memorial, even as far as Southern Germany. In the Taurus it thrives, at the present day, with great luxuriance, at a height of 4,800 feet.

The Fig had its place as a fruit tree in the garden of Alcinous, and has been cultivated longest in Syria and Palestine. Like the bread-fruit tree of the South Sea Islands, it gave to the inhabitants of the countries just mentioned their earliest nutriment, and thus formed their tree of life. The Fig, according to Magnos, first led the way to civilized life. According to one Grecian tradition, Dionysius Sycetes was the discoverer of the fig tree; according to another, Demeter brought the first fig tree to the nurseryman Phytalos; a third tradition states that the fig tree grew up from the thunderbolt of Jupiter, who persecuted the Titan Syceas, whom his mother Gæa hid in her lap. The most celebrated fig tree (*ἱερὰ συκῆ*) stood upon the sacred road from Athens to Eleusis. The fig tree everywhere occurs abundantly run wild, but it has probably been only found really wild by Kotschy, near Urfa, and on the banks of the northern Euphrates. The finest figs come from Sicyon and Attica, and the sycophants, even in early antiquity, were held in no special esteem. The fig tree, at least the cultivated kind, was brought to Italy from Syria or Greece, and, at the time of Pliny, was not widely distributed there, but became naturalized in Gallia and Spain.

Among the different kinds of figs mentioned by Pliny, Athenæus, Columella, and Macrobius, we may mention the Moorish, the African, the Herculanean, the Winter Fig, and the black Telainan Fig.

The fig tree is mentioned among the fruit trees of Charlemagne, although it could only be raised in forcing-houses (*per aricia servatoria*). Cortez carried the fig tree to Mexico in the year 1560. The fig is a dicœcious plant, the sexes occurring on different trees. The female plant, which produces the fruit, is alone cultivated—the male growing wild. The assistance of an insect, the fig-wasp, (*Cynips psenes*, L.), is necessary to effect the fertilization, and to accelerate the growth and the ripening of the fruit. Various species have been recognized by different botanists among the cultivated figs, although all, probably, have their native land in the regions already mentioned. There are two species of figs which furnish edible food in Southern Persia, (*Ficus persica*, Boiss.), a shrub which grows wild about Shiraz, with not very palatable fruit, and *Ficus johannis*, Boiss., which is distributed in all the mountains of Southern Persia. The fruit of the latter species, the size of a hazel-nut, is pleasant-tasted and quite nutritious. Of the numerous tropical species we will only mention *Ficus aspera*, Forst., *Ficus granatum*, Forst., and *Ficus indica*, L., and a fourth variety unnamed, on the South Sea Islands, especially on Tanna, with edible fruit.

The St. John's Bread tree, or Carob tree (*Ceratonia siliqua*, L.), distributed over the Mediterranean and its islands, is of less importance. Its fleshy, sweet fruit, containing chiefly gluten and sugar, furnishes not only an habitual nutriment to man, but also serves as fodder for domestic animals. The ancient Hebrews were acquainted with the fruit of St. John's Bread, and manufactured a sweet pulp from it, and used the remainder as food for cattle. The "husks" shared with swine by the prodigal son of the Scripture parable were of this tree. The

Greeks called the fruit *κεραωνια*, the Romans *siliqua*. They brought this as an article of trade from Africa, as is shown by the pods found in the magazines of Pompei. This useful tree was first introduced into Italy by the Arabians, where it still bears the Saracen name, *carroba* or *carruba*. At the present day we have three varieties of it.

Cassia fistula, L., has a similar fruit. It is indigenous to the East Indies, but is now cultivated in Egypt and the West Indies. The same is the case with *Cynometra cauliflora*, L., of the Moluccas, and several Mimosas, characterized by a sweet, sticky pulp, as *Mimosa inga*, L. (*Inga vera*, Willd.), in tropical America, *Inga sapida*, H. B., *Inga burgoni*, DC., *Inga insignis*, H. B.; also, *Prosopsis spicigera*, Lin., *Prosopsis horrida*, Kunth, *Prosopsis flexuosa*, DC., and *Prosopsis siliquastrum*, DC.

The elongated, oval-shaped fruit of *Opuntia vulgaris*, Mill. (*Cactus opuntia*, L.), and the *Opuntia ficus indica*, Haw., belong among the sweetish, mealy, nutritious substances. They are known, sometimes, under the name of Indian figs, and when carefully freed from their outer skin, furnish a refreshing, pulpy food in the warmer countries. The former, indigenous to Mexico and Texas, has been cultivated for a considerable period in Europe, especially in Spain, Algiers, Palestine, Syria, and Italy, and even occurs in these regions run wild, as a hedge plant. The same is the case, also, with the second variety, which is indigenous to South America, and has found a new home in Sicily and Italy. Of the other *Cactaceæ* which have mucilagenous and acid fruits, we may mention *Mamillaria simplex*, Haw., *Melocactus communis*, Link and Otto, *Cactus triangularis*, L., the so-called strawberry of Jamaica; also, *Cactus paniculatus*, Lam., *Cactus pitajaya*, DC., *Cactus divaricatus*, DC. and the fig-like fruit of *Cactus peruvianus*, L. *Pereskia aculeata*, Mill., found on the Antilles, has sweetish acid, pleasant-tasted berries.

The Saguarro (*Cereus giganteus*) of the regions adjoining upon the Gila of the United States, and south of it, (incorrectly called *Pitahaya* by some American travelers, which is *C. thurberi*,) is of much importance in the domestic economy of the Indian tribes of the country. The fruit is eaten fresh, the sap is boiled to a syrup, called "Miel de Saguarro," and a flour is prepared from the cleaned and dried seeds, which have some resemblance in appearance and taste to poppy seeds, and are contained in the fruit in great quantities. This flour is made partly into bread, and partly into a chocolate-like drink, called atole.

The population of Sonora is not unfrequently obliged to subsist entirely on the fruit of this and other species of cactus.*

We may next mention the fruit of some of the *Cucurbitaceæ*, as the Pumpkin (*Cucurbita pepo*, L.), the Cucumber (*Cucumis sativus*, L.), the Melon (*Cucumis melo*, L.), the Water melon (*Cucumis citrullus*, Ser.), the Bottle gourd or Calabash (*Lagenaria vulgaris*, Ser.), &c. These, although generally insipid in taste, furnish a pleasant food after proper preparation, and are used, on account of their copious juice, instead of refreshing drinks. All these plants belong originally

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* Froebel, Seven Years' Travel, &c., 1857, page 498.

to the East and to Central Asia, and have been used from a very early period as food for man and animals, although serving this purpose only to a limited extent, on account of the small amount of nutritious substance contained in them. The precise home of none of them is known with accuracy; that of the pumpkin may perhaps be Southern Asia; of the melon, the Caucasus and the southern point of the Caspian sea. The fact that the native plant of no one species is known growing wild, and the great number of varieties which most of them exhibit, rendering their systematic determination at the present time difficult, indicate a remote culture among the inhabitants of Western as well as of Southern Asia. The Jews cultivated pumpkins and melons under their kings; and it was the water melon with which they became acquainted in their Egyptian captivity, and the want of which they bewailed so loudly in the wilderness. The Greeks and Romans were acquainted with the pumpkin and cucumber, and watermelons came with the Arabians to the west. Charlemagne ordered *cucumeres*, *pepones*, *cucurbitas*, *coloquintidas*, (the three latter, forms of *Cucurbita pepo*, L.), to be planted on his estates.

After the discovery of America, most of these plants found their way to the New World, where they were distributed quickly in every direction, and subsequently reached Australia, so that even the New Zealanders are acquainted with pumpkins and melons.

We will next proceed to consider the different species of Leeks, which, although used in small quantity, belong to the nutritious plants. They are characterized by the possession of starch and sugar, with the addition of an ethereal oil. The ancient Greeks had a great fancy for these plants, raised them in their gardens, and used them as a wholesome article of food. Even in our time, this taste for the use of garlic, onions, &c. has been kept up, and an antidote found in them for various diseases.

The Garlic (*Allium sativum*, L., *σκοροδον*, Theoph., Diosc.), was planted in that division of the garden called *σκοροδωνες*. The dealers in garlic (*σκοροδοπώλης*) sold it to poor people. At the present day, the poorer class of Greeks use garlic in enormous quantities. The avaricious gave their slaves garlic to eat. A broth of garlic and salt (*σκοροδαλμη*) belonged among the dishes of the ancient Greeks. In Egypt, the priest of Isis could eat neither garlic nor onions. Garlic was avoided in Rome on account of its disagreeable odor. "*Allium olet.*"

In all probability, garlic grows wild on the Kirghese steppes of Songary, and at a very early period was transported thence over the whole of Asia (excepting Japan), North Africa, and Europe.

It is impossible to tell whether the Chive (*Schnittlauch*), (*Allium scorodoprassum*, L.), found on the islands of the Grecian Archipelago, and perhaps growing wild, is a variety of the garlic produced by cultivation, or a distinct species.

The Onion (*Allium cepa*, L., *κρόμμυον*, Theoph.), was cultivated by the Greeks in particular portions of their gardens (*χρομμυωνες*, *cepianae*), and its sale was attended to by the so-called *Ceparius*. Theophrastes distinguished several species of the onion, according to the place from which it was brought into the trade, as *Cepa sardia*, *cnidia*, *samothracia*, *sethamia*, and *ascalonia*. The Island of Cimolus was endowed with the surname of Onion island (*κρομμυοῦσα*), because onions of remarkable excellence were cultivated upon it. Herodotus states that, in the building of a pyramid in Egypt, the garlic, onions, and horse radish used by the workmen cost 1,600 talents,* or 1,647,600 dollars.

At the present day, the onion is no longer found growing wild. It was probably indigenous from Western Central Asia (Palestine) to India, whence it extended to China, Cochin China, Japan, Europe, and North Africa. Soon after the discovery of America it reached there also. The Shalot, or *Allium ascalonicum*, so called from the city of Ascalon, in Palestine, seems to have scarcely a less extensive distribution than the onion. It is not cultivated in Greece at the present day, although it is frequently found in gardens in Istria and Dalmatia. This plant is probably only a variety of the common onion.

The Leek (*Allium porrum*, Lin., *πρασον*, Theoph.), was also cultivated by the Greeks in particular gardens, and was considered as an important article of food. It is certainly a Mediterranean plant, and is probably only a variety of *Allium ampeloprasum*, L., found frequently growing wild in Algiers. It has been cultivated in Europe from the earliest times, and was known not only to the Greeks, but to the Hebrews and Egyptians, being held sacred among the latter. Pliny first called it *Porrum*. At the present day it has run wild in many portions of Southern Europe, in vine hills and abandoned places of cultivation.

Having thus considered the specially saccharine plants, we take up those furnishing starch and sugar, in connection with vegetable acids. Among these belong the sweetish-sour fruits, in which sometimes the sugar and sometimes the acid predominates, and, by the addition of volatile oils, frequently acquire the most varied flavor. There is an extraordinary number of plants belonging to this division. Every part of the world has its peculiar fruits, which, however, soon become the common property of the whole cultivated earth. The hand of man has worked wonders in the improvement of flavor and yield of these plants. I have space for a rapid glance only over this rich field in a brief mention of the most important kinds.

We will take into consideration, first, the fruits of Asia, as most widely distributed, then those of Europe, and, finally, those of Africa and America.

Among the fruits belonging originally to Asia, are the mango, the rose apple, the orange, the citron, the peach, the plum, the apricot, the cherry, &c.

The Mango tree, (*Mangifera indica*, Lin.), a stout, strong tree, found native throughout the whole of India, bears a very excellent fruit, similar to that of the walnut, and the size of the fist, or even larger. It is of so excellent a taste that the inhabitants of Ormez neglect all other fruits as soon as this appears in the market. Be-

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*X. Landerer on the importance of the different kinds of Allium to the ancient Greeks.—*Bester. Botan., Wochenblatt*, 1855, No. 22.

neath the skin, which resembles that of the apple and pear, there is a soft, reddish-yellow, juicy, sweetish-sour flesh, which incloses a large hard kernel. The pared fruit is laid into water, in order to remove the turpentine smell and taste attached to it. The kernel, when roasted, tastes like chestnuts.

The mango is an anciently cultivated plant in the Indian Archipelago, as is shown partly from the many different names, and partly by the numerous varieties which have resulted from cultivation. It is still found growing wild in Ceylon. Its distribution has extended over India, China, Cochin China, and the islands of the Pacific ocean. It does not seem to have reached the west. At the present day, it is cultivated in Arabia and tropical America, and furnishes the best fruit in Brazil.

The Rose apple (*Jambosa vulgaris*, DC., *Eugenia jambosa*, L.), is a tolerably high tree, with globular rose-colored fruit as large as a walnut. The flesh has the flavor of roses and consistence of apples, inclosing in a wide cavity a kernel the size of a rifle ball. The tree grows wild, at the present day, upon the peninsula of Malacca and in Penang. It has been distributed throughout Malabar, Ceylon, Arabia, and Egypt to the island of Mauritius, to Sierra Leone and St. Thomas. Opinions are divided as to whether the rose apples, cultivated in Barbadoes and Brazil, belong to this species or to *Jambosa macrophylla*, DC.

The *Jambosa malaccensis*, Wight and Arn., (*Eugenia malaccensis*, Spyl.), is similar to the preceding, with more pear-shaped fruit. Its culture has been carried on for a long period in the Indian Archipelago, where it is indigenous, and has reached to the islands of the Pacific ocean and China, and, at a later period, to the peninsula of India and Ceylon even to the Mauritius.

Jambosa makapa, Mer. and Lens., furnishes a pear-shaped, edible fruit. It is cultivated on the Mauritius, and exhibits several varieties. This is also the case with *Jambolifera pedunculata*, Lour., in Southern China, the black, sweet fruit of which is an article of trade. Here, also, we may mention the fruits of *Eugenia djouat*, Perrot., of the Philippine Islands.

I may next add a number of sweetish-sour fruits, which are more or less distributed in Tropical Asia, but of which we know less than of the others. Those are: *Sapindus fruticosus*, Roxb., of the Moluccas, and *Nephelium litchi*, Camb., of China and Cochin China, cultivated also in Bengal and the West Indies. The fruit of these plants is considered the best that can be brought to the table of the Emperor of China. *Nephelium longanum*, Camb., of Southern China, *Nephelium lappaceum*, Linn., on the Malacca and Sunda Islands, as also *Nephelium rimosum*, W. and Arn., belong in the same category. We may also mention the acid fruits of *Schleichera trujuga*, W., *Schmiedelia serrata*, D. C., *Willughbeia edulis*, Roxb., *Grewia asiatica*, L., and *Grewia sapida*, Roxb., in the East Indies. The East Indian wood apple (*Johnia salacioides*, Roxb.), from Eastern Bengal, is less known than the large and pleasant-tasting Molucca apple, (*Xanthochymus dulcis*, Roxb.), and *Xanthochymus pictorius*, Roxb.

In addition to the preceding, edible fruits are furnished by *Emblica officinalis*, Gärtn. (*Phyllanthus emblica*, Lin.), the Mirobolane, *Cieca disticha*, L., and several species of *Flacorttia*, such as *Fl. cataphræta*, Willd , *Fl. sepiaria*, Roxb., *Fl. sapida*, Roxb., *Fl. inermis*, Roxb.; also, *Carisca carandus*, L., *Niebuhria oblongifolia*, DC., *Crataeva nurvala*, Hamilt., *Crataeva religiosa*, Forster, *Crataeva magna*, DC., and *Cicca racemosa*, Lour., the former from the East Indies, the two latter from Cochin China and China; as also *Arduina edulis*, Spgl., in Arabia.

The small pomegranate-like fruit of *Sandoricum indicum*, Cav., of the Moluccas, the mucilaginous and sub-acid fruit of *Dillenia serrata* Thunb., and *D. elliptica*, Thunb., of *Erioglossum edule*, Blume, and the excellent stone-fruit of *Lansium domesticum*, Jack., all from the Indian Archipelago, are better and more pleasant-tasted than those above mentioned.

The fruit of *Nyalelia racemosa*, Dennstedt, of Malabar, the size of the wine grape, and the fruit of *Durio zibethinus*, L., the size of a man's head, in the East Indies, and the fruit of *Mimusops ballota*, Gärt. (*Achras ballota*, Aub.), and *Lacuma mammosum*, Gärt. (*Achras mammosa*, Lin.), which have been brought from the East Indies to Tropical America, are worthy of mention; as also the fruit of *Morinda citrifolia*, L., *Maba major*, Forst., and *Solanum aviculare*, Forst., species belonging to India and the Islands of the Pacific ocean.

The Indian tamarind, (*Tamarindus indica*, L.), furnishes a pod-fruit in Southern Asia and Middle Africa, which is used for food and manufactured into cooling drinks. This large tree is planted before the houses in Senegal, Egypt, Arabia, and India. The acid pulp is used in India in the preparation of a sugar beer. *Tamarindus occidentalis*, DC., seems to be only a variety of the same plant.

We have now to mention some fruits of more general importance than those already referred to.

The citrons are characterized by the predominance of an acid pulp, the berry of which has a thick, even rind, and is divided into many compartments. There are two varieties, those are the genuine Citron or cedrate, (*Citrus medica*, L.), and the Lemon, (*Citrus medica b, limonium*, Lin.), together with a bastard form of citron or orange, the Lime, (*Citrus medica c, limetta*, Kostel.)

It is native in Tropical Asia, and has been distributed thence in all directions from the very earliest times. The Jews, who at the present day use it on festive occasions, became acquainted with it during their captivity in Babylon. It was unknown in Greece before the time of Alexander the Great. Theophrastus first makes mention of it, and states that its fruit is not edible. After the time of Pliny, it was brought to Italy, but was not cultivated there before the time of Palladius. The custom of having this fruit among clothes in wardrobes and chests, has continued to the present day. The Hesperian apple, according to the mythical statements of the Greeks, was a love gift of Gaea to the bride Hera, which she brought out at the time of her marriage to Zeus. Hercules stole this golden fruit from the garden of Hesperides, where it was cultivated only for the table of the gods, and brought it to Greece.

Royle has met with the citron growing wild at the present day in

the forests of Northern India, although in Media and Persia, it is only found as a cultivated plant. It is now distributed throughout the whole of Southern Europe, as also in America, (Brazil,) and in Congo it is domesticated.

The lemon, which is considered by many as a distinct species, is distinguished from the preceding only by the more oval and pointed fruit, of a pale yellow color and very acid pulp. The lemon has been found growing wild in the forests of Northern India by Royle. The Bengal name *Nibu*, and the Hindostan *Nimu* and *Limu*, the Arabian *Limun*, and the Italian *Limone*, seem to be derived from its Sanscrit name, *Nimbuka*. Its cultivation in the West was introduced by the Arabians. In the tenth century it was transplanted by this nation from the gardens of Oman to Palestine and Egypt, and the Crusades paved its way to Italy. At the present time it is distributed over the whole of Asia and other parts of the world.

The bitter and sweet Oranges (*Citrus aurantium a, amara*, Kostel,) *Citrus bigaradia*, Duham. (*Citrus vulgaris*, Risso), and *Citrus aurantium b, dulcis*, Kostel, (*Citrus aurantium*, Risso), have a history going back quite as far as the plant just mentioned. There is much probability for the opinion that both of these varieties, which differ only in taste, belong to a single species—the bitter orange of older, the sweet of more recent origin. The former does not occur wild, but only cultivated in India, its native country, and the latter is met with wild in Southern China, Cochin China, Sillet, and Birmah. It is not difficult to refer its name to a Sanscrit origin, *Nagrunga*. The bitter orange was distributed throughout the world, as the earlier or primitive form, at a much earlier period than the sweet orange. In the tenth century the Arabians brought it to Palestine and Egypt, and into the countries of the Mediterranean. The Arabian physicians prescribed its juice in various diseases. All chroniclers from the tenth to the fifteenth century make mention only of the bitter orange. The sweet orange has been cultivated from the earliest period in China, Cochin China, and Japan. It seems first to have passed from Hither India to Further India, and then extended its range by degrees through Asia into the West. The Arabians and the trading Genoese and Venetians seem to have contributed most to its distribution. It is probable that about the same time, the beginning of the sixteenth century, the orange was met with by the Portuguese on their journeys around the Cape to China, and planted in their own country, which was particularly favorable to its growth. At the present day it is distributed throughout the warm zone of the whole earth, and was brought to America immediately after the discovery by Columbus. Besides these two species of Citron, there are, especially in China, Japan, India, and the Indian Archipelago, still other species, such as *Citrus japonica*, Thunb., *Citrus javanica*, Blume, *Citrus decumana*, Willd., (the Shaddock), as well as a great number of varieties and hybrids, of which the *Citrus sinensis*, Pers., the Bergamot (*Citrus aurantium* e *bergamia*, Kostel), *Citrus nobilis*, Lour., and the Limette already mentioned (*Citrus limetta*, Risso.) In *Citrus chilensis*, Molina, America has also its representative of this highly useful tree.

The true Jujube tree (*Ziziphus jujuba*, Lam.), which is indigenous

to the East Indies, and the jujube bush (*Ziziphus vulgaris*, Lam.), probably belonging to India, are of less importance than the fruits just mentioned. They have a sweetish stone-fruit, similar to that of the olive. The *Ziziphus vulgaris* furnishes the well-known mucilaginous and very sweet red jujube berries, which are eaten as fruit in Southern Europe, (Spain, France, and Italy.) This plant was first brought, shortly before the time of Pliny, from Syria to Italy, but was not indigenous there, having been received from India, by way of Palmyra.

Next to the fruits of Asia, we may mention the fruits of certain Date plums, especially of the black-wooded date plum (*Diospyros melanoxylon*, Roxb.), the ebony date plum (*Diospyros ebenaster*, Retz.), and also *Diospyros kaka*, Linn., jr. The fruit of the former, which is indigenous to the East Indies, is the size of a small apple; it is yellow and juicy, but astringent and unpalatable. The second species resembles a large apple, with a mealy, acid flesh, (*meel-appels.*) The beautiful cherry-red fruit of the Japanese, *D. kaki*, has a honey-like and very pleasant taste; that of *D. glutinifera*, on the other hand, is astringent. In the southern parts of the United States, the persimmon (*Diospyros virginiana*) is a well-known fruit, exceedingly astringent when unripe, but becoming very palatable towards the beginning of winter.

Here also belong the black jujube tree (*Cordia myxa*, L.) and the Sebestan (*Cordia sebestina*, L.), both with mucilagenous fruit; the former native in the Indies, but at the present time cultivated in Egypt; the latter belongs to the West Indies. The mangosteen (*Garcinia mangostana*, L.) is limited to some of the eastern islands of the Indian Archipelago, and is not cultivated to any advantage in the West Indies. It furnishes a fruit the size of an apple, which has the taste of strawberries and grapes, and is considered the best fruit in India.

Besides this species, *Garcinia celebica*, L., *G. gambogia*, Desp., (*Cambogia gutta*, L.), *G. morella*, Desp., *G. kydia*, Roxb., *G. purpurea*, Roxb., and *G. paniculata*, Roxb., furnish edible fruit.

The Peach (*Amygdalus persica*, L., *Persica vulgaris*, Auct.) is one of the most agreeable sweetish-acid fruits of Asia. It grows best in China and Japan. Its cultivation in China goes back to the furthest antiquity. The peach is the *Tao* mentioned in the books of Confucius in the tenth century before Christ. It is no longer found wild, although forms run wild are met with wherever the cultivation of the peach has been carried on for any time, especially in the Caucasian country, in Terek, Persia, Southern Himalaya, China, &c. The native land is therefore, probably, to the northeast rather than the northwest of India, whence it extended first to Cashmere and to Bucharia, and gradually to Persia, Asia Minor, &c. The absence of a Sanscrit name for this important fruit shows that its transplantation from its native land took place before the migration of the Sanscrits.

At the time of Aristotle there were no juicy peaches raised in Greece as in Egypt, even upon the Island of Rhodes (to which point this tree probably first came from Asia Minor), and where it produced at that time only flowers and single-scattered fruit. Hence, it is probable, that what might be considered as different species of peach, are only varieties which all arose in the course of cultivation. Among these belong the fruits with naked and hairy skin, (*psilocarpæ* and *dasycarpæ*,) with

adherent and free-stone, (cling-stones and free-stones,) with white, yellow, and variegated flesh, and finally with elongated, round, and compressed forms. The peach at the present day is distributed everywhere, not only in the Old but in the New World.

The species of plums (*Prunus*), with pleasant sweetish-sour fruit, are very numerous. The most esteemed is the apricot, (*Prunus armeniaca*, L., *Armeniaca vulgaris*, L.) Alexander the Great brought the apricot from Armenia to Greece and Epirus, from which countries it reached Italy. For this reason it bears the names in this country, *μῆλα ἀρμενιακὰ*, *mala epirotica s. armeniaca*, *præcotia*. There are different varieties of this; some with small fruit (*A. cerasinæ* and *A. prunariæ*) and some with large fruit (*A. armeniacariæ*, *amygdalinæ*, *persicariæ*), of which the latter far exceed the former in excellence. At present, the apricot occurs wild in the regions of the Caucasus, particularly on its southern slope. In Armenia, where it was probably first cultivated, it is found run wild. It is distributed throughout the entire east, even to Cashmere and Northern India, and over Northern Africa and Southern Europe. Its cultivation is most extensively prosecuted about Damascus. A marmalade is prepared from the fruit by boiling, which is spread upon cloth, dried, and thus brought into the trade, (*Kamerdin.*)

The most generally distributed, and longest known species of plum, is the common plum (*Prunus domestica*, L.), coming originally from the Caucasus, and the mountains of Talysch. It is cultivated extensively in Syria, where it has passed into numerous varieties. It reached Italy about the time of Cato, and Pliny speaks of "*ingens turba prunorum*," by which he designated the numerous varieties. At the present day the different varieties may be referred to the following kinds: 1. The little cherry-plum, (*Prunus cerasina.*) 2. The genuine plum (*Prunus prunaria*), of a little larger size; here belong the damsons. 3. The spilling or egg-plum (*Prunus armeniaca*), which includes the mirabellas and reine claude, or green-gage plums. 4. The almond plum, (*Prunus amygdalina.*) And, finally, 5. The *Prunus persicaria.* Although the plum has been distributed over the whole of Europe, and extended far to the north, it is little known in Eastern Asia, and it is doubtful whether it occurs in Northern China.

The bullace plum (*Prunus insititia*, L.), which is closely allied to the common plum, is of slight importance. It is found wild on the Caucasus. It is difficult to decide whether it occurs wild, or only run wild in Greece and Southern Europe. This tree has certainly not been derived from the sloe bush.

Here also belongs the Bear plum (*Prunus ursina*, Kotschy), a thorny, tree-like shrub, which grows wild everywhere on Anti-Lebanon, the sweet, pleasant fruit of which, the size of our damson, is eaten not only by the bears, but serves as food to the inhabitants of the mountain regions.

Among the plums, in the most extended sense, may be mentioned the cultivated cherry (*Prunus cerasus*, L.), and the wild black cherry (*Prunus avium*, L.) The former, growing wild in the mountain forests of Southern Caucasus, was brought to Italy from Cerasunt, in Pontus, after the conquest of Mithridates, (74 before Christ.) The latter is

indigenous both in the Caucasus and Central Europe, especially in Greece. Both species have passed into a great number of varieties in the course of time, which differ most decidedly in shape, size, consistency of the pulp, in juiciness, and in taste, and may be referred to at least five easily distinguishable forms.

A small, entirely prostrate shrub, *Prunus* (*Cerasus*) *prostrata*, Labill., growing wild on the Alpine summits of Lebanon, has small cherries, which, according to Kotschy, are sought after and eaten in the entire East.

The Quince (*Cydonia vulgaris*, Pers.), with its large, yellowish, and downy pear or apple-like fruit, is still native in Asia. It was known in Greece in the earliest times, and its fruit dedicated to the Goddess of Love. Melus, a priest of Aphrodite, hung himself, from grief at the death of Adonis, to a quince tree, into which he was then transformed. The Quince is probably native to Northern India, (Hindukusch,) and was carried by way of Ispahan and Syria to Greece. Even Theophrastes knew a variety, *Στρουθίον*, the quince pear, and at a later period the quince apple, with more rounded fruit, (*χυδωνέα*, Dios,) was recognized. It was brought to Italy from Kydron, a city of the Island of Crete. (*A Cydone, Cretæ oppido, unde primum advecta*, Pliny.)

At the present day the Quince is found over all the Mediterranean regions, from Imeretea, where it occurs with fruit the size of a child's head. It has been transported from the Crimea to Spain and Algiers, where it quickly runs wild. It is cultivated in Kashmir and Northern India, though in Northern China it is replaced by another species, (*Cydonia sinensis*, Thouin.)

The Medlar (*Mespilus germanica*, L.), although distributed throughout Germany and over almost the whole of Europe, is not indigenous, but only runs wild here and there. This small, rather shrubby tree, with its top shaped apple-like fruit, is native to Northern Persia. Th. Kotschy found it on the southern side of the Albors, at a height of 6,000 feet, as a shrub 4 to 5 feet high, and covering whole mountain slopes. It was brought to Greece at an early period. Theophrastus was acquainted with three varieties. At the time of Cato it was unknown in Italy, and was first brought there from Macedonia, after the Macedonian war. The fact that the Romans met with the medlar tree in Gaul, only proves that it came there earlier in the way of trade. At the present time we distinguish apple medlars with short and pear medlars with long-stemmed fruit.

The white and black mulberry trees (*Morus alba* and *Morus nigra*, L.) possess a not unpalatable sweetish acid berry, and seem to have been brought at a very early period from their native land, North Persia, the Caucasus, Asia Minor, &c., to Greece. Theophrastes was acquainted with the mulberry tree: his *συκάμινος* is *Morus nigra*, Lin. It is only at a late period that this useful tree, which had been brought by Lucius Vitellus from Syria to Rome, was successfully reared in Italy, after all earlier experiments, according to Pliny, had been conducted in vain. At the time of Palladius, and even at that of Athaneus, the mulberry tree had multiplied but little in that country. The introduction of silk-culture under Justinian gave a new importance to this little-esteemed tree, and from that time to the present its propagation in

Western and Northen Europe, Denmark, and Sweden has taken place very rapidly. The mulberry tree has attained its greatest extent and variety of form in Persia, Northern India, and China. In the earlier periods of the silk-culture, the silk-worms were fed in Italy with the leaves of *Morus nigra*, and not until the sixteenth century did *Morus alba* take its place. At the present day both species have run into a considerable number of varieties.

We have now to mention a fruit which is cultivated more on account of the application of its sweet juice in the manufacture of drinks than as an article of food. I refer to the wine-grape. There is no uncertainty as to the native land of the grape, (*Vitis vinifera*, L.) The southern part of the Caucasian mountain chain, Armenia, and the South Caspian region exhibit it at the present day in its original form, as a tall, climbing plant, twining about the trees with small and but slightly-palatable berries. The numerous varieties which have been developed from this plant in the course of cultivation show a long-continued influence of most varied circumstances. The history of the cultivation of this plant would be one of the richest, and, perhaps, most interesting possible, since its manifold phases have certainly depended, in part, at least, upon the nature and mode of life of the plant itself. Its distribution towards the west has far surpassed that towards the east, (North India and China.) Its introduction into all parts of the world has contributed only to the multiplication of its peculiarities. At the present day wine is pressed from the wild grape on the banks of the Orontes.

The other species which occur in Africa, America, &c., and are likewise made use of, I cannot refer to here for want of space; nevertheless, the group indigenous to North America (*Vitis labrusca*, Lin.) increases in its extent of cultivation from year to year, and has already produced a small number of varieties. Even Africa has its grape, in a still undescribed species, which Russegger and Kotschy found on the Nile. It forms a low bush, the berries of which are excellent, and are collected and eaten by the negroes as raisins.

The Pomegranate tree (*Punica granatum*, L.) is to be considered rather as a plant peculiar to southwestern Asia than to the Mediterranean zone of Africa. It has been announced as growing wild in the mountains of the Atlas, and there is no doubt that Southern Europe has received it from Africa. Nevertheless, the fact of its very ancient cultivation in Palestine, Persia, Northern India, and its occurrence, not only run wild, but truly wild in Asia Minor, Armenia, Southern Caucasus, and Northern Persia, show that its early native land was Western Asia. From this it has been distributed, eastward, to Northern China, but principally in a western and southern direction. According to Athenæus, Aphrodite first planted the Pomegranate on Cyprus and in Greece. It experienced its first cultivation in the district of Sidai. The fancy of the Greeks derived this fruit from the blood of Dionysius Zagreus. It was known in Egypt, and cultivated even in the time of Moses. It was raised in the gardens about Carthage. Darius Hystaspes* eats of its fruit. Homer makes mention

* Herodot. iv, 143.

of it as existing in the gardens of Alcinous. The Romans brought it from Carthage to Italy, for which reason they called its fruits *Mala punica*. Pliny enumerates nine different kinds of Pomegranate; which at the present day have multipled very greatly. When wild, it is a shrubby plant with not very large fruit, but by cultivation it attains the size of a tree, the fruit of which is as large as an apple, and possesses a pleasant acid pulp. Three principal varieties are distinguished, namely, with sour, sub-acid, and sweet fruit. The inclination it has to run wild seems peculiar to this plant; for even at the borders of its distribution to the north, as, for example, in Southern Tyrol and Southern Switzerland, it is met with run wild, as also in Spain, Southern France, Greece, and Abyssinia.

We may here mention a few more sweetish-acid fruits of the Old World, even though of no greater importance. Among these are several Palms, such as *Zalacca edulis*, Reinw. (*Calamus zalacca*, Gärtn.), of the islands of the Indian ocean; *Elate silvestris*, Ait., likewise found in the East Indies, and *Arenga saccharifera*, Labill. These fruits, partly in a ripe and partly in a half-ripe condition, furnish a pleasant-tasted article of food.

I may further mention *Celtis australis*, L., the sweet, honey-like fruit of which serves as an article of food in Southern Europe, North Africa, and the East, also several species of *Elæagnus*, and our native Elder (*Sambucus nigra*, L.) The olive-like fruit of *Elæagnus angustifolia*, L., especially in Turkey and Persia, is large, and pleasant tasted, on which account it is sought after, and even occurs dried, in commerce. This is less the case with *Elæagnus orientalis*, L., *E. arborea*, Roxb., and *E. conferta*, Roxb. The fruit of the Philippine oleaster (*Elæagnus philippensis*, Perrot.) has the taste of the best cherries.

Only a few species of fruits are peculiar to Africa, and those have been brought from that country as the common property of cultivators. We may mention first all the edible Jew Thorn, or the African Date plum, the Lotus of the ancients (*Ziziphus lotus*, Lam.), a shrub, the roundish, purplish fruit of which, having the appearance of sloes or olives, and a sweet taste resembling figs or dates, constitute the Italian Jujube berries. This shrub is chiefly found in Tunis, but has been distributed into the interior of Africa. This plant was described by Polybius. According to Theophrastes, the λωτὸς was so common on the island of the Lotophagi (Zerbi) that a Roman army, on its way to Carthage, was nourished several days by its fruit. Homer also mentions this attractive fruit, from which Ulysses succeeded, only by violence, in turning away his companions. At the present day this fruit is used in the smaller Syrtis, and is called by the Arabians *Nabka*, and the bush *Seder*. It is not known when this tree was brought to Southern Europe, where it is cultivated at the present time.

Western Africa has its *Chrysobalanus ellipticus*, Soland., and *Chr. luteus*, Sab., corresponding to the American Icaco plum.

Of a less extended distribution are *Anona senegalensis*, Juss., *Schmidelia africana*, DC., which occur along the entire extent of the coast of Senegambia, and *Grewia megalocarpa*, of Guyana; as also the Pear tree of Guinea, *Salacia senegalensis*, DC. The fruit of the African