

still golden days of an American autumn, when the crisp, clear air exhilarates like wine. The hickory nuts were generally the favorites, because they are defended by no burr bristling like a porcupine, and no husk like the walnut, staining pink fingers with unsightly blotches of dark brown. The hickory genus, *Carya*, is the common-name of several species, of which the shell or shag-bark, *C. alba*, is the most valuable. It is this that is represented in the plate. The shape of the nut is different from that of the other species, such as the pig nut, which is worthless, and is rather oval than round, and the Western shell-bark, *C. sulcata*, which is twice the size of the *Alba*, and an excellent nut, though not so well flavored.

The pecan nut is a cousin of the hickory, and is very popular in the South-west, where it grows abundantly; and North Carolina boasts a sort which is something of a curiosity, being confined to a limited area, and closely resembling the nutmeg. But for our dessert, the shell-bark has no rival, it being no slight accommodation that the shell is thin and very brittle, and therefore easily cracked. The principal use of these nuts in cookery is as an addition to fruit cake, which they greatly improve, and for making a kind of macaroon, for which purpose they are scalded and pounded like almonds.

The hickory tree is one of the most valuable we have, as is well-known, for timber and fuel, and as a forest tree it has few rivals in beauty and stateliness.

The compound leaves are exquisitely marked, and in the autumn assume a rich brown, which harmonizes well with the brighter colors of October.

Only two other American nuts make their appearance at our dessert, the hazel (genus *Corylus*) and the chestnut (genus *Fagus*). Both are common and well known. The glossy chestnut imprisoned in its stinging envelope is a prize well worth some risk of sharp thorny prickles.

Its glossy coat gives name to one of the richest and most delicately blended colors in the world. It seems to be a threefold chord of color, blended of red, gold, and brown; and the crisp but leathery pericarp has an exquisite gloss when ripe that is not surpassed by any other nut. It is seen in its perfection in the unedible horse-chestnut, but is conspicuous also in all fine specimens.

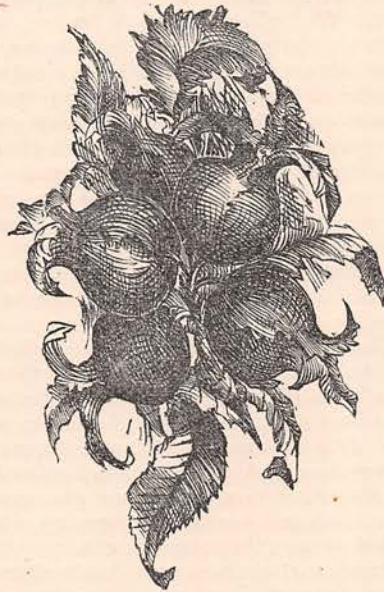
The chestnut has been used for food from ancient times, and the chestnuts of Italy, are justly celebrated for their superior qualities. At one time they furnished a large part of the sustenance of the poorer classes, and were highly esteemed by all. Those of our own country are excellent, and are not so plentifully distributed as to at all impair their value, as they always bring a good price in the market. Every one fancies having a store of chestnuts for Christmas, when the roasting becomes an attractive pastime seasoned with sufficient flavor of superstition to make it piquant.

We believe the only way in which they are cooked is by boiling and roasting, though it is matter of wonder that it is not more used as a confection.

All the nuts that we have spoken of have been the fruit of stately trees which are found

among the monarchs of the wood, but the last is in this instance also the least, the "little one." the hazel, growing only upon a low bush which seldom aspires to the height of a tree, but is found rather growing thickly over large spaces in the form of a low coppice, which generally excludes all other growths, and is the favorite haunt of rabbits, and an oft chosen nesting-place for unambitious birds, who are not shy of men and animals, and rather enjoy a neighborly call from their four-footed friends, the sheep, who browse upon the leaves of the hazel, and sometimes leave a lock of wool behind for them. There is no prettier green thing than hazel clusters in July, when they have become perfect in form, and are yet freshly colored. The shape of the nut's leafy husk is fit for an Etruscan vase, and the shading exquisite. The pretty brown nuts cannot be seen until Jack Frost has quite spoiled the vase and made it look rusty and ragged. When this change has come, the hazel copse becomes the resort of Master Bun, who frisks up and down the slender branches in an ecstasy of glee, and knows very well how to dispose of the shining treasure offered as his easy prey.

The hazel is abundant in all the Middle and South-western States. On the rolling prairies of Missouri it makes pleasant islands of ver-



ture raised above the long sweeps of grass, and showing green when all around is brown. The botanical name comes from a Greek word signifying helmet, referring to the shape, and the English, hazel, from the Saxon *hasel*, a bonnet, implying the same idea—a pretty coincidence, which may make our nuts more interesting. The American hazel is of the same genus as the European filbert (*C. avellana*), and perhaps, if it was carefully cultivated as it is in England and on the Continent, might rival it in excellence; but at present it is far inferior. By careful training the filbert tree sometimes attains thirty feet in height, while ours seldom exceeds six, yet naturally it is, like ours, only a bush. It is not so classic in shape, but of delicious flavor. The finest kind is the Cosford, a very long nut with a very thin shell.

From Barcelona alone 140,000 bushels have been exported in a single year.

There are several varieties. One is Asiatic, and is a large tree; and another, which has beautiful purple foliage, is cultivated as an ornamental shrub. We have no native varieties which are worthy of notice. The hazel is associated with many old superstitions, one of them being the discovery of water by use of a hazel switch, and the wood has always been favored by witches and fairies.

We are afraid that our patriotism will not be strong enough to enable us to prefer a dish of hazel nuts to one of filberts, but nevertheless we may find them an excellent substitute, and cannot but hope that they may be improved so as to make them a worthy addition to our dessert.

## Clocks, Past and Present.

BY CADMUS.

**D**OUTLESS one of the first problems the solving of which engaged the attention of primitive man was the measurement of time. Apart from the divisions of day and night which were ready to his hand, there must soon have arisen a want for a still further subdivision of the passing hours. To the shepherd or the tiller of the soil this purpose was served by the shadows of the rocks and trees cast by the ascending or declining sun; and for greater periods the moon, as with all savages even in our day, marked the months and years. Copied after shadows on the earth was the first instrument for reckoning time made by human hands—the sun-dial. This was an invention of the Babylonians, and the first one mentioned was that of King Ahaz, who lived seven hundred years before Christ. Four hundred years later the Romans still measured time by the motions of the heavenly bodies; but about 300, B. C., a sun-dial constructed according to scientific rules was set up in one of the public squares of Rome. But the most perfect sun-dial was useless in cloudy weather or in the hours of the night, and so human ingenuity produced successively the hour-glass and the clepsydra or water-clock. The first is familiar to all, and has not varied materially in form in two thousand years, but the forms of the latter were as varied as are the timepieces of to-day. One was constructed by Vitruvius, an Alexandrian, which consisted of a perforated vessel, the interior of which had the hours marked upon it, and these were indicated by a little boat which pointed to them as the water fell. So far as we can learn, however, the ancients used only the most primitive forms of clepsydra, and not until A. D. 800 have we record of a complicated water-clock. About that time Charlemagne received one as a present from the caliph of Bagdad, which struck the hours by means of mechanism which threw up the requisite number of metallic balls which fell upon a cymbal, and at the

same time a corresponding number of horse-men issued from apertures placed all round the case. All of which may be said to be open to doubt, but it is certain that this clock was the first which indicated the hours by striking. In some water-clocks a perforated pearl was used for the water to trickle through, it being considered that from its hardness, the water could not enlarge the hole by constant running. It will be seen, of course, that, as with the sun-dial, there was a fatal objection to the clepsydra—the waste of the water by evaporation—and many devices were employed to supply the defect.

Alfred the Great employed very successfully candles to mark the time in his palace. These were made of a uniform size, with the hours marked in circles, and a servant was employed whose sole duty it was to announce the flight of time by sounding a gong. When Alfred found that oftentimes the excessive draughts in his exceedingly well-ventilated palace caused the candles to burn somewhat irregularly, he surrounded them with thin slabs of horn set in frames of wood.

The word clock at first signified only a bell for giving forth sound, and in France to-day *cloche* means a church-bell. The term was first applied to instruments that indicated the hours by striking about the thirteenth century. But striking clocks, moved by weights and toothed wheels, were apparently known in the monasteries of Europe as early as the eleventh century.

Richard Wallingford, the son of a blacksmith, was taken under the protection of the Abbot of St. Albans, and became abbot in his turn. At the commencement of the fourteenth century he invented a clock, the first of which we have any authentic record, which "showed the hours, the apparent motion of the sun, the changes of the moon, the ebb and flow of the tides, etc." It continued to go until the reign of Henry VIII., and in the Bodleian Library at Oxford is preserved the description which Abbot Wallingford wrote of his wonderful invention.

At the Reformation there was removed from Wells cathedral a clock which was made in 1326 by one of the monks. The "dial showed the motions of the sun, moon, and on the top of the clock eight armed knights pursued each other with a rotary motion." This must have been constructed in a very substantial manner, for it was going up to 1834, when a new set of works was supplied by a firm of London clock-makers. In Dover castle there is a clock which bears the date of 1348, and it is still going.

As may be imagined, clocks were not very plentiful in the private households about this time, and use was still made of the sun-dial and the hour-glass. The alarm, supposed by many to be a modern innovation, is in reality of great antiquity, it having been invented to call the monks to their early matins. In the possession of Queen Victoria, at Windsor Castle, is a small clock which was presented to Anne Boleyn by Henry VIII. at their marriage in 1532. This clock, beyond an occasional cleaning, has never been repaired, and is now in actual going order.

From the beginning of the fifteenth century

to the end of the sixteenth the sole aim seems to have been not so much the invention of mechanism which should keep accurate time as for introducing startling effects. One of this sort was on the exterior of the old church of St. Dunstan, in Fleet Street, London, and consisted of two colossal figures who, with clubs in their hands, struck the quarters upon the suspended bells, moving their heads at the same time. Another, only equaled by the famous Strasburg clock (a model of which last was shown at the Centennial), is that in the church at Lubeck. It is thus described: "It represents the changes of the heavenly bodies until 1875; and when it strikes twelve, a number of automatic figures are set in motion; the electors of Germany enter from a side door and inaugurate the emperor, who is seated upon a throne in front. Another door is then opened, and Christ appears, when, after receiving his benediction, the whole cavalcade retire amidst a flourish of trumpets by a choir of angels."

At Versailles, in a court of the palace, is, or was, the "clock of the king's death;" it has no works but a dial and one hand, which was set at the minute of the death of the last monarch of France, and which remained so all through the reign of his successor. This custom was instituted by Louis XIII.

One of the largest clocks in the world is that of St. Paul's Cathedral in London. The dials are nearly twenty feet in diameter, the numerals are two feet in height, the minute-hands nine feet long, and weigh seventy-five pounds each; the hands have a minute stroke of eight inches, and though placed 180 feet from the ground, the minute stroke can be seen by the unassisted eye; the hour hands are six feet long, and weigh 44 pounds each; the pendulum is sixteen feet long; and the note of the bell on which the hours are struck can be heard for fifteen miles in clear, quiet weather.

The largest clock in the world is that of Westminster Palace. The dials are twenty-two feet in diameter, and it has four faces; it goes for a week, and takes two hours to wind up. This clock is connected with Greenwich Observatory by electricity, and is regulated by the true time from that place whenever it varies sufficiently to make it necessary, which is seldom more than once a month.

American clocks have a world-wide celebrity. "One firm in Connecticut produces 600 a day; and in New Haven 50,000 eight-day clocks are made in a year in one factory."

Of late years it has become the custom to regulate the clocks of all important business centers by some one standard. In England this standard is Greenwich time; in this country Washington time is sent at noon every day to all of the Government observing stations and many private establishments. This is done by electricity, and all that is necessary is the giving of a previously agreed upon signal at the appointed time. It may be seen every day at the Western Union building on Broadway, where a time-ball falls at noon; and so accurate is the system that it may be corrected to the hundredth part of a second.

A future article will take up the subject of watches and other pocket time-pieces.

## Talks with Girls.

BY JENNIE JUNE.

### OPPORTUNITIES.



O we make our opportunities, or are they made for us?

This is rather an interesting question, and one considered especially so by a vast number of young women who tremble upon the brink of many possibilities, and constantly let "I dare not!" wait upon "I would!" It is an illustration, also, of the fact that very few questions in this world can be answered by a "Yes" or "No."

Opportunities are of many kinds, and even the recognition of them—the knowledge that they are opportunities, and that we would do well to make use of them—implies a degree of mental perception and moral and intellectual advancement which only a certain proportion of men and women have attained. To some people opportunities are troubles, to some they are difficulties, to others they are annoyances, and it is to be feared that it is not to the majority that they are accepted as means of growth.

Opportunities are big and little. Many people—the young especially—miss the small ones while waiting and hungering for the larger, never dreaming, when these do not come to them, that they missed the stepping-stones in overlooking the little chances which they despise.

The world may really be divided into two classes of persons—those who see and make use of their opportunities, and those who do not. The first are usually called the lucky people. Everything gravitates toward them, because they gravitate toward everything. They are helpful, sympathetic, and assimilative. They seize their opportunities by instinct, before they know what opportunity means. Wherever they go they learn something; wherever they are they do something. When they reach manhood and womanhood they naturally represent the fullness of these things which they have gathered together.

It is a misfortune of prejudice that it narrows our opportunities, and only permits us to see them in given directions. We may do one thing, if the chance presents itself, but we must not do another. We may be helpful to others, but we must not be helpful to ourselves. Women especially have been hemmed in and about with manifold restrictions, whose origin was simply the conventional law of a small proportion—called "society"—of the community in which they lived, and which had no foundation in morals or the ethical life of the great body of humanity. The necessities of men have relieved them largely from this bondage, and thus another code has grown up, the laws of which, as relating to all the minor acts, differ totally for men and for women, and when the latter, from the compelling force of circumstance or natural inclination, go contrary to the traditions and