepa *) will probably prove identical with the Allium fistulosum, a species having a rather extended range in the mountains of South Russia, and whose south-western limits are as yet unascertained. The *Garlic* (Allium sativum), including the *Rocambole* (Allium ophioscorodon), which is a mere variety, is indicated in several South Mediterranean floras, but in some instances the evidence of its being really wild is far from satisfactory.

The cultivated *Beets* are referred by Italian botanists to two species, of which one only, Beta cicla, is admitted to be of native origin, whilst the true Beta vulgaris is stated to be indigenous to Central Asia, Egypt, and the shores of the Mediterranean, to the exclusion of Italy. Moquin-Tandon has, however, more correctly reunited the whole under the Linnean name of Beta vulgaris, of which he reduces the numerous forms to three principal races: First, the *Wild Beet*, with a slender, hard root, sparingly introduced into kitchen-gardens for the foliage, occasionally cooked with sorrel to diminish the acidity of the latter. Second, the *White Beet*, *poirée* or *poirée-carde* of the French, with a thicker, but still hard root, with enlarged leaves and a great tendency to succulence in the petioles, which are blanched like cardoons for culinary purposes. This vegetable is frequently mentioned by ancient Greek and Roman writers. Third, the *beet-root*, *barba-bietola* of Italian gardens, *betterave* of the French, so well known for its sweet and succulent root, was first introduced into Italy in the sixteenth century, from Germany, where it was probably first produced. A sub-variety of the beet-root, with a somewhat coarser and larger root, now become so important an article in agriculture, was originally put forward under the name of *root of scarcity*, *racine de disette* in French, or *mangel wurzel* in German,

* The supposed principal botanical character, the dilatation and lateral tooth of three of the filaments, is often ill-defined or disappears altogether in our garden onions.

which latter translation is now adopted by our farmers, absurdly corrupted into *mangold wurzel*.

Spinage (Spinacia oleracea) was unknown to the ancient Greeks and Romans, but appears to have been early used by the Arabs, transferred to their gardens from the plains and lower hills of Western Asia, where it is now found wild. The Moors carried it with them into Spain, from whence it gradually spread, in the middle ages, over the rest of Europe. It has now generally replaced the *Orache* (Atriplex hortensis), a plant also of Eastern origin, but of much earlier introduction, as it appears to have been known to the ancient Greeks under the name of *Atraphaxis*, and to the Romans under that of *Atriplex*.

Asparagus (A. officinalis), indigenous to Italy, as well as other parts of Europe, is mentioned both by Cato and Pliny as carefully cultivated, and attaining a considerable thickness in their days, and has ever been a favourite vegetable among the Italians, who grow it to great perfection; they likewise eat the thin, almost thread-like shoots of the wild plant.

Among sweet herbs, *Basil* (Ocimum basilicum) has been much grown, as a condiment or for medicinal purposes, in all hot countries from the very earliest times on record. It is an annual that sows itself so abundantly over the warmer regions of Asia and Africa, that it is impossible to say which may have been its original native country. Numerous varieties are recorded as produced by cultivation, and some other species are grown in India and Africa, but the common O. basilicum (which I am now convinced should include the O. minus) is the only botanical species known in Italy, where several varieties are great favourites in the cottage windows of the lower orders. *Sweet Marjoram* (Origanum Majorana) was introduced by the ancient Romans from Egypt or Syria, where it is still common in a wild state. *Tarragon* (Artemisia dracunculus), widely spread over South Russia, was brought, probably from the shores of the Black Sea, in more recent times. The first mention on record is by Simon Seth, in the middle of the twelfth century, but it appears to have been scarcely known as a condiment till the sixteenth century.

Among textile plants, *Flax* (Linum usitatissimum) was extensively cultivated and used by the ancient Egyptians, and formed a considerable article of trade between them and the Greeks, who, besides weaving its fibres, were acquainted with the medicinal properties of its seeds, which they even mixed with their bread. It was cultivated in Italy by the Etruscan Falisci in the

time of Silius Italicus, but was thought little of by the early Romans, who wore chiefly woollen clothing, till the time of the Empire, and even then its cultivation was not much favoured, in the belief that it exhausted the soil. In modern Italy it has been more generally grown, but still rather for local consumption than for exportation.

With regard to the origin of the species there is still considerable doubt. Professor Targioni follows other botanists in considering it as a common European plant; and it certainly is found wild in most countries where it is or has been cultivated; but all the evidence we possess tends to show that (with the characters assigned to the species by botanists) it is everywhere rather escaped from cultivation than really wild. Planchon, the last monographist of the genus, divides it into two species, neither of them known in their original indigenous stations. The species nearest allied, L. angustifolium, is indeed a common European one; but, amongst other characters, the differences in the size and colour of the petals, generally constant among Linums, prevent our pronouncing for their identity without further evidence.

Hemp (Cannabis sativa) is of East Indian origin. It is common in the hills and mountains of Northern India, and was very early cultivated throughout the East, though more for its intoxicating properties than for the fibre. Herodotus mentions it as grown by the Scythians, Dioscorides alludes to the strength of the ropes made from its fibre, and Galen to its medicinal properties. It was introduced into Italy by the Romans, apparently under the Empire, and much later than flax. It is now an object of very extensive culture in the plains of Lombardy, and in the Romagna.

Cotton (Gossypium) was imported from India by the ancient Egyptians, by the Greeks, and by the Romans, but appears never to have been cultivated in Europe till the Moors introduced it into Spain towards the twelfth century, although some assert that it was already grown in Sicily in the eleventh century. From Spain it was carried to Southern Italy, where there was much of it in the time of Porta, who died in 1515. Its culture is still kept up in Calabria and about Naples, and under Napoleon's continental regime it was in some measure profitable, but is now of no importance. In Tuscany it has been repeatedly tried, but as often abandoned, the crop being in that climate far too uncertain to afford any chances of profit.

Among *tinctorial plants*, *Woad* (Isatis tinctoria), much culti-

vated in early days for its blue dye, has now been generally replaced by the importation of indigo, excepting some partial use as a foundation for the darker colours. It was well known to the ancients, for its use for dyeing wool is spoken of as habitual by Dioscorides, Vitruvius, Pliny, and Galen; and the ancient Britons, according to Cæsar, and the Dacians and Sarmatians, according to Pomponius Mela and Pliny, were in the habit of colouring their bodies with it. Ancient authors distinguished the wild and the cultivated woad, but the former was probably some very different plant, and they, perhaps, only knew the real one in a state of cultivation. It was certainly grown in Spain before the twelfth century, and extensively so in Tuscany during the flourishing times of the wool-trade, in the thirteenth and fourteenth centuries, and up to the sixteenth. After that, however, it gradually diminished, as indigo came to be imported from America. To stop this decay, protective regulations prohibiting the importation of indigo were enacted in the Roman states in 1652, but they had but little success in the encouragement of the woad-growers; even Napoleon's continental system gave them but a short temporary stimulus, and they have now quite disappeared from central Italy. As a wild plant the woad has an extensive range over Europe and the temperate parts of Asia, but in the former continent it is probably only really indigenous in the southern and eastern districts. In England, at least, it is only to be found wild where it has escaped from cultivation.

Madder (Rubia tinctoria), furnishing the well-known beautiful scarlet dye, is another among the earliest cultivated for tinctorial purposes. Two sorts were known in the days of Dioscorides, and are still distinguished by botanists, but whether they be really species or races which have acquired a certain degree of permanency by long cultivation remains to be ascertained. The one, the cultivated Rubia tinctoria, with a thick succulent intensely coloured root, and annual stems and leaves, is said to be of Eastern origin, and is only found in Europe where escaped from cultivation; the other, the Rubia peregrina, is common in a wild state in the south of Europe. Its leaves and stems are of longer duration, and the root is much smaller and paler coloured, but is occasionally collected for the dyer even in the present day. In Tuscany, the cultivation of the more valuable R. tinctoria has been frequently attempted, but generally abandoned as not sufficiently profitable, owing either to unfavourable local circumstances, or to bad management, the dyer importing it from the Levant at

a very low rate. The Marquis Cosimo Ridolfi, however, whose name is so frequently mentioned in these pages in connection with the improvement and extension of the agriculture of his country, appears recently to have met with better success in the establishment of the growth of madder in the neighbourhood of Spoleto.

Safflower (Carthamus tinctorius), much cultivated in some parts of Italy, especially in the Romagna, some two or three centuries back, when first it came to be generally used for dyeing silk, is now much neglected there, for it is found that that which is imported from Spain or from East India yields a richer colour; and even that from the Levant and from Egypt, although considered as inferior to the Indian and Spanish, is still superior to the Italian. The plant was probably unknown to the ancient Romans, but Theophrastus, Dioscorides, and many other Greek authors mention it under the name of *Cnecon* or *Cnicon*. It was not then grown as a tinctorial plant, but for the medicinal properties of its seeds, and the flowers were only used as a condiment. The exact period of its introduction into Italy is doubtful. Pegoletti in the fourteenth century speaks of it as an article of importation only for the use of the dyers; Matthioli, in the sixteenth, mentions its cultivation, although he alludes only to its medicinal, not to its tinctorial, properties. One of the popular names quoted by Targioni, that of *Saracenic saffron*, would seem to indicate that the Italians had it from the Moors, probably during their dominion in Sicily.

The native country of the safflower is involved in great obscurity. East India is given by Professor Targioni on the authority of systematic botanical works, but we learn from the Indian botanists of the present day that it is there only known in cultivation, and that in the cold season, a circumstance showing clearly that it is not an indigenous plant brought into cultivation, but an importation from a different climate. It may possibly prove to be of African origin, if we may judge from the Abyssinian specimens distributed as indigenous among Schimper's collection. These specimens have much more spinous involucres than the variety commonly cultivated, and, in other respects, seem to show, at any rate, a nearer approach to a wild state.

Saffron (Crocus sativus) is a native of Italy, as well as of many other parts of Europe and of the Levant, and has long been cultivated for the odour and flavour, as well as in more modern days for the tinctorial properties, of the styles. It is mentioned

by many ancient writers, and was certainly cultivated in Southern Italy and Sicily as far back as the time of Pliny. It was also extensively and profitably grown in Tuscany in the fourteenth and fifteenth centuries, when it was made the subject of many fiscal and protective regulations, but it is now entirely neglected as being imported at much less cost and of better quality from Southern Italy, Spain, Barbary and Greece, and even from Orange in France. Besides its consumption by dyers it is much used for colouring Parmesan cheese and several kinds of Italian paste for soups.

Yellow Woad, Weld, or *Dyer's-weed* (Reseda luteola) is another tinctorial plant indigenous to Europe. The ancient Romans made use of the wild plant only, but in more modern times it has been made to produce a much finer dye by cultivation, which appears in Tuscany to have commenced in the flourishing days of the wool-trade. In the sixteenth century it was very general, and, like saffron, the subject of numerous fiscal and protective ordinances. It still continues to form an article in the agricultural produce of the Cortona district.

Datisca cannabina, an oriental plant, first discovered in Crete in 1594, has, in our own days, and especially by Braconnot in 1816, been shown to produce a very fine and permanent yellow dye, and to be well adapted for growth in the climate of Tuscany. Prof. Targioni refers on this occasion to several other papers in which he has strongly recommended its extended cultivation, especially in the Maremma, but it does not appear how far his recommendations have been practically adopted.

The cultivation of the *Poppy* (Papaver somniferum) dates from the most remote ages. It varies considerably in the colour and size of the flower, in the form of the capsule, in the colour of the seeds, etc.; but all these varieties constitute a single species, which is found abundantly in a wild state in South-eastern Europe, and in the Levant. In many cases it may indeed have escaped from cultivation, but there is every reason to believe that, in a great part of the East Mediterranean region, it is a truly indigenous plant. That the ancient inhabitants of Italy were aware of its narcotic properties is proved by the frequent allusions in the verses of Virgil, Horace, Ovid, and other Roman poets; we learn from Pliny that poppies were cultivated and held in high estimation in his time, and Livy's story of the answer given by Tarquinius Superbus to his son's envoy, by cutting off the heads of the poppies of his garden, would carry us back to a much

earlier date. In Tuscany, at the present time, poppies are extensively sown for medicinal purposes, for the extraction of oil from the seeds for the use of artists, and also when olive oil is scarce to supply its place as a condiment, or for burning, or making soap, &c. Its seeds are also eaten, but the climate is not hot enough to grow it for the extraction of opium.

There is no plant, observes Prof. Targioni, whose history shows so many vicissitudes as that of the *Tobacco* (Nicotiana tabacum). Imported from America soon after the discovery of that continent, it was received into the old world with a species of enthusiasm, and Europeans, Asiatics, and Africans began everywhere to smoke, to chew, and to snuff. It was not long, however, before some of the evils and inconveniences involved in the practice began to appear, and a host of enemies were raised up against it. Theologists pronounced it an invention of Satan which destroyed the efficacy of fasting, a point much disputed in the sixteenth and seventeenth centuries. Councils forbade it to all ecclesiastics under their control. Popes Urban VIII. and Innocent XI. punished the use of it with excommunication; Sultan Amurat IV. with the most cruel kinds of death; Schah Abbas II. with penalties almost as severe; Michael Feodorovitch Tourieff ordered a bastonade for the first offence, cutting off the nose for the second, and the head for the third offence: Prussia and Denmark simply prohibited, and James, of England, wrote against it. Finding, however, that no penalties, however severe, could check the indulgence in a luxury so highly appreciated, sovereigns and their governments soon found it much more advantageous to turn it into a source of revenue, and the cultivation and manufacture of tobacco was gradually subjected almost everywhere to fiscal regulations, restrictions, or monopolies, which still prevail under various forms over the greater part of Europe. In Tuscany its growth was prohibited, except in a few localities where it was allowed under certain restrictions from 1645 till 1789, when the enlightened Grand Duke Peter Leopold declared free the cultivation of tobacco over the whole territory. But the country did not long enjoy this privilege; the intrigues of private speculators prevailed on Ferdinand III. to restrict it to the same localities only which had previously possessed it. The number of these was further reduced in 1826, and the permission totally withdrawn in 1830, and tobacco is now only grown here and there by stealth.

Tobacco was in such general use in America when first dis-

covered, and is there so widely spread, that it is difficult to come to any conclusion as to what precise part of that vast continent is its native country; probably some portion of the Mexican empire. As to the precise dates of its introduction into Europe it has been already stated that it followed closely upon the discovery of America. The Spaniards under Columbus had scarcely landed in Cuba in 1492 when they began to smoke cigars; but they could only fully appreciate its luxuries when, in 1518, Fernando Cortez occupied the island of Tobago, where the plant was found growing in great abundance. Hernandez, the naturalist, was, it is believed, the first who brought it into Spain from Mexico, in 1539. It was introduced into Portugal from Florida by one Flamingo, and into France by Father André Thevet, or by some friend of his, although the more common opinion is that the first seeds received there were those sent about the year 1560 to Queen Catharine of Medicis by Jean Nicot, French ambassador in Portugal. It was probably raised also in England a few years later, but received no notice till its well known introduction by Sir Francis Drake from Virginia in 1586. In Tuscany it was first cultivated under Cosmo dei Medici, who died in 1574, having been originally raised by Bishop Alfonso Tornabuoni from seeds received from his nephew Monsignor Nicolò Tornabuoni, then ambassador at Paris, a great amateur of plants. After him it long bore the name of *Erba Tornabuoni*.

A second but smaller and coarser species, *Nicotiana rustica*, much grown in some parts of South-eastern Europe, is generally said to be a native of Europe and Asia, but this is a mistake; like the N. tabacum it is of American origin. So also is the long white-flowered Shiraz tobacco, recently published under the name of *Nicotiana persica*, but which is a mere variety of the N. longiflora, a species not uncommon in South America, and introduced from thence like the others since Columbus' discovery.

Amongst the Cassias supplying the *Senna* leaves of our Pharmacopœias, the annual species (Cassia obovata), introduced most probably by the Moors during their dominion in Sicily, from Egypt and Arabia, was much cultivated in Italy, especially in Tuscany, during the sixteenth and seventeenth centuries. It is now totally neglected, nor would it be profitable except in the Maremma, where its cultivation is strongly recommended by Prof. Targioni.

The *Castor-oil plant*, or *Palma-Christi* (Ricinus communis), was known to the ancient Hebrews, Egyptians, and Greeks, as

supplying an oil for burning, for which purpose it was much cultivated in Egypt, Arabia, and India, and is so to this day, although the consumption of the oil is now for medicinal rather than for economical purposes. It had never till of late years been cultivated in Italy, but is among the plants recommended for fertilizing the Maremma. Its native country is uncertain. The south of Europe, the coasts of Africa, and East India are generally indicated, but it is certainly not wild in India, and apparently only self-sown in the south of Europe. It may however be really indigenous in Upper Egypt and other districts of Northern Africa.

Of *Fruit-trees* the first in importance for the Italians is the *Olive* (Olea europea). Its great productiveness, longevity, and hardihood against every thing except cold, have extended it over all countries whose climates it will bear, and the origin of its cultivation is lost in the remotest ages of antiquity. From the Holy Scriptures, as well as from the early Greek writers, it appears to have been as general in their days as in ours in Greece, the Holy Land, and North Africa. There has been some discussion as to the period when the Romans first planted it in Italy, Pliny asserting, on the authority of Fenestella, that it was unknown in Italy, Spain, or Africa, in the time of Tarquinius Priscus (in the year of Rome 133). Yet Pliny also states that the Gauls' inroad into Italy at about the same period was for the acquisition of *oil*, grapes, wine, figs, &c. However that may be, it is very certain that the Greeks long preceded the Romans in the cultivation of a number of varieties of olive more productive than the wild plant.

The olive is perhaps the longest lived amongst European trees. The youthful vigour of individuals known to be three or four hundred years old; the great tenacity of life observed in the root or stock, throwing up suckers for instance in olive grounds abandoned and converted into sheep walks for upwards of two centuries, and that in a climate where the branches are frozen down two or three times every century; the numerous traditions of trees supposed to be eight hundred, a thousand, or more years of age; the extraordinary manner in which it will resist every ill-treatment inflicted on it by neglect or wantonness, and which gives rise to the common saying in the South, that you cannot kill an olive-tree—all render it more than probable that those venerable olive-trees so beautifully described by Lamartine as now overshadowing the vale of Gethsemane are the identical trees under which our Saviour underwent his blessed agony.

The olive grows naturally in the East, from Greece and Syria to Persia and Affghanistan, and is without doubt really indigenous to the whole of that region. It is also found wild in great abundance in Southern Italy, but how far it may there be the degenerate offspring of self-sown olives from cultivated sources, is a matter of much dispute among Italian writers, and is here discussed by Prof. Targioni, who concludes with much plausibility that it is a true native.

The *Grape Vine* (Vitis vinifera) must, as already observed by Pliny, be ranked amongst trees on account of the prodigious size it will attain.* This may be more especially observed in the Maremma, where it grows wild in the greatest abundance. It appears to be there, as in other parts of Southern Europe, truly indigenous, extending from thence over the greater part of South-central Asia, for the Vitis indica, on the testimony of the more recent Indian botanists, is by no means specifically distinct. From these wild vines have evidently been raised the innumerable varieties cultivated over the greater part of Europe, Asia, and North Africa, and now carried out to all parts of the globe where the climate will admit of it. But the period when it was first taken into cultivation, is lost in the obscure ages of antiquity. We read in the Genesis that after the flood Noah began to plant the vine; the heathens ascribed its first introduction to their fabulous heroes or divinities, Diodorus Siculus to Osiris, Servius to Saturn, and in the most ancient times Italy was called *Œnotria* from the wine that it produced.

* Among the instances given of enormous vines, we may quote the following: Pliny records a vine in the Porticos of Livia, which overshadowed the whole area used as a promenade, and yielded annually twenty-two amphoras (154 gallons) of wine; the same writer states that he had seen at Populonia a statue of Jupiter, made of the trunk of a vine, and that the columns of the temple of Juno at Metapontus, and the steps of that of Diana of Ephesus, were also of vine wood. In more modern days, Soderini mentions a vine in Portico di Romagna, which extended over 1000 braccia (2000 feet); in the Mém. de l'Académie of Paris for 1737, a muscat vine at Balançon, is described, which at twenty years old produced 4206 bunches of grapes. Giovanni Targioni-Tozzetti, our author's grandfather, in his travels in Tuscany, quotes one in the woods near Montebamboli, the trunk of which two men could not embrace. Santi found a vine at Castellottieri in the Maremma, torn up by a storm in 1787, whose trunk is preserved in the botanic garden at Pisa, with a stem five and a half feet in circumference; and Prof Targioni has himself recorded in the article "Botanical Chronology" in the *Dictionary of Natural History*, printed at Florence by Batelli, two vines near Figlini, in the upper Val d'Arno, with trunks five feet in circumference. The doors of the Cathedral of Ravenna are made of vine wood.

We have already observed that the varieties of the grape are most numerous ; they are also often so strongly marked as to cause many writers to deny the possibility of their having all sprung from the wild vine, but their apparent permanence is in most instances only due to their universal propagation, by cuttings or layers, not by seed. Pliny records eighty kinds, and many others are mentioned by Virgil, Columella, Varro, Macrobius and other writers, which it is now impossible to recognise with certainty amongst the modern varieties, amounting in some collections to above three hundred. Fée, Gallesio, and others have however endeavoured to identify some with more or less plausibility, of which the following are a few instances :—

The *Apiana* of Pliny, or *Apicea* of Cato, is supposed to be a muscat imported from Greece, and it is believed that most of the muscat-flavoured varieties were originally raised in the Archipelago.

The *ambrosiaca* is believed to be another muscat.

The *græcula* is the Corinth stoneless, or currant grape.

The *rhætica* the uva passa of Spoleto, another stoneless and currant grape.

The *venicula*, *sircula*, or *stacula*, is the marzemina of the Venetians.

The *dactylites* is perhaps the uva galletta of modern Italy.

The *trifera*, the uva di tre volte from Chio.

The *picina*, perhaps the uva colore.

The *trebulana*, the Trebbiano, yielding a wine celebrated for its excellence by Tasso.

Others of the Roman names are derived from the countries whence the varieties were imported, such as the *biturgica* from Bordeaux, the *phaia* from Illyria, the *prusina* from Broussa in Anatolia, the *ægios* from Ægia near Corinth, the *alexandrina* from Alexandria in the Troas, the *aminea*, a highly prized variety, from Aminei near Falerno, &c. The eagerness to import into Italy the vines of other countries celebrated for the excellence of their wines has continued to the present day, Prof. Targioni adducing many proofs of its prevalence in the middle ages. It is a pity the Italians do not at the same time introduce the modes of treatment and manipulation, to the deficiencies in which must be mainly attributed the general inferiority of Italian wines to those produced in similar climates in France and Spain.

Great attention has been paid in Tuscany to the cultivation of *dessert fruits*, from the time of the ancient Etruscans, as

attested by numerous early Roman writers, and continued to the present day. The discovery of the cultivation of fruits was attributed by the Romans to Janus, their amelioration and extension to Vertumnus and Pomona, all three of them Etruscan divinities; and the origin of the multiplication of garden varieties is therefore lost in the fabulous ages. Pliny, and other even earlier geoponical writers, give indications of no small number of varieties of pears, apples, cherries, plums, &c., of which it is probable that several have descended to us, but from the mere names handed down without descriptions, it is hopeless to attempt to identify any considerable proportion of them; moreover it is very certain that entirely new varieties are daily introduced, whilst several of the old ones are as undoubtedly lost.

The flourishing times of the Florentine republic were peculiarly favourable to the development of horticulture and agriculture. The unquiet life which the nobles and great families led within the town, exposed as they were to the suspicions of a turbulent populace, induced them to retire for security to their estates, occupying themselves with their improvement, whilst the rich merchants and magistrates spent their holidays in their suburban villas, which they adorned with gardens, importing plants from all countries, and especially introducing new fruits from Greece. A manuscript piece of poetry in the Magliabecchian library, entitled "Verses (Capitolo) on the table of fruits to be offered to a guest," shows the great variety cultivated in the neighbourhood of Florence in the fifteenth century. Three baskets are there represented; the one full of grapes, figs, pears, apples, lemons, &c.; the second with cherries, plums, peaches, apricots, and other stone fruits; the third with almonds, walnuts, oranges, citrons, chesnuts, and several inferior fruits; thus supplying a list of those most generally known at that period. The Grand Dukes of the Medici family paid particular attention to the enrichment of their gardens. Father Agostino del Riccio informs us that Cosmo I. was the first to introduce plantations of dwarf fruit-trees, and that he and his successors annually increased the number of varieties introduced and cultivated for their tables.

The *Pear* (Pyrus communis) and *Apple* (Pyrus malus) are found in their wild state in the mountain woods of all Italy, as well as of the greater part of Europe, and from these indigenous species have been raised the whole of our orchard and garden varieties. Their amelioration by cultivation, and the perpetu-

ation of varieties by grafting, have been celebrated by poets from the time of Ovid, and continue to the present day. Pliny enumerates thirty-nine different pears known to the Romans, several of them being also mentioned by Virgil, Cato, Columella, Juvenal, Macrobius, &c. Fée has endeavoured to identify some of them with modern French varieties, and Gallesio with Italian ones, as in the following examples:—

Plinian Names.	Supposed Corresponding Modern Names.
Amerina serotina . . .	San Tommaso.
Lactea	Perle or Blanquette.
Dolabelliana	Winter Bon-Chrétien.
Falerna succosa	Bergamot.
Favoriana rubra	Large muscat.
Superba parva	Little muscat.
Hordearia	Common muscat.
Mustea	A variety of Bon-Chrétien.
Picena or picentina. . .	Spina.
Pompeiana mammosa.	Campana.
Viridis	Spadona vernina, considered by Gallesio as a most ancient Italian Pear.
Myrapia	Guignoline.
Volema	Another Bon-Chrétien.

In Tuscany, under the Medici, we find, in a manuscript list by Micheli of the fruits served up in the course of the year at the table of the Grand Duke Cosmo III., an enumeration of two hundred and nine different varieties of pears, and another manuscript of that time raises the number to two hundred and thirty-two. Among them grafts of the Dorice pear of Portugal were introduced by the same Grand Duke, at a cost of one hundred golden doubloons, whence it received the name of *Pera cento doppie*, by which it is still known, as well as by that of the *Ducal pear*.

Apples have been believed by some to have been introduced into Italy from Media, and that the Falisci, or inhabitants of Montefiascone, were the first to plant them in rows. But this must apply to some particular variety, not to the species, which we have already stated to be indigenous, but very early cultivated. Pliny enumerates twenty-three varieties, which appear still more difficult to identify with ours than the pears. Among the few that modern authors have recognised, the *Appiani* of the Romans are supposed to be the *Appie* or *Appiole* of modern Italians, the *Appia pyriformis* to be the Appiolona lunga, the *Syriaca ruberrima* to be the red Calvetto, &c. In more modern Tuscany, Micheli, in his above-mentioned manuscript, describes fifty-six sorts under the Medici princes, fifty-two of which are figured by Castello.

The *Quince* (Pyrus cydonia), also a European plant and indigenous in Italy, has given rise to much fewer varieties, although equally in cultivation since the days of the ancient Greeks and Romans. Pliny enumerates five only, including probably the three principal ones of more modern days, described by Matthioli in the sixteenth century, viz.: 1. the common large apple-shaped quince, *melo cotogna* of the Italians, the best and highest flavoured variety, which is the *mala aurea* and the *mala cana lanugine* of Virgil, and *mala cotonea* of Pliny, said by him to have been introduced from Crete in the days of Galen; 2. the pear-shaped quince or *pera cotogna*, called by Dioscorides, Galen, and Pliny *Struthium*, which attains a larger size than any of the others; and 3. the *Milviana* of Pliny, called in Matthioli's days *bastard quince*, probably our wild indigenous variety. The two former, especially the first, may have been originally raised in Palestine, where quinces are common, and were appreciated for their odour in very ancient days, as appears by their mention in the Bible. The golden apples of the garden of the Hesperides have by some been supposed to be quinces, whilst others have with more plausibility referred them to the orange. On the other hand, the nuptial apple prescribed by Solon was evidently the quince and not the lemon. Quinces are at the present day much prized by the peasantry in some parts of the south of Europe for perfuming their stores of linen, independently of their consumption for culinary and confectionery purposes.

The *Medlar* (Mespilus germanica) is common in the woods of Italy and Sicily, and the assertion of Pliny that it did not exist in Italy at the time of Cato must be erroneous. Theophrastus calls it *setaneios*, as does Dioscorides, who also gives it the names of *mespilon* and *epimelida*, and says that it is a native of Italy. It extends over a great part of Europe, and is cultivated in Italy, though more sparingly and less appreciated than in Germany and England. Besides the common one the Italians have a larger variety, and a small one without stones.

We fully concur with Prof. Targioni in his conviction that the wild *Cherry* (Prunus cerasus), common in the woods of Italy and other parts of Europe and Asia, is the mother plant of all the kinds of that fruit now in cultivation, in opposition to many modern botanists, who follow De Candolle in distinguishing four species, Cerasus avium, C. duracina, C. Juliana, and C. caproniana, or even go far beyond him in their multiplication. The species is also evidently indigenous, notwithstanding Pliny's statement

that there were no cherries in Italy, before the victory obtained over Mithridates by Lucullus, who was the first to bring cherries to Rome in the year of Rome 680, and that within one hundred and twenty years after that, they were spread over the empire as far as Britain. This statement gave rise to the tale that cherries came originally from Cerasunte, now Zefano, and were therefore called *cerasus* by the Latins. Lucullus may, however, have first imported the cultivated varieties, which the Romans may not have recognised as identical with the wild cherry. In Greece, cherries were certainly known long before his time, for Diphilus Siphnius, according to Athenæus, mentions them under the government of Lysimachus, one of the dukes of Alexander the Great.

Among the numerous varieties of cherries of modern days, Pliny records only eight, of which the *Juliana*, according to Matthioli and Micheli, is the *acquaiola* of modern Italy, and the *ceciliana*, according to Micheli and Gallesio, is the *visciolona*, believed to have been brought from Arabia into Spain, and thence to Rome. The varieties known in modern Tuscany are chiefly due to the exertions of the Grand Dukes of the Medici family. Micheli, in the catalogue already quoted, enumerates forty-seven sorts, and Castello has figured ninety-three. The double-flowering variety was first introduced into the gardens of Florence, by Giuseppe Benincasa Fiammingo, curator, under Francis I. of Medicis, of the botanic garden then called *delle Stalle*, afterwards *dei Semplici*.

The cherry-tree, especially of the *Bigarreau* variety, grows to a very large size; one is recorded on the shores of the gulf of Nicomedia, of which the circumference of the trunk was four and a half braccie (about nine feet), and Prof. Targioni himself had one cut down in his own *podere*, which was beginning to decay, and had a trunk of eight feet in circumference.

The *Plum* (Prunus domestica) is said by Prof. Targioni, after the generality of systematic botanists, to be indigenous to the woods of Italy, and an expression is quoted of Pliny's to the same effect, "sed pruna sylvestria ubique nasci certum est." But these *pruna sylvestria* must have been the *Sloe* (Prunus spinosa). Our garden plums appear, from the investigations of our Indian botanists, to be varieties produced by long cultivation of the *Prunus insititia*, a species common in the mountains of Asia, from the Caucasus to the Eastern Himalaya, but which we have no authentic evidence of being a native of Europe. In all the more accurate European floras, the P. domestica and insititia are

either omitted, or inserted as doubtful natives or escaped from cultivation; or if in some instances positive native stations are given for the P. insititia, it is generally some variety of the P. spinosa that has been mistaken for it.

Several varieties of the garden plum were introduced by the ancient Romans from the East, as we are informed by Pliny, since the days of Cato, who was born two hundred and thirty-two years before the Christian era. Such was, for instance, the *damson* or *damascene plum*, corrupted into *moscine* by the Italians, which came from Damascus in Syria, and was very early cultivated by the Romans. This was probably the early or summer damson, not known in Tuscany in the time of Micheli; but another similar variety, much cultivated in Liguria, the autumn or winter damson, was brought there from the East by the Genoese returning from the Crusades. Muratori says that the Italian name for the plum, *Susine*, was derived from Susa in Persia, whence it had been introduced into Italy. But the most ancient Latin name was *prunus*, and with the Greeks *coccymela*.

Pliny enumerates eleven varieties of plums, amongst which the *cerina*, mentioned also by Virgil and Ovid, is, according to Fée, the Mirabelle; the *purpurea* is said to be the myrobolan, which however cannot be the case, if the latter be, as is supposed, of American origin; and the *damascena* is the summer damson. In Tuscany a considerable number are enumerated as very common, by Matthioli, in the sixteenth century. At a later period, Father Agostino del Riccio mentions several as new since he was young, and amongst them the myrobolans, said to be natives of North America. Canon Lorenzo Panciatichi gives the names of eighteen sorts, as common in the seventeenth century; and Micheli has fifty-two in the above-quoted manuscript list of fruits for the Grand Ducal table, and seventy-three in another of rare plants cultivated in Tuscany.

The *Almond* (Amygdalus communis) is said to be really indigenous in several of the floras of the Southern and Eastern Mediterranean regions, including Southern Italy and Sicily, but it is extensively cultivated and grows so readily over the whole of South Europe that it may in many instances have spread from cultivation. It is however probably a true native, at least of Crete and Syria. It was well known to the ancients, and is supposed to be the *Sciakedin* of Scripture, sent as a present to Joseph in Egypt, from the land of Canaan. Dioscorides and Galenus speak of its medicinal properties under the name of

Thassia picra, and *amygdaleas*. Pliny doubts whether almonds were known in Cato's time, because he considers that the last-named writer meant walnuts when speaking of *Greek nuts*, but the majority of commentators agree in referring that name to almonds. In modern days the varieties grown in Southern Europe have become very numerous. Micheli describes ninety-four, but his distinctions are very refined, and taken often from accidental forms; the specimens from which he described them are still preserved in Prof. Targioni's collections.

Pliny, as well as Linnæus and most modern botanists, includes amongst plums the *Apricot* (Prunus armeniaca), a tree most extensively cultivated, and which sows itself very readily in cultivated grounds over South-eastern Europe, Western Asia, and East India, but its native country is very uncertain. Targioni says, on the authority of Reyner, an Egyptian traveller, that it is of African origin, but does not give the precise locality, and we have neither seen nor heard of any really wild specimens. The ancients called it *Armeniaca* as having been brought from Armenia into Italy, where it is not indigenous; also *præcoca*, *præcoqua*, and *præcocca;* and under one or other of these names it is mentioned by Dioscorides, by Galen, by Columella (who is the first who speaks of its cultivation), by Pliny, (who, about ten years after Columella, asserts that it had been introduced into Rome thirty years), by Martial, &c. Democritus and Diophanes give it the name of *bericocca*, analogous to the Arabian *berkac* and *berikhach*, the probable origin of the Italian names of *bacocca*, *albicocca*, and even, according to Cesalpin, *baracocca;* and, lastly, Paolo Egineta, according to Matthioli, has spoken of these fruits under the name of *doracia*. Although some of these names, even in modern times, have been occasionally misapplied to a variety of peach, yet they all properly designate the apricot, and show that that fruit was known in very remote times. Having never been much appreciated, except for its odour, there was not in former days any great propagation of varieties of it. Micheli, however, under the Medicis, enumerates thirteen among the fruits cultivated for the table of Cosmo III.

The *Peach* (Amygdalus persica) is, according to the common opinion, of Persian origin. Diodorus Siculus says that it was carried from Persia into Egypt during the time that Cambyses ruled over that country. It is supposed to have been transported from thence into Greece, and, after a lapse of time, into Italy, where it only began to be known about twenty years before the

birth of Pliny, that is, about seven years before the Christian era, and it appears that Columella was the first to treat of its cultivation there. According to Nicander it was brought to Greece by the agency of Perseus from Cepheia, a locality affirmed by some to have been in Persia, by others in Æthiopia or in Chaldæa, The peach is also spoken of by Theophrastus, Dioscorides, and other Greek writers. We must therefore conclude that this fruit was well known in the East very long before its introduction into Italy. Many ancient writers, including Athenæus and Pliny, and some more recent ones, as, for instance, Marcellus Virgilius, in his Commentaries on Dioscorides, confound the peach with the *persea*, a fruit the identity of which is uncertain, some supposing it to be a Cordia, others a Balanites. Macrobius again confounds the peach with the *persicum* of Suevius, which is the walnut, and with that of Cloatius, which is the citron ; all fruits resembling the peach in nothing but in the name, a clear proof that it cannot have been in their days by any means a common fruit. How few were the varieties of peach known to the ancients appears from Dioscorides who only names two, from Pliny who enumerates five, and Palladius four only, giving at the same time accurate information on the mode of cultivating them.

With regard to the introduction of the peach into Tuscany, it appears that several varieties were known already in the days of the Republic, but that the greater number were, as in the case of other fruits, due to the exertions of the Medici sovereigns. Matthioli, in the sixteenth century, enumerates a considerable number as then in the possession of Tuscan cultivators ; Micheli, under Cosmo III., has forty-three, and in the drawings of Castello are represented about thirty. That called *Poppe di Venere* (the *Late Admirable* of our Horticultural Catalogue) is supposed to be one of the most ancient in Italy, and is mentioned by Agostino del Riccio and Micheli, under the name of *Pesche Lucchesi*.

Although all the evidence collected by Prof. Targioni tends to show that the peach was originally brought from Persia, and he therefore does not consider it necessary to proceed further with the investigation, yet no traveller whom we can rely upon has ever found it growing really wild there or anywhere else. We are therefore left in doubt whether its native stations remain yet to be discovered, or whether its original wild type must be sought for in some species of Amygdalus known to be indigenous in the East. It has been more than once suggested that this original

parent is no other than the common almond, a conjecture founded perhaps on the similarity in the leaves and in the perforations of the endocarp, but rejected as absurd by those who attach even generic importance to the succulence of the indehiscent pericarp. This point cannot be decided with any degree of plausibility until we shall have a better knowledge of the different forms which the fruits of wild Amygdali may assume under various circumstances; but we may mention, as circumstances in some degree favouring the supposition that some kind of almond is the parent of the peach, the ancient tradition referred to by Targioni (with the remark that it is contradicted by Pliny, and by common sense) that the peach in Persia was poisonous, and became innocuous when transported to Egypt, and the case quoted of a supposed hybrid raised in 1831 in Sig. Giuseppe Bartolucci's garden, at Colle di Val d' Else, from a peach-stone which produced fruits at first exactly like almonds, but which, as they ripened, assumed the appearance and succulence of peaches, whilst the kernel remained sweet and oily, like those of almonds. We might also refer to some bad varieties of peach with very little juice to their pericarps, although we do not know of any which assume the flattened form of our almond, a distinctive character which appears to us to be of considerable importance. The foliage and flowers of the two trees show little or no specific difference.

The *Jujube* (Zizyphus vulgaris), a common tree in the Levant, is also now found wild in various parts of South Italy and Sicily, but Italian botanists are much divided in opinion as to whether it is really indigenous, or become naturalised only after cultivation. Prof. Targioni, after Bertoloni, adopts the former opinion, and considers that the erroneous belief in its exotic origin arises from a mistaken assertion of Pliny's that jujubes did not exist in Italy prior to their importation from Syria by the Consul Sextus Papinius towards the end of the age of Augustus. Among the ancients, Hippocrates considered the fruits as medicinal; Galen depreciated them both as medicine and as food. Modern cultivation has produced a few varieties, and there is a considerable consumption of them in some parts of the south of Europe either as an inferior raw fruit, or for the manufacture of the pectoral lozenges known as *pâte de jujube;* but they are little appreciated in modern Italy, and were still less so in earlier times.

We learn from Pliny and Galen that the *Pistachio-nut* (Pistacia vera) is a native of Syria, and from the former writer

that it was first introduced into Italy towards the end of the reign of Tiberius (who died A.D. 37) by Lucius Vitellius, afterwards Emperor, and that at about the same time it was carried into Spain by Flavius Pompeius, a Roman knight, companion in arms to Vitellius. Well known to the ancients, it is supposed by some to be the *batnim* of Scripture, and generally believed to be the *Indian terebinth* indicated by Theophrastus as a native of Bactria. It is mentioned by Nicander and Dioscorides under the names of *pistacia*, *bistacia*, and *phistacia*. In Sicily it is of very ancient cultivation, and there called *fustucha* or *fastuca*. It is now extensively planted in some parts of the Southern and Eastern Mediterranean regions, and might be so in Tuscany, where a few trees, scattered here and there, ripen their fruits well.

Notwithstanding the above-quoted indications of the eastern origin of the pistachio, it remains to be ascertained where it is truly indigenous, and what is its real wild typical form. Botanists give as its native habitat Syria, Persia, East India, Arabia, and Barbary, but in most of those countries it is certainly only known in a cultivated state. We have seen no wild specimens in our largest herbaria, and find no reliable indications of any native stations in local floras. Targioni mentions a variety *narbonensis* as having become wild in great abundance in the neighbourhood of Montpellier, but during several years' herborisations in that country we never saw any species at all allied to it except the common small-fruited Pistacia terebinthus. The authority of Gasparrini is also quoted for a hybrid between P. vera and P. terebinthus, which, according to Sestini and Boccone, has multiplied itself in various parts of Sicily. If that be the case it would lead to a strong presumption that notwithstanding the great difference in the size and shape of the fruit, the P. vera and the P. terebinthus, and consequently also the P. mutica of the Crimea and Asia Minor, are mere varieties of one botanical species common in the Mediterranean region from Spain to the Black Sea and Asia Minor.

The *Walnut* (Juglans regia) is a native of the mountains of Asia, from the Caucasus almost to China. It is supposed to be the *Enoz* of the Bible. The Greeks had it from Asia; and Nicander, Theophrastus, and others mention it under the names of *carya*, *carya persica*, and *carya basilike* (or royal nut). Pliny informs us that it was introduced into Italy from Persia, an introduction which must have been of early date, for, although it be doubtful whether it is alluded to by Cato, it certainly is mentioned

by Varro, who was born in the year 116 B.C. The Romans called it *nux persica*, *nux regia*, *nux Eubœa*, *Jovis glans*, *Djiuglans*, *Juglans*, &c. They recognised several varieties, and amongst them the soft-shelled walnut still cultivated, which several commentators have confounded with the peach. In modern days the cultivation has much extended, and the number of varieties considerably increased. Jean Bauhin noticed six only. Micheli, under Cosmo III. of Medicis, describes thirty-seven, of which the original specimens are still preserved; some of these, however, are scarcely sufficiently distinct from each other.

The *Nut* (Corylus avellana) is said by Pliny to derive the name of *Avellana* from Abellina in Asia, supposed to be the valley of Damascus, its native country. He adds that it had been brought into Asia and Greece from the Pontus, whence it was also called *nux pontica*. Theophrastus calls these nuts by the name of *Heracleotic nuts*, a name derived from Heraclea, now Ponderachi, on the Asiatic shores of the Black Sea. Hippocrates gives them the name of *carya thusia*. Dioscorides says they were also known by the name of *leptocarya*, or small nuts. Other ancient writers confound the nut with the chesnut and the walnut. But all the above indications of importation from the East relate only to particular varieties, for the species, as is well known, is common enough in Italy as in the rest of Europe and a great part of Asia in a really wild indigenous state.

The *Chesnut* (Castanea vesca), celebrated amongst European trees for the enormous size it will attain, is already mentioned in the Bible. Theophrastus and Athenæus give it the name of Eubœan nut, from the island of Eubœa, now Negroponte, where it was peculiarly abundant. Pliny says that chesnuts first came from Sardi, the ancient capital of Lydia, and not far from the modern Smyrna. Galen, who was a Lydian, confirms that origin, and says that they were also called *balani leuceni*, from Leucene, situated on Mount Ida. Other writers, ancient and modern, give various Eastern countries as the native stations of the chesnut, and even Giovanni Targioni-Tozzetti, our author's grandfather, believed them to be introduced only into Italy; but not only have the extensive chesnut woods in the Apuan Alps and other parts of the Apennines, mentioned by Bertoloni, every appearance of being really indigenous, but further evidence that woods of this tree existed in Tuscany from very remote times, may be found in the number of places which have derived their names from them, such as Castagna, Castagnaia, Castagneta, &c.

We may indeed safely give as the native country of the wild chesnut, the south of Europe from Spain to the Caucasus. It does not extend to East India.

The larger fruited varieties which we import for eating, and which are generally distinguished in France and Italy under the name of *marrons* or *marrone*, were probably those which were first introduced from the East by the Romans. Pliny enumerates eight different varieties. Micheli has forty-nine, most of which, however, from his own specimens are, as in the case of the other fruits mentioned in his manuscript, founded upon distinctions too slight to be really available for their separation.

The *Fig* (Ficus carica) is a native of the south of Europe, including Greece and Italy, of Northern Africa and of Western Asia. The wild type known in Italy by the name of *Caprifico*, has indeed been distinguished by Gasparrini not only as a species but as a separate genus, but we cannot but concur with Prof. Targioni in the opinion, confirmed by positive assertion on the part of practical pomologists both ancient and modern, that our garden figs are of the same species and have repeatedly been raised from seeds of the wild caprifico.

We find mention of the cultivation of figs, and of the high estimation in which these fruits were held, in the very earliest writings, in the Holy Scriptures, as in Homer's Iliad. Those of Athens were celebrated for their exquisite flavour. Xerxes was tempted by them to undertake the conquest of Attica, in the same way that Cato urged the Romans to that of Carthage, a fig in his hand. The number of varieties, however, produced in ancient Italy were not numerous. Six only were known in the time of Cato. Others were afterwards introduced from Negropont and Scio, according to Pliny, who gives a catalogue of thirty sorts. Their names are mostly taken from the countries whence they had been brought, such as the African, the Rhodiote, the Alexandrine, the Saguntine, &c., or from some great personage who had introduced or patronised them, such as the Pompeian from the great Pompey, the Livian from Livia, the wife of Augustus, &c. Macrobius, two centuries after Pliny, enumerates twenty-five, but generally under names different from those of Pliny. Gallesio, in his Pomona Italiana, has referred a few of those ancient names to modern Italian varieties, as for instance:—

The *Albicerata* to the white fig of the Italians.

The *Tiburtina* to the gentile.

The *Africana* to the brogiotto nero, which some believe to be also the *Emonio* of Athenæus.

The *Liviana* to the pissalutto.

The *Lydia* to the *fico trojano*, very abundant at Naples.

The *Carica* to the *dottato*, common in the Levant, and originally from Cauni in Caria, from whence so many were sent to Greece and called on that account *cauni figs* and *Carica*.

In Tuscany, the varieties of figs cultivated are numerous, many of them due to the days of the Republic. Fra Agostino del Riccio, in his already-quoted manuscripts, gives a selection of thirty-one sorts cultivated in Tuscany in the middle of the sixteenth century, adding that there were many others which he had not included, not having seen them himself. Those of the Medici gardens represented in the drawings of Castello comprise eighteen early and thirty-two late sorts, in all fifty; and Micheli in his manuscripts carries the number up to ninety-five.

Notwithstanding the softness of the wood, and the readiness with which the branches are killed down, the trunk of the fig-tree is remarkable for its longevity. Pliny tells us of an aged wild fig in the forum, which was in a dying state in his days, but which they dared not cut down on account of the tradition that under its shade the wolf had suckled Romulus and Remus; that another wild fig in the forum had arisen over the chasm into which Curtius had precipitated himself, and was preserved in memory of that feat; and that a third similar tree, which dated from before the time of Saturn, was cut down in the year of Rome 260 to erect the building where the vestals were placed. These tales may indeed not be true in their details, but the trees they relate to must have been known to have been several centuries old.

Prof. Targioni alludes to the practice of caprification, or of the supposed artificial fecundation of cultivated figs by the caprifico or wild fig, and quotes several writers, ancient and modern, who describe the operation. He does not appear to be aware of the able memoir of Gasparrini, translated in the 3rd Vol. of this Journal, giving a detailed history of the origin and extent of the practice, and satisfactorily proving its inutility as well by practical experiment as by theoretical argument, and showing at the same time how we must account for the perseverance with which the inhabitants of certain localities have kept it up from the earliest ages on record to the present day.

Mulberries, of Asiatic origin, were well known to the ancients, who cultivated them for their fruit, either for eating or as medicinal.

They are mentioned by Theophrastus and Dioscorides, and also by Athenæus and Galen, and, among the Romans, Virgil, Horace, Pliny, Columella, and Palladius speak of them as common and well known. All these writers are supposed to refer to the *Black Mulberry* only (Morus nigra), now but little valued and seldom to be met with in Italy, although at the first introduction of silkworms it is supposed to have been exclusively made use of in raising them. It is even said to be indigenous to the Italian sea coasts as well as to Persia. We have, however, been unable to find any wild specimens in any of our herbaria, and modern botanists meet with it only in a cultivated state in East India, as in Europe. The only native station given with any confidence in modern floras is the chain of the Caucasus and some adjoining mountains.

The *White Mulberry* (Morus alba), now spread over all parts of Europe and Asia where the silkworm is raised, and almost everywhere the only species cultivated for that purpose, is a native of Northern India and China. It is said to have been unknown to the ancients. A passage of Ovid, quoted by Prof. Targioni, alludes indeed to the white fruits of the mulberry, but this is considered by the late Prof. Moretti, who devoted a great part of his scientific life to the mulberry, to be a mere poetical license. Another of Berytius, also quoted by Targioni, states that the Mulberry bears white fruits when grafted on the white poplar, but in our days this can only provoke a smile at its evident absurdity. Yet a variety of the white mulberry, said to be delicious eating, but unknown in Europe, is now abundant in Beloochistan, Affghanistan, and probably in Persia, and apparently of very ancient cultivation there. It is therefore by no means impossible that some knowledge of it may have reached such of the ancient writers as may have been in the East, or had communication with it.

However that may be, it appears certain that the introduction of the white mulberry into Italy is of a date long posterior to that of the silkworm. These valuable insects were imported into Sicily, in 1148, by King Ruggieri, after he had in his wars with Manuel Comnenus conquered Thebes, Athens, and Corinth. It is commonly said that the Lucchese learnt the art of raising them from the Sicilians, and introduced it into Florence, when, in 1315, they took refuge there from the sack of their own city. Pagnini has however proved that silk was produced in Florence in and previous to the year 1225, and from the histories and

chronicles of Malespini, Villani, and Ammirato, it would appear that there were silk factories there before 1266. All this time the leaves used were those of the black mulberry, as clearly appears from a passage of Pier Crescenzio, who wrote about the year 1280. Several statutes of the fourteenth century relate to the plantation of the mulberry without any thing to indicate which species they allude to, whilst all writers of the sixteenth clearly distinguish the white silkworm mulberry from the black-fruited. It would appear then that in the course of the fifteenth century, the former had gradually, but entirely, superseded the latter. It is indeed commonly supposed that the cuttings were first brought into Tuscany from the Levant, by Francesco Buonvicini, in 1434, and that already in the following year 1435, a law dated 7th of April encouraging its cultivation related to this new species.

The *Red Mulberry* (Morus rubra), a North American species, is to be found here and there in Italian gardens; it is of recent introduction and does not appear ever to have been planted for silkworms. The one so called which Father Agostino del Riccio says that Francis I. of Medicis had extensively sown in the Boboli Gardens, and in the islands of the Cascine at Florence, is supposed to have been a red-fruited variety of Morus alba. Several other varieties of this species have also, in modern days, been brought from Eastern Asia or raised in European plantations, and sent forth as new and most valuable species under the names of Morus *latifolia*, *macrophylla* or *Morettiana*, *multicaulis*, *sinensis*, *philippinensis*, *japonica*, &c.

A long chapter is devoted by Prof. Targioni to the *Agrumi*, that is, to the oranges, lemons, citrons, and others belonging to the genus *Citrus* of the family of *Aurantiaceæ*. They have long been objects of great interest to the Italians and the subject of many valuable works, being extensively cultivated for profit wherever the climate will admit of it, and for ornament or curiosity in public or private gardens in the more northern parts of the Peninsula, where they still require protection in winter. They are all of Eastern origin, and mostly introduced into Europe in comparatively modern days, but of very ancient and general cultivation in Asia. The varieties known are very numerous and difficult to reduce accurately to their species, on the limits of which botanists are much divided in opinion. Those who have bestowed the most pains in the investigation of Indian botany and in whose judgment we should place the most confidence, have

come to the conclusion that the citron, the orange, the lemon, the lime, and their numerous varieties now in circulation, are all derived from one botanical species, *Citrus medica*, indigenous to, and still found wild in, the mountains of East India. Others, it is true, tell us that the citron, the orange, and the lime are to be found as distinct types in different valleys, even in the wild states; but these observations do not appear to have been made with that accuracy and critical caution which would be necessary in the case of trees so long and so generally cultivated.

With regard to the *Shaddock* (Citrus decumana), it is almost universally admitted as a distinct species, although at present only known in the state of cultivation. It must be admitted also that it appears to present more constant characters than most of the others in the pubescence of its young shoots and in the size of its flowers, besides the differences in the fruit; but Dr. Buchanan Hamilton, who is of great authority on such matters, and some others, are inclined to believe that this also may have originated in the Citrus medica. This point requires much farther investigation, and a better knowledge of the floras of South-eastern Asia, before we can come to any plausible conclusion.

Prof. Targioni gives copious details of the introduction into Tuscany and other parts of Italy, of many of the varieties there cultivated, for which we must refer to the work itself. It may suffice, for our present purpose, to extract a few notes on some of the more important races or species according as they may be considered. Among them all the earliest known was the *citron*. It is not, however, that fruit nor any other citrus, according to Prof. Targioni, that we read of in the Bible under the name of *Hadar* as is asserted by some, nor yet is it anywhere alluded to by Homer. The first mention we have of it is in a comedy of Antiphanes quoted by Athenæus, in which it is said that the seeds of the citron had then recently been sent by the King of Persia as a present to the Greeks. Theophrastus is the first who describes it; he tells us that the fruit was not eaten, but solely prized for its odour and as a means of keeping the moths off woollen clothing. Among the Romans we find an allusion to the citron in Virgil's Georgics, but it does not appear to have been then yet introduced into Italy, for Columella, long after Virgil's death, made no mention of it, and Pliny, in his paraphrase as it were of the passage of Theophrastus, adds that it had been endeavoured to transport plants of the citron which he calls

malus medica or *malus assyria* into Italy, but without effect, as it would only grow in Media and Persia. Palladius, however, in the fifth century, gives many details of the modes of propagating and cultivating this tree, which he says he had carried on with success on his Sardinian and Neapolitan possessions. It was therefore, in all probability, in the course of the third or fourth centuries that the citron was introduced and established in Italy.

The mass of evidence collected by Prof. Targioni seems to show that *oranges* were first brought from India into Arabia in the ninth century, that they were unknown in Europe, or at any rate in Italy in the eleventh, but were shortly afterwards carried westwards by the Moors. They were in cultivation at Seville towards the end of the twelfth century, and at Palermo in the thirteenth, and probably also in Italy, for it is said that St. Dominic planted an orange for the convent of S. Sabina in Rome, in the year 1200. In the course of the same thirteenth century, the crusaders found citrons, oranges, and lemons very abundant in Palestine; and, in the following fourteenth, both oranges and lemons became common in several parts of Italy. It appears, however, that the original importation of lemons from India into Arabia and Syria occurred about a century later than that of oranges.

The shaddock is believed to have followed a different route in its migration into Europe. Most abundantly cultivated in, and possibly indigenous to, the south-eastern extremity of the Asiatic continent, it is said to have been carried from thence to the West Indies, and from Jamaica and Barbadoes to England early in the eighteenth century. It was, however, certainly previously known in Italy, for it is described and figured by Ferrari, in 1646, as having been sent from Genoa to the garden of Carlo Cadenas, near Naples. There is no record of its first introduction to Genoa, whether from the East or the West.

Innumerable varieties of citrons are cultivated at Florence, where they have ever been great favourites as objects of curiosity as much as for their flowers and fruits. Among them is a very singular one called *bizzarria*, raised by hybridising and cross-grafting, in which the same tree produces oranges, lemons, and citrons, often on the same branch, and sometimes combined into one fruit, a curious case analogous to that of the well-known hybrid by grafting between the Cytisus laburnum and C. purpureus.

The two last chapters of Prof. Targioni's work are devoted to ornamental trees, shrubs, and herbs of exotic origin, which have,

at various times been introduced into Italy, and are now become more or less common in Tuscany. The list comprises nearly one hundred, but among them there are many which have only been carried there from English gardens in the latter half of the eighteenth century, whose history is of little interest, or may be found in any of our Garden Catalogues, and which are therefore here omitted. It will be sufficient for our present purpose to extract some notes relative to the more important, especially to those which have been so long cultivated in Italy as to have become almost naturalised.

Among them one of the earliest known is the *Oriental Plane-tree* (Platanus orientalis), a native of Western Asia, highly prized by the Romans, as we learn from Pliny, for its grateful shade, and celebrated by their most distinguished poets and orators. The same naturalist informs us that it was brought from Asia across the Ionian sea to plant round the sepulchre of Diomedes, in the island named after him, now Pelagosa, one of the Tremiti isles off the Adriatic coast of the kingdom of Naples. Plane-trees were subsequently imported into Sicily, and from thence by Dionysius the First to a garden of his at Reggio in Calabria, whence they spread over the rest of Italy. They were, according to Pliny, brought to the neighbourhood of Rome by a freedman of Marcellus Exerminus in the time of the Emperor Claudius, and have ever since been extensively planted in Italy, where they attain a great age and size.* It is therefore a matter of no small surprise that so many ages should have elapsed before this tree found its way into other European states. It was not known in France until Buffon planted it in the Jardin du Roi in the middle of the eighteenth century; but Clusius had already carried it to Vienna as early as 1576, and in England it had been imported somewhat earlier still by Sir Nicholas Bacon, father of the Chancellor, who planted it in his garden at Verulam in 1548.

The *American Plane* (Platanus occidentalis), now become very common in Italy, and generally preferred to the Oriental, was only introduced there long after Tradescant had brought it to England from Virginia about the year 1640.

Another tree, no less celebrated for the beauty of its shade, so valuable a quality in Italian climates, is the Diospyros lotus, like

* A plane-tree is mentioned as still existing at Arcoli in 1813, which, from authentic records, was then at least five centuries old.

the plane-tree a native of Asia Minor, but of very early introduction into Italy. It was confounded by ancient Greek and Roman writers with the Zizyphus lotus, or with the Celtis australis, under the name of *tree lotus*. But those lofty and ancient trees recorded by Pliny, one on the square of the temple of Lucian, another near the temple of Vulcan, and some others near the house of Lucius Crassus, as celebrated for their spreading branches and thick shade, could have been no other than the Diospyros lotus, and not the Celtis as supposed by some commentators. From having been for ages extensively planted in Italy, and from its readiness to sow itself there, the Diospyros has now become naturalised in some localities in such abundance as to induce its insertion in several local floras as indigenous. The American *Persimmon* (Diospyros virginiana) with larger fruits, now also to be met with in Italy, was only introduced there from England about the year 1793.

Professor Targioni's notes on the history and geography of the *Cedar of Lebanon* (Pinus cedrus) are now superseded by the discussions which have of late occupied some of our most distinguished botanists and horticulturists, and which it would be out of place to enter into on the present occasion. We will merely mention as a curious fact, that a tree, said to have been known to the ancients as of great value, and growing in parts of Western Asia and North Africa, with which the Romans had much intercourse, should never have been planted in Italy till it was carried from England to the Botanic garden at Pisa in the year 1787; that is, above a century after Miller had introduced it into the Apothecaries' Garden at Chelsea, and fifty-three years after Bernard de Jussieu deposited one with so much ceremony in the Jardin du Roi at Paris. The original Pisa tree is now in great beauty, and the species is becoming very generally planted in Tuscany.

The *Cypress* (Cupressus sempervirens), generally admitted to be a native of Crete, Syria, and Asia Minor, has for ages been common in Tuscany, where it attains great size and beauty, although individuals of extraordinary dimensions were more frequent in past times in the avenues of seignorial villas than they are at present. The wood was much celebrated by the ancients for its durability. Pliny, as well as modern writers, quotes several instances of its remaining sound for many centuries. We learn from Thucydides that this incorruptibility caused it to be used by the Athenians for the coffins of distinguished

personages, and that the tree was then already considered as an emblem of sorrow and death, whence the ancient custom of planting it in burial-grounds. Recognised as exotic by Pliny, it had however already been introduced into Italy before the time of Cato, who was born in the year 232 B.C. The two remarkable varieties now known, with upright and with spreading branches, were equally distinguished by Pliny.

The *Horse Chesnut* (Æsculus hippocastanum), a native of the mountains of Central Asia, was unknown to the ancients. It was first introduced into Constantinople in 1540, whence Qualcebeno, physician to the German Embassy, sent a branch with leaves and fruit to Matthioli in 1557, and it was probably raised at Florence at about that time, for in 1569 Jean Bauhin saw a tree of it about the size of a mulberry in the garden of the Grand Duke Cosmo I. Clusius planted one at Vienna in 1576, and Bachelier introduced it into France from Constantinople in 1615. Two from the same source were planted soon after 1596 at the entrance of the botanic garden at Pisa and attained an immense size. One was destroyed in a storm in 1806, the other still remains.

The *Cherry Laurel*, or common laurel of our gardens (Prunus laurocerasus), a native of the Asiatic coast of the Black Sea, is frequent in Italian gardens of comparatively mild climate, for, like many evergreens, it seems more impatient of severe frost there than with us. Unknown to the ancients, it was first brought from Trebizonde to Constantinople about the year 1540, and thence sent by the Austrian Ambassador, David Ugnard, to Clusius at Vienna in the year 1576. From the individuals there raised, it has since spread over the rest of Europe. In Tuscany it was within a very few years of that time procured by Cesalpin, then Professor at Pisa, from the garden of Genoa.

This cherry laurel must not be confounded with the real classical laurel, our bay-tree (Laurus nobilis), which is indigenous to Italy and other parts of Southern Europe.

The *Weeping Willow* (Salix babylonica), a native of Western Asia, is generally supposed to be the willow of the Euphrates, upon which, as we read in the Bible (Ps. cxxxvii.), the Jewish singers hung their musical instruments. It is not however mentioned by any ancient Greek or Roman writers, nor yet by the Italians of the middle ages, and, common as it now is all over Europe, it does not appear in any catalogue of Italian gardens until that compiled by Micheli, in 1715, of the botanical gardens of Florence. It is however clearly represented

by Benvenuto Cellini on a basin in the Royal collection at Florence, executed in the sixteenth century, but whence that artist derived his models is unknown.

The *Pride of India* (Melia azedarach), now common in Southern Europe, is an East Indian tree, first brought into Italy from the Levant in the sixteenth century, as it is supposed, by the Franciscan friars. It was then chiefly planted about convents, the perforated kernels being used for making paternoster chaplets. It is first mentioned in Tuscan catalogues in 1635.

The *Julibrissin* (Albizzia julibrissin), a favourite ornamental tree in Southern Europe, as well as in Northern Africa, the Levant, and East India, is a native of the mountains of Central Asia, from the Caucasus to China. It was first brought into Italy from Constantinople in 1749, by the Cavaliere Filippo Albizzi, to whom Durazzini dedicated the genus he founded upon it, which has been adopted by botanists since the last revision of the Mimosas of Linnæus.

The *Lilac* (Syringa vulgaris) is supposed to be a Persian shrub, introduced into Europe about the year 1597. It was, however, certainly in the botanical garden at Padua before 1577, for Matthioli, who died in that year, tells us he had received a fresh specimen in flower from Cortusa, then director of the Padua garden, during the time that he was finishing his commentary on Dioscorides. The small-leaved *Persian lilac* (Syringa persica) is of still more recent introduction, and said to come from the same country. We are not aware of any really wild specimens of either species having been deposited in our herbaria, or having been actually met with by modern travellers, but we should be inclined to believe that the common lilac is but a luxuriant variety of the Persian produced by cultivation, and the more so as some intermediate forms known by the names of *lilas varin*, &c., have been raised from seeds of the latter. The Transylvanian Syringa Josikæa, now occasionally to be met with in gardens, is a perfectly distinct scentless species.

Hibiscus syriacus, the *Althæa frutex* of our gardens, of Syrian origin, as its name implies, has become naturalised in the hedges of some parts of Northern Italy. The precise date of its introduction is unknown, but it certainly had already been for some years in Florentine gardens previous to 1596, the period assigned for its introduction into England.

Amongst the North American trees, more or less generally established in Italy, Professor Targioni enters into some details

respecting the following species: the *Acacia* or *Locust-tree* (Robinia pseudacacia), the *Tulip-tree* (Liriodendron tulipiferum), the *Magnolia* (Magnolia grandiflora), the *Black Walnut* (Juglans nigra), the *Negundo Ash* (Negundo fraxinifolia), the *Deciduous Cypress* (Taxodium distichum), the *Gleditschia triacanthos*, *Bignonia Catalpa*, *Pyrus coronaria*, and *Juniperus virginiana*. They all succeed remarkably well in Italian climates, to which they had been introduced at various periods during the course of the eighteenth century.

The *Casse* or *Cassis* of French perfumers (Acacia farnesiana), of South American origin, is much cultivated in Southern Europe for ornament, and in some localities for the extraction of the essence from its flowers. It is so generally spread over the hotter regions of both hemispheres, that it has been recorded as indigenous to many parts of the Old World, as well as of America; and some of the most careful observers among modern East Indian botanists, seeing it so abundant in parts of the peninsula at considerable distances from the haunts of Europeans, have felt convinced that it was a real denizen. Yet there are many circumstances which induce us to come to the conclusion that it has only become naturalised after cultivation. It has ever found much favour with the Arabs and other Mahometan races, and sows itself with remarkable facility, and it is most frequently found in India around villages. On the other hand it is an undoubted native of the West Indies and of South America, and was never known in the Mediterranean region until introduced from thence. We are told that the first seeds were raised at Rome in 1611, in the garden of Cardinal Odoardo Farnese, having been imported direct from St. Domingo, and that from the issue of these plants it subsequently spread over Southern Europe. It is not stated whether it may not also have been at an early period brought over from South America by the Spaniards.

Schinus molle, commonly but improperly called the *pepper-tree*, was certainly first introduced by the Spaniards from Chili or Peru before the year 1570, when a fruiting branch was sent to Clusius from Spain. It is now very common in Southern Italy, but less so in Tuscany, where it is often injured by the winter frosts.

Among Eastern trees introduced into Italy through France or England in the course of last century, the *Broussonetia papyrifera*, *Ailanthus glandulosa*, *Sterculia platanifolia*, and *Ginkgo biloba*

(commonly called in this country *Salisburia adiantifolia*), are not unfrequently to be met with in Southern Europe; and the *Camellia*, first cultivated in Italy in the Caserta garden, near Naples, in 1760, is now a great favourite in Tuscany, where, in sheltered situations, it will attain great size and beauty in the open air.

The common *Roses* of Italian gardens are none of them indigenous, but the native country and precise form of the wild type of most of them is involved in much uncertainty. The most anciently and generally cultivated one, the common *Cabbage Rose* (Rosa centifolia), is that which is the most generally alluded to by poets and other writers, from the days of Virgil and Pliny, to our own times. It is also much cultivated in Southern Europe for the use of perfumers. It is said to have been brought from Persia into Greece and Italy in very remote times. The *Provence Rose* (Rosa gallica) is found wild in France and Germany, but whether indigenous or not, is uncertain. It is believed to have been referred to by Pliny, under the names of Rosa *prænestina*, *carthaginensis*, and *milesia*. The *Damask Rose* (R. damascena), and the common *White Rose* (R. alba), are also believed to have been among those enumerated by Pliny, and to be natives of Southern Europe, though not of Italy. The *Rosa moschata* appears to have been introduced from the Levant in the sixteenth century. The climbing roses now forming so beautiful a feature in Italian promenades and gardens (Rosa indica, R. Banksiana, and R. multiflora), are of very recent importation from French and English gardens, as none of them appear to have been known in Italy before the commencement of the present century.

From the latter end of the sixteenth century, there arose in various parts of Italy, especially at Florence, a great rage for the cultivation of innumerable varieties of *Anemones* (A. coronaria), *Ranunculus* (R. asiaticus), *Hyacinths* (H. orientalis), *Tulips* (T. Gesneriana), and *Narcissus* (N. poeticus). The wild types of most of them, perhaps of all except the ranunculus, are to be found in Italy and Greece as well as in the Levant, but the production and cultivation of the garden varieties of all of them commenced in the East. They were all introduced into Western Europe from Constantinople at various periods between the years 1550 and 1600, together with the *Crown Imperial* (Fritillaria imperialis), said to be a native of Persia, the *Muscari moschatum* from the shores of the Bosphorus, the *Lilium chalcedonicum* from the Levant, which had all been then for some time in Constanti-

nopolitan gardens. Of all the above-mentioned flowers, the anemone and narcissus alone can be recognised under those names in the writings of the ancient Romans, for the various hyacinths of Virgil and Pliny were evidently very different from the plant we give that name to.

The *Tuberose* (Polyanthes tuberosa) is generally said to be a native of East India, Java, and Ceylon, but it is there everywhere cultivated, as it is also in almost every South American garden, and its origin is very uncertain. Judging from the localities of its nearest allies in the genera Agave and Beschorneria, we should consider some part of the Mexican empire as its most probable fatherland, and that it was carried to Europe and to Asia very early after the conquest of that territory. It was known to Clusius at Vienna, in 1594. Rumphius tells us that it was introduced into Amboyna, in 1694, from Batavia, where it was very common, meaning probably in gardens there. He also tells us that the Italian ones were the most esteemed in India. Yet in Italy tuberoses were still very scarce in the beginning of the eighteenth century.

The *Jessamine* (Jasminum officinale), a native of East India, now as it were naturalised in some parts of Italy, is believed to have passed from East India into Arabia, thence into Egypt, and lastly, in the middle ages, into Italy. It appears to have been unknown to the ancient Greeks and Romans, for the references made to it by some commentators are evidently erroneous. The first mention of it in Italy is in a poem by Rucellai, written about 1524, where it is spoken of as a new flower unknown to the ancients. Matthioli, about 1559, also tells us it had not been long imported into Italy, although it was then already common in every garden. The *Jasminum grandiflorum*, a mere variety of the common one and very abundant in India in the wild state, was imported from Spain in the sixteenth century, and the *Mugherino* or *Sambak* (Jasminum Sambak), direct from Goa in the seventeenth.

Carnations (Dianthus caryophyllus) are first recorded as having been cultivated by King René of Anjou and Provence, at Aix, in the thirteenth century, but whether there raised or imported from more southern climates does not appear. The wild type is common in Southern Europe, but with flowers of such very reduced dimensions that we must presume a period of several ages requisite to produce those splendid varieties now in cultivation.

In the latter half of the sixteenth or in the early years of the

seventeenth century, a considerable number of South American plants were introduced into Italian gardens either direct from Brazil, Mexico, or Peru, or through the Spaniards. Among those which speedily became generally cultivated, we may mention the *Sunflower* (Helianthus annuus), from Mexico or Peru; the *Nasturtium* (Tropæolum majus), the *Marvel of Peru* (Mirabilis Jalapa), and the *Quamoclit* (Ipomœa Quamoclit), from Peru; and the *Passion-flower* (Passiflora cærulea), from Brazil. *Dahlias*, from Mexico, and *Fuchsias*, from Peru, were not imported till the close of the eighteenth century. The East Indian *Chrysanthemums*, the Japanese *Hydrangeas*, and the Cape *Pelargoniums*, all well-established in Italian gardens, were brought there from England or France at the close of the last or the commencement of the present century.

Having thus passed in review the long list of plants generally cultivated in Tuscany, whose history is investigated by Professor Targioni-Tozzetti, it remains for us to express our regret that our limited space has prevented our entering into numerous interesting details, for which we must refer to the work itself, as well as for the authorities upon which they are founded, which are carefully given on every occasion. They show a vast amount of patient research, and supply a body of facts and references which it will be necessary for every one to consult who interests himself in this branch of botanical history and geography. We must also express our obligations to the several botanists recently returned from long and active explorations of Northern and Western India, whose important observations and enlightened views have materially assisted us in the investigation of the wild types of cultivated species of real or supposed Asiatic origin.

By some transposition of words at page 137 of this Vol. we are made to say, that the sugar-cane was brought from the West Indies in the time of the Saracens. It was introduced both to the West Indies and to Southern Europe from Asia.