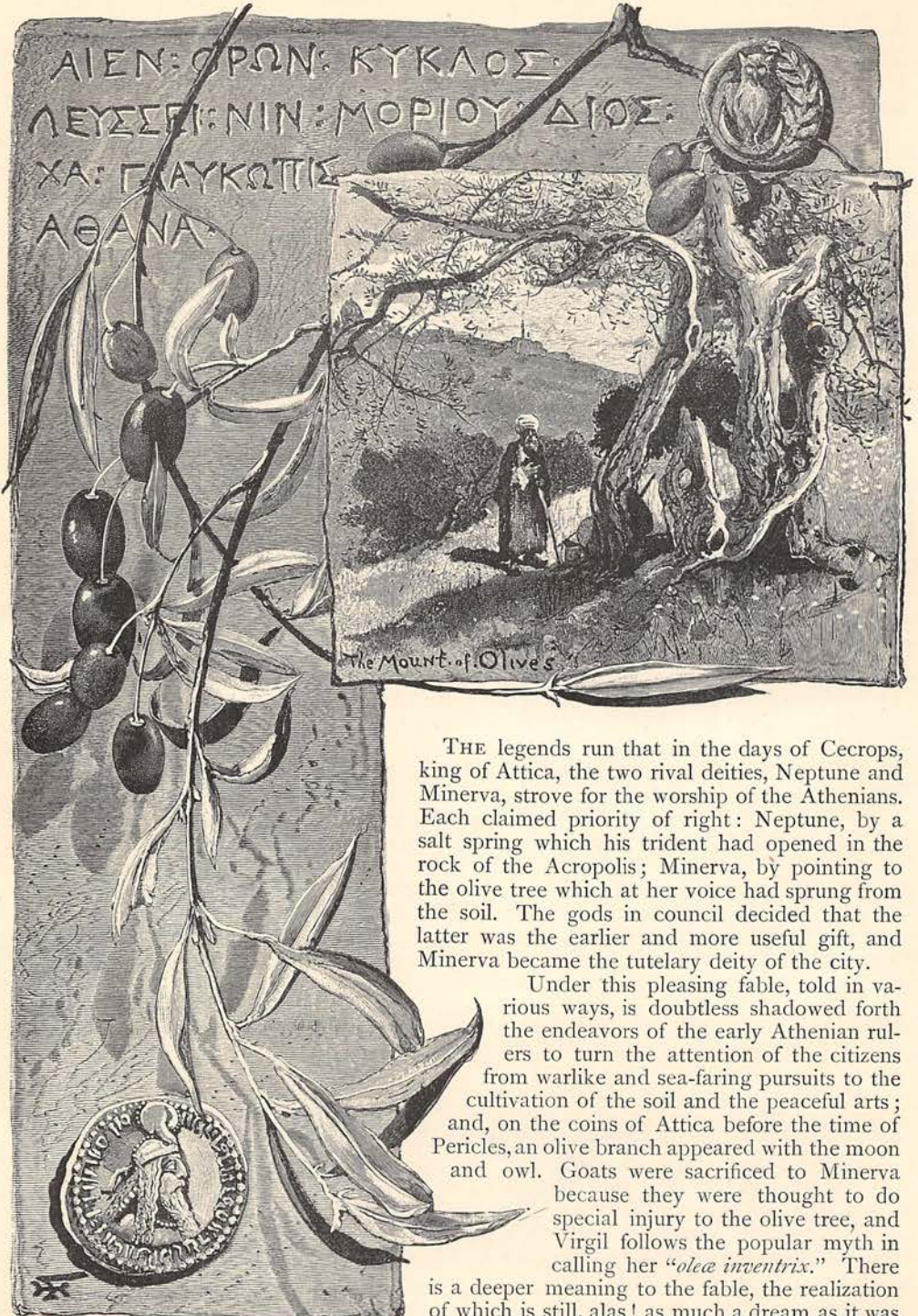


UNDER THE OLIVES.



THE legends run that in the days of Cecrops, king of Attica, the two rival deities, Neptune and Minerva, strove for the worship of the Athenians. Each claimed priority of right: Neptune, by a salt spring which his trident had opened in the rock of the Acropolis; Minerva, by pointing to the olive tree which at her voice had sprung from the soil. The gods in council decided that the latter was the earlier and more useful gift, and Minerva became the tutelary deity of the city.

Under this pleasing fable, told in various ways, is doubtless shadowed forth the endeavors of the early Athenian rulers to turn the attention of the citizens from warlike and sea-faring pursuits to the cultivation of the soil and the peaceful arts; and, on the coins of Attica before the time of Pericles, an olive branch appeared with the moon and owl. Goats were sacrificed to Minerva because they were thought to do special injury to the olive tree, and Virgil follows the popular myth in calling her "*oleæ inventrix*." There is a deeper meaning to the fable, the realization of which is still, alas! as much a dream as it was

in the days of Cecrops; but the olive branch remains the emblem of the world's hope, although the vision of the "thousand years of peace" seems still to flit before us as the centuries advance.

One can hardly imagine the Tuscan hills as having ever been without

"The mystic floating gray of olive trees,"

but Pliny assures us that the olive did not exist in Europe or on the African coast in the year of Rome 183. It was probably brought to the French Riviera by those intrepid voyagers, the Phœnicians, about B. C. 500 or 600. The ancient olives in Sicily are still called *Saraceni* in the popular dialect, thus denoting the traditions of their Asian origin.

The frequent mention of the olive in the Bible, both in a literal and figurative manner, has made it one of the most interesting trees in the world, even to those who have never seen it. We all know the difference between the "wild olive" and the "good," or cultivated "olive tree," and how the one is grafted upon the other. To this day, the wild olive grows in barren places; its trunk is crooked; its branches are short and gnarled; its fruit is scanty and bitter. The olive is still, with the Jew as with the Greek, the emblem of peace and plenty, with an added signification of holiness; and the associations of it with the last days of Jesus have made it also sacred to sorrow. There is nothing, indeed, more tenderly sad in its aspect than an olive-covered hill. As I write, I look out upon such a hill, where hundreds of these trees are swaying to the south wind that turns their leaves upward, showing an expanse of whitest gray and grayest green. As a stranger walks for the first time through a grove of these trees, which, in the brightest sunshine throw only the ghosts of flickering shadows on the turf, he is inclined to agree with Augustus Hare, in calling such a walk "one of the most melancholy things in the world." But the eye soon becomes accustomed to and loves the chastened tone which the olives, ilexes, and cypresses impart to a landscape, finding them accord as truly with the brilliant skies and sharply defined cloud-forms of Italy, as does the intense green of English grass and trees with the pale sky and misty atmosphere of that land. The best description I have ever seen of the appearance of olive trees is that variously attributed saying, that "they look as if they grew by moonlight."

But not to linger longer on the history and associations of the olive, my special purpose is to give some account of its present culture in

Italy, where it forms an important branch of agriculture and commerce.

The *Olea Europæa* is thought by Risso to be a descendant of the *Olea ferruginea*, the rusty-leaved olive of the country between the upper Indus and the Suleiman mountains bordering on Afghanistan. He mentions forty varieties. The *O. E. polymorpha*, or "*olivier pleureur*" as it is called on the French Riviera, is the variety most fruitful on the Mediterranean shores. It attains a height of thirty feet, and bears fruit on alternate years. The *O. E. pignola* and *O. E. rostrata* are also adapted for the sea-coast. In the inland valleys, the *O. E. uvaria*, so called from having its fruit in grape-like clusters, does well. The *O. E. regalis* and *O. E. corniola*, being hardier, do well on the hill-sides; and the hardiest of all are the *O. E. Præcox*, and the *O. E. atrorubens*.

Generally speaking, the olive will flourish wherever the vine does well. It will not bear a temperature below 21 degrees or 22 degrees Fahrenheit, and cannot be grown in Europe above the latitude 46 degrees, which possesses a climate nearly corresponding to that in America of latitude 40 degrees. A few hours of severe cold after rain or snow suffice to destroy the young plants and fruit. "I have seen," says Fodéré, "an olive orchard in the vicinity of Marseilles, which had brought to the owner an income of ten thousand francs in a single year, and seemed likely to do so again in the autumn of 1792, when one night the mercury went down to 10 degrees below freezing, and in the morning all hope of a harvest was gone." Many trees on the French Riviera were destroyed by the cold winters of 1788-9, 1820, and 1837.

The localities in Italy where the olive grows best are Sicily, Calabria, the Abruzzi, Puglia, Lucca, and the Riviera. The best table-oil exported to America is from the province of Lucca. The olives prepared for eating come from Spain, those of Italy being inferior for this use, although they are eaten by the lower classes. The olives of the plain yield more fruit than those of the hills, but the oil is more fatty and less delicate. A gentle slope, well sheltered from cold winds, is the most favorable situation. In moderate climates, the exposure should be to the east; in warmer ones, toward the west and north; while on the utmost northern limit only a full southern exposure will content the tree. It prefers a dry and rather stiff soil; the fat plains make it corpulent and short-lived.

The kernel of the olive requires two years to germinate naturally, but it has been found that by macerating it in a mixture of clay and cow-manure the process may be hastened

so that it will germinate the same year. The plant should remain two years in a forcing-house before being transplanted to the nursery, where it must spend from five to fourteen years before being placed in the orchard. While in the nursery the plant must be grafted, which is done in various ways fully treated of in books on olive culture, but whose details would be out of place in this sketch. In its fifth year it begins to assume the appearance of a miniature tree, being then pruned of its lateral shoots to the height necessary for the trunk, usually from four to five feet from the ground. The lower remaining branches are then tied down in the manner represented in the cut on page 557, in order that other branches may spring out at their conjunction with the trunk. There are various other methods of propagation, as by excrescences on the roots of the parent tree, by shoots, and by sprouts, and the living roots of a dead tree; but that which insures the longest life and greatest resistance of the plant to cold is its growth from the seed. An olive orchard should have the trees set at least twenty-five feet apart. They are placed in deep pits, in which has been put a layer of rags, pebbles, and potsherds; plenty of manure is put about the roots, and straw is spread on the ground about the trunk. A trench is also dug at a little distance all around the tree, to preserve it from drought.

All the authorities advise the alternating of crops of vegetables and grain in the olive orchard, it being found that when the same crop is raised year after year the olive suffers. Grain grows well in these orchards, the trees not casting sufficiently dense shadows to interfere with its ripening.

We have seen that the olive is a very slow-growing tree. When raised from seed it rarely bears fruit under fifty years, and when propagated in other ways it requires at least from twenty to twenty-five years. But, on the other hand, it lives for centuries. The monster olive at Beaulieu, near Nice, is supposed by Risso to be a thousand years old. Its trunk at four feet from the ground has a circumference of twenty-three feet, and it is said to have yielded five hundred pounds of oil in a single year. In regard to the olive trees in the "Garden of Gethsemane," Dean Stanley says:

"In spite of all the doubts that can be raised against their antiquity or the genuineness of their site, the eight aged olive-trees, if only by their manifest difference from all others on the mountain, have always struck even the most indifferent observers. They are now, indeed, less striking in the modern garden inclosure built round them by the Franciscans than when they stood free and unprotected on the rough hill-side; but they will remain, so long as their already

protracted life is spared, the most venerable of their race on the surface of the earth. Their gnarled trunks and scanty foliage will always be regarded as the most affecting of the sacred memorials in or about Jerusalem."

The olive blossoms in the neighborhood of Nice in April, and in Tuscany a month later. Its flowers are insignificant, of a dull, creamy white, with thick, waxy petals. The period of greatest beauty for the olive is when the fruit is ripening, and the boughs are laden with the plum-shaped berries, varying in tint from bright green to dark red and bluish purple. The picking season begins in the early autumn, the oil from unripe fruit being more piquant and better for table use than any other; but of course the yield is less copious. From November to January, according to situation and variety, the fruit ripens. It is gathered by shaking the tree, or by picking; the more care being taken, of course the better the oil. It is stored in dry rooms till a sufficient quantity is obtained for pressing. This is done by means of a mill not unlike a cider-mill worked by either horse or water power. When the olives are reduced to a pulpy mass, this is put into baskets of hemp made in a peculiar form. Ten or twelve of these are piled up together and pressure is applied. The oil thus obtained is called "virgin oil," and is of the first quality. Boiling water is then poured on the mass to facilitate the expression of the remaining oil. The refuse, or *marc* as it is called, is left to undergo a short fermentation, and then again put into the press with boiling water poured on as before. From this is obtained the first *huile de recouse*, which is of inferior, fatty quality. The residue is now thrown into a brick or stone trough filled with water, and communicating with others into which the liquid flows off as the mass is stirred and beaten with poles; and the oil rising to the surface is skimmed off. The remainder is put into caldrons and boiled with water; and a new pressure brings out what is called the second *huile de recouse*, or refuse oil, which is mixed with the first, and used for the manufacture of soap. All the different waters used in the process and in cleansing the utensils, are poured into reservoirs, and the oil called *l'enfer*, which comes to the surface clear and limpid, though useless on account of its strong taste and odor for table purposes, is the best for burning. Olive oil is still preferred to petroleum by many Italian and French families, as it gives a softer and less dazzling light. The picturesque old Etruscan lamps are still in use for carrying about the house and for lighting visitors down the stairways of houses in Florence and Rome, as well as in humble towns.

The dregs remaining in the caldron are pressed into cakes and used for heating the water in the oil mills; the kernels which were separated from the fruit in the first trough, are also sold for heating purposes, and even their ashes are useful, as they contain a good deal of potassium. The baskets are much sought after for manure, as they are saturated with oil.

The oil is preserved in great earthen jars, varnished on the inside, or in cisterns lined with cement, which are tightly closed to exclude air and light.

One hundred kilograms of olives freshly picked from trees in good condition ought to return a fifth of their weight in virgin oil.

As an article of food, oil has a most important place. The Italian workman finds bread and oil and wine an ample midday meal; if he can add thereto a salad or an onion, it is a feast. In the *cuisine* of Southern Italy, oil takes the place of butter, and is by many considered more healthful than any animal grease. "There is a curious dish," says a traveler, "which the millers' men at Mentone sometimes indulge in. It is called *brandada*, and needs an iron stomach to digest it. The foundation of the dish is salt fish, from which they remove the bones, and after boiling it to rags, stir or pound it into a paste. An assistant then slowly pours in olive-oil, while the head cook stirs. The addition of parsley and other herbs, and further stirring to complete the amalgamation of the whole, renders the *brandada* fit for the table."

The olive has lately acquired for Americans a new and practical interest from the discovery that it can be easily and profitably grown in California. Residents of California have been accustomed to consider a small bottle of "Mission oil" for their salad as a treasure; for it far surpasses in purity and sweetness any imported oil. But it is only within a few years that private owners of land in Southern California have seriously considered the question whether olive culture could be made a paying enterprise. So many possibilities cling to the broad lands and rich soil of the Golden State, that it is not wonderful if some of them have been overlooked. And, though experiments in olive-growing have been made on a small scale with good success during the last twenty years, popular interest is only now beginning to be awakened. In the first place, there was the drawback, peculiarly great to the American temperament, of the slowness of growth, and irregular productiveness of the olive in Europe. The old Tuscan saying is, "Plant a vineyard for yourself, an orange grove for your children, and an olive orchard for your grandchildren." As a people, we are not fond

of looking far into the future; and besides, judging from ourselves, we are not at all sure that our grandchildren will wish to live where we do. But the olive is good enough to adapt itself to the rapidity of American demands. It matures much earlier than in Europe, and bears oftener and more plentifully. The system of propagation from cuttings, as far as can be judged at present, gives, in our rich soil, robust trees; and there is no need to employ the slow process of raising them from the seed. Five years is surely not long to wait for a fruit crop; and after that time, according to the best California authorities, the trees will yield a full, and in many cases an annual harvest. At a late meeting of the State Horticultural Society in San Francisco, it was stated that one olive farm yielded \$2200 to the acre. These trees bore every year, and were situated on "adobe" hill-sides, the bottom lands being found, as in Italy, less favorable to the fruit. The variety was the "Mission olive," which has not been identified with any of the varieties now cultivated in Europe. The olive was introduced into South America in 1560, by Antonio Ribera; but the California trees sprang from seeds sent from San Blas in Mexico by Don Joseph de Galvez with his expedition to rediscover the port of Monterey. Of this expedition and of Father Junipero Serra, its spiritual head, an account was given in *THE CENTURY* for May, 1883. It resulted in the establishment of the San Diego mission, the parent of those of San Gabriel, Santa Barbara, San Luis Obispo, and other stations, to all of which the fruits which Galvez had introduced were carried, and where they thrived abundantly.

As to individual experience, olive culture has not yet become general enough to elicit many reports of progress, and it is difficult to get at the facts. The following statement is from a pamphlet on "Olive Culture," by Ellwood Cooper, of Santa Barbara:

"My oldest orchard was planted February 21st, 1872. At four years, I gathered from some of the trees over two gallons of berries; in 1878, over thirty gallons each off a few of the best trees, the orchard then being only six years old. In 1879, the seventh year, the crop was not nearly so large. I had planted several thousand cuttings in the spring of 1873, but these trees did not give, at six years, a result equal to the first planting. The present crop (1880) is quite good—the oldest orchard now being eight years, and I think I do not overestimate, when I state that the yield of some of the best and fullest trees will be over forty gallons. Trees large enough to give this quantity of fruit, planted at a distance of twenty feet, will occupy nearly all the ground, and therefore give all the fruit that can be produced on one acre. An orchard bearing uniformly the quantity as above would give the following result: One hundred trees to the acre at forty gallons each, four thousand gallons. This would be an enormous crop, unprece-

dented, and far beyond any statistics given in European publications. The one-fourth of the quantity yearly would be a very profitable crop."

In 1879, Mr. B. B. Redding, of San Francisco, read before the Academy of Arts and Sciences an interesting paper on the olive, which was afterward published in a San Francisco paper; and from which I take the following statement (somewhat abridged) as to the places in California suitable for olive growing:

"It will be remembered that the requisites of successful and profitable cultivation are, that the mean temperature for the year must be as warm as 57 degrees 17-100. The mean for the coldest month must be as warm as 41 degrees 5-100, and at no time must the temperature fall below 14 degrees. I cannot find in any authority how high a temperature it will bear, but as it is successfully grown in Algeria and Egypt, it could hardly be injured by the highest temperatures that occur at the places mentioned in the following list:

PLACES.	Height, above the sea — in feet.	Mean of temperature for the year.	Mean of temperature for the coldest month.	Lowest temperature shown by thermometer in any year.
San Diego	150	62.49	53.30	26—December, 1854
Los Angeles.....	257	67.69	58.95	29—December, 1876
San Jose.....	86	59.60	46.58	28—December, 1874
Livermore.....	485	61.49	49.52	28—December, 1870
Benicia.....	64	58.77	47.43	19—January, 1854
Vallejo.....	0	58.77	47.41	29—December, 1877
Fort Tejon.....	3240	58.03	42.05	22—December, 1855
Merced.....	171	63.16	48.14	28—January, 1876
Sacramento.....	30	60.48	46.21	28—December, 1849
Auburn.....	1363	60.71	45.88	27—January, 1871
Colfax.....	2421	60.05	45.49	26—January, 1873-4

"For the purpose of comparing the temperatures of the above named places in California with those of regions in which the produce of the olive is among the articles of the first agricultural and commercial importance, I have compiled from Blodgett's 'Climatology' the mean annual and the mean winter temperatures, as also the mean temperature of the coldest month of the following places:

PLACES.	Mean of temperature for the year.	Mean of temperature for the winter.	Mean of temperature for the coldest months.
Rome.....	60.05	46.07	45.00
Lisbon.....	61.04	52.05	51.04
Marseilles.....	58.03	45.02	43.02
Algiers.....	64.03	51.02	53.02
Jerusalem.....	62.06	49.06	47.04

One gallon of oil will fill five bottles, and the producer can sell it at \$1.00 a bottle, the retail price of California oil being \$1.25. At least, these are current prices in 1883. I have before me a letter from another gentleman at Santa Barbara, who has been experimenting on a large scale, and is sanguine as to the speedy returns and large

profits to be had from olives. He employs mostly Italian laborers; and this suggests that the Italian emigrants to America, who drag out a miserable existence in our Northern States, for whose climate and modes of life they are totally unfitted, might, being almost all of them familiar with the work of the Italian farmer, turn their skill to profit in our Southern country, should the olive and the vine receive the attention of large land-owners. Very simple machinery may be used for expressing the oil. Mr. Cooper's press is "an old-fashioned wooden-beam one, such as is used in the New England and Middle States for making cider." He advises, however, the use of the oleomargarine press as economical. He sums up the cost of his machinery thus:

"Drier, \$150; mill, \$250; two presses, \$500; two tanks, \$200; filterers, \$50; corker, tin foiler, \$50; wooden building, \$400. Total, \$1600."

In our Southern Atlantic States, the few experiments made in olive culture have been unsuccessful. This has been attributed to the fact that the mercury occasionally falls very low, in that usually temperate region. But so it does, as we have seen, on the Mediterranean coast, where, notwithstanding, the olive is a profitable fruit. It is well known that the olive will bear a greater degree of cold than the orange; and in the province of Lucca, whence comes the best Italian oil, the orange will not grow except in sheltered spots, and with winter protection. Taking this into consideration, with the fact which we have mentioned, that the olive needs the same conditions as the vine, and it appears impossible that there should not be many parts of our sea-coast where it would flourish well. Sea air is, indirectly at least, beneficial to it.

In regard to the consumption of olive-oil in the United States, Mr. Redding says that, during the year ending June 30, 1877, there were imported 348,431 gallons, on which a duty of \$232,776.75 was paid. Great Britain imports not far from 5,000,000 gallons annually. Of these importations but a small part is for the table, of course; large quantities of an inferior quality being used for machinery, and especially for the manufacture of broad-cloth. That which comes to us from Europe is largely adulterated, much of it with cotton-seed oil, which is shipped from our own country to the Mediterranean for that use. And Mr. Cooper mentions that, while he was in the shipping business in New York, his firm had one telegraphic order for *one thousand tierces* of hog's lard, for the same purpose.

But let no one suppose that the cultivation of the olive calls for less vigilance and care than that of other fruits. On the contrary, it is peculiarly liable to the ravages of insects, and quite as dependent upon proper manuring and pruning as the strawberry or the

Knowledge, experience, and *hard work* are in this, as in all other kinds of farming, the only conditions of success. I shall be glad if this slight and imperfect sketch may help to increase in my own



IN AN OLIVE ORCHARD.

grape. Scraping, burning, treating with sulphur, hot water, lime, petroleum, tobacco, and coal-tar, are among the preventives or remedies continually needed, and every tree should be examined at least once a month.

country the interest in a tree which has become endeared to me by many associations in my adopted home.

E. D. R. Bianciardi.

