Fritelle da Papa Magnifici
(Superb Fritters for the Pope)

Fritters, often fried in lard, were popular during the Renaissance as both side dishes and desserts, and they contained everything from apples to anchovies. And they still taste great today, as this modern version based on a recipe in *Libro per cuoco* proves.

INGREDIENTS

1 cup ricotta cheese
2 egg whites
2 tablespoons flour
2 tablespoons pine nuts
Vegetable oil for frying
Confectioners' sugar

In a bowl, combine the ricotta and the egg whites and beat together until smooth. Add the flour and the pine nuts and mix well.

Heat the oil about an inch deep in a skillet until hot. Add the batter a teaspoon at a time and fry, turning once. They should be browned on both sides, but they do cook quickly. Serve immediately dusted with the sugar.

YIELD: 2 to 4 servings

Chapter Five

Da Vinci's Kitchen

It is ironic that Leonardo lived at the Sforza court amidst all its grandeur when he basically led a very simple life devoid of the spectacular dishes that were being served at the banquets. By examining his notebooks, we can get an inside look at the food that was part of his daily life and which differed greatly from the extravagances displayed in chapter six.

The Fractured Notebooks

Beginning at about the age of thirty-seven and until his death at the age of sixty-seven, Leonardo made notes, accompanied by drawings, on a variety of subjects. These "notebooks" were mostly random, though in a few places he indicated a desire to organize them. "This is to be a collection without order, taken from many papers," he wrote on the front sheet of a manuscript about physics, "which I have copied here, hoping afterwards to arrange them according to the subjects of which they treat."

Leonardo took his notes in "mirror writing." The biographer Charles Nicholl notes: "It is correctly mirror-script, rather than just writing backwards. Not only does the whole line of script move from right to left, but each letter is formed in reverse; for instance, a Leonardo *d* looks like a *b*." Nicholl points out that there is a "strong psychological element of secrecy" in the mirror writing, not exactly a code but a way to keep his thoughts private. Of course, this secrecy did not extend to his drawings.

When Leonardo died in 1519 in France, he left all of his manuscripts and drawings to his favorite student Francesco Melzi. It is estimated that Leonardo left between fifty and 120 complete notebooks to Melzi, but today only twenty-eight (some say twenty-seven) survive in various ver-

sions. This is because after Melzi died in 1570, Leonardo was mostly forgotten, and the value of his notes and drawings was not recognized. And of course, the mirror writing was difficult to decipher. Melzi's heirs gave away or sold many of the notebooks, and they were dispersed across Europe. Many other people had access to Leonardo's work, often making their own notes on top of his.

Scholars disagree about how many pages of Leonardo's notebooks survive today, with estimates varying between 5,000 and 7,000 pages. This discrepancy probably exists because of the vague definition of what precisely constitutes a page. Scholars estimate that is about half of Leonardo's total output, which is estimated at 13,000 pages.

Leonardo's Prescription for Life

Written as a poem in 1515, four years before his death and when he was ill in Rome, this is Leonardo's guide for living:

If you want to be healthy observe this regime.
Do not eat when you have no appetite, and dine lightly,
Chew well, and whatever you take into you
Should be well-cooked and of simple ingredients.
He who takes medicine is ill advised.
Beware anger and avoid stuffy air.
Stay standing a while when you get up from a meal.
Make sure you do not sleep at midday.
Let your wine be mixed with water, take little at a time
Not between meals, nor on an empty stomach.
Neither delay nor prolong your visit to the toilet.
If you take exercise, let it not be too strenuous.
Do not lie with your stomach upward and your head
Downward. Be well covered at night,
And rest your head and keep your mind cheerful.
Avoid wantonness and keep to this diet.

In the late sixteenth century, scholars began the process of literally cutting and pasting all the manuscripts into codices, which have been given names such as the *Codex Atlanticus*, which has nothing to do with the ocean, but rather is so named because it was atlas-sized. Specifically, it was originally a huge leather-bound volume about two feet tall when it

was assembled by the bibliophile Pompeo Leoni. In the 1960s, the *Codex Atlanticus* was dismantled, reordered, and made into twelve leather-bound volumes that now reside at the Biblioteca Ambrosiana in Milan.

The *Codex Atlanticus* is the most important of all the codices and contains studies of mathematics, geometry, botany, zoology, and hydraulics, as well as notes on theoretical and practical aspects of painting. Also included are sketches of war machines, working machines, flying machines, boats, and architectural studies.

The notebooks and the codices made from them are a confusing mass of information. Michael White comments that "Leonardo's originals have been as mutilated as the corpses over which he often labored. Pages were torn from bound books and dispersed, damaged, and in some cases lost completely, and this has disrupted further efforts to follow the flow of his thought and the progression of his ideas." Serge Bramly wrote of the thousands of pages in the codices: "This immense jigsaw puzzle has not yet yielded up all its secrets."

Leonardo's Larder

It wasn't only work for Leonardo in Milan. He occasionally went on hikes in the mountains, and he appreciated the Valtellina region northeast of Lake Como. Leonardo commented on the food and wine there, writing in his notebooks that "they make a strong wine there, in good quantities, but there are so many cattle that the locals will tell you they make more milk than wine." He went on to comment about how inexpensive the food was compared to the food in Milan: "The wine costs no more than one soldo a bottle, and a pound of veal one soldo, and salt ten denari, and butter the same, and you can get a basketful of eggs for one soldo." It is enlightening to know that a basket of eggs was equivalent to a pound of veal and a bottle of wine, because we have little documentary evidence of what the various foodstuffs sold for. And in the country, Leonardo said that the portions of food served at the inns were larger. "The pound up here has thirty ounces," he wrote.

In contrast to the elaborate court feasts, from what we can glean from Leonardo's shopping lists in his notebooks, the fare he was serving himself and his assistants appears to be relatively ordinary. Conspicuously missing from these lists, which were undoubtedly not comprehensive, were poultry, fish, veal, squash, cheese, lard, olive oil, pasta (unless he made his own), root and tuber crops of any kind, and pitted fruits like peaches, apples, and rice.

ODE TO WINE, BY ANGELO POLIZIANO

Bacchus, Bacchus, shout with glee,
Keep on stowing wine inside;
Then we'll wreck this place noisily.
Drink up, you, and get pie-eyed.
Can't dance any more, I'm fried.
Everybody cry hail, hurray!

—from "Orfeo: Sacrifice of the Bacchantes in Honor of the Bacchus."
Poliziano, who did not believe in wine moderation, was a tutor
to the sons of Lorenzo de' Medici in the fifteenth century.

Since Leonardo had a copy of Platina's book, we have a window into early Renaissance food beliefs. As it turns out, Platina wrote about nearly every food item in Leonardo's pantry. Note that very little of this material is from Martino, some of it is from Pliny the Elder, and Platina consulted many other sources, including Avicenna, Pythagoras, Apuleius, Columella, Celsus, Martial, and Virgil.

In the description of Leonardo's larder that follows, I have placed the food items that he mentioned in bold type. In lieu of Leonardo's words on his own food, also included are Platina's observations on Leonardo's food purchases, because they may have influenced Leonardo, who praised Platina, especially for his coverage of simple, or vegetarian, foods. We don't know, of course, if Leonardo believed everything that Platina wrote, but there were no other food or recipe books in Leonardo's library, so it's a good guess that he did. In some cases I have added additional material from Martino to illustrate how some of the larder ingredients were prepared in the early Renaissance.

Dairy

There are only two items in this category. **Buttermilk**, the liquid left after butter was churned, was used in baking. It is interesting that **eggs** would be on the list, as the Sforza complex undoubtedly kept chickens. Maestro Martino has fourteen egg recipes, including Eggs Cooked in the Ashes, Eggs on a Spit, Stuffed Fried Eggs, and Eggs Disguised as Ravioli:

> Make some pastry as you would for *lasagne*, but not too thin and not too soft. Break over it some fresh eggs, sprinkling each one with sugar, sweet spices, and a little salt, and enclose each one in the pastry as you would ravioli. Boil or fry them, though they are best fried. You can make them like turnovers, using the same ingredients but adding a little verjuice if you wish, baking them as you would tarts, or frying them. But don't let the eggs overcook, as the more you cook them the harder they become, and the worse they are.

Although Platina does not mention **buttermilk** specifically, he does have a short treatise on milk in general. He writes that goat's milk is the best, then sheep's milk, with cow's milk coming in third. "One must, however, avoid too much use of milk," he writes, "for it makes the keenness of the eyes duller and generates stones in kidneys and bladder." Of **eggs**, Platina insists that the most healthful are those fertilized by the rooster, and the most flavorful are those laid by a fat hen rather than a lean one. Eggs are a cure for "cough, sore windpipes, a hoarse voice, and those spitting blood."

PLATINA'S SCRAMBLED EGGS

With a paddle or spoon, mix with ground cheese eggs which have cracked and well beaten with a bit of water or milk. When these are mixed, cook in butter or oil. They will be more pleasant if cooked only a little and never turned while cooking. If you want the color of herbs in them, add chard, parsley, some borage juice, mint, marjoram, and a little sage.

Fruit

The word "fruit" is used in a generic sense, which may have meant buy any fruit available at market. **Melon** is listed, which is slightly ironic because according to classical medicine, melons should only be eaten at the beginning of a meal, on an empty stomach, accompanied by some decent wine. Pope Paul II was thought to have died from eating ice-cold melons in the summer, but since melons were the pope's favorite food, Martino included a melon soup in his cookbook. The historian Bruno Laurioux observes: "As a worthy servant of Paul II, he could hardly leave out the recipe for a *Menestra di melloni* which may even have precipitated his master's sudden

death, attributed by contemporaries to acute indigestion after eating the melons to which he was addicted."

Platina writes that a **melon**, when served with the rind and seeds removed, "soothes the stomach and gently softens the bowels." Because of its "dampness," a melon is harmful to the nerves, but this effect can be lessened by drinking a glass of wine "because it is a sort of antidote against the coldness and stiffness of the melon." Platina notes that "[t]he emperor Albinus, however, was so delighted with this fruit that he ate 100 Campanian peaches and ten melons from Ostia at one meal."

Grapes were on the list, and according to Sir Robert Dallington, who visited Italy in 1596, the best grapes to eat were *Moscatello* and *Rimadlesca.* "Well-matured" grapes "are less unhealthy than other fruits which are eaten raw," Platina advises, "and eaten as a first course, they cause almost no harm." Grape seeds should not be eaten because "they are too difficult to digest and too harmful to nutrition." Platina also preferred the wine from white grapes because it is sweeter. To Dallington, **mulberries** were "another of the greatest commodities of Tuscany" he would "not forget." Martino has a nice relish made from them, Mulberry Relish, presumably a spread for bread or rolls:

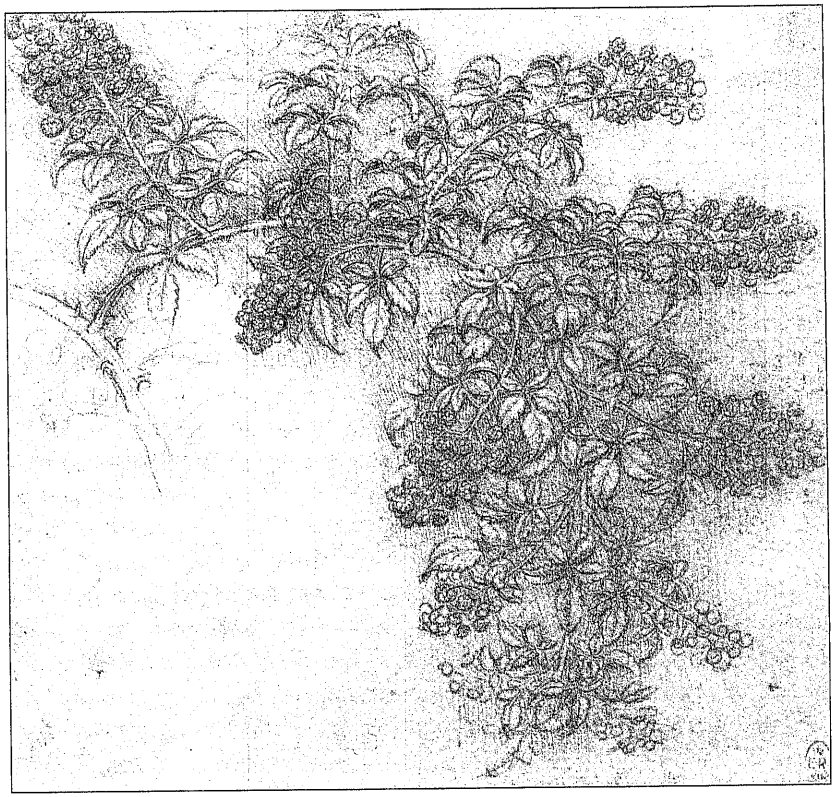
> Take some peeled almonds and pound well with a few white breadcrumbs, stir in the mulberries, but do not bash or pound them, to avoid crushing the little seeds inside. Then add some cinnamon, ginger, and a little nutmeg and pass everything through a sieve.

Mulberries move the bowels and urine very quickly but they "provide little nourishment." Platina notes for the record, "In Egypt and Cyprus [the mulberry tree] produces fruit with most abundant juice which has three colors: first it is white, then red, and finally it is very dark, as if it were sprinkled with the blood of the Egyptian maiden Thisbe."

Fungi

Fungi mushrooms were often cooked with garlic and a silver coin. If the coin turned black, legend goes, the mushroom was poisonous. Also, they were cleaned very well and grilled over the fire or boiled in water and then fried in olive oil or lard.

"**Mushrooms** are also eaten but have led to crime in many cases," Platina asserts. He knew that there were good mushrooms and poisonous ones. "I would want mushrooms picked by those experienced with the regions," he



Da Vinci's blackberries
Sunbelt Archives

notes, "and even they are deceived, for we know that certain households have died in our era." He advises that some people cook mushrooms with garlic to counteract the poison, and he is not a fungus fan: "Cooked any way you want, even though they satisfy the palate, they are considered the very worst, for they are difficult to digest and generate destructive humors."

On Truffles, by Platina

> This food is nourishing, as pleases Galen, and indeed very much so, and arouses passion. Hence it is that the aphrodisiac tables of voluptuaries and nobles often use it that they may be more ready for passion. If that is done for fertility, it is praiseworthy, but if it is done for libidinous behavior, as many idle and immoderate people are accustomed to, it is entirely detestable.

Grains

We have something of a culinary mystery here, as **corn** is mentioned three times in the notebooks. "Have some ears of corn of large size sent from Florence," Leonardo wrote, abbreviating "grano" as "gra." Also, there are references to **white maize** and **red maize**, using the word *melica*. Although translated as "maize," the Latin word *melica* refers to a grass with a sweet sap (*mel* means "honey") and is thought to be sorghum. It is used to make such foods as couscous, sorghum flour, porridge, and molasses. Most experts believe that corn spread rapidly throughout Italy in the early sixteenth century, and according to Leonardo, it had reached northern Italy.

In a 1975 article, "Pre-Columbian Maize in the Old World," M. D. W. Jeffreys theorizes that somehow maize was already in the Mediterranean before Columbus, because it is unlikely that if it had been introduced into Spain in 1493, it could be documented growing in the East Indies by 1496. See the complete discussion of this mystery in chapter seven.

Bran or **meal** is the outer layer of grains like wheat and oats; it was added to water and used to take the salt out of salted fish being cooked in it. **Wheat** is mentioned several times, and since Leonardo was buying **bread**, which was made with soft wheat, the wheat he was buying was probably hard wheat, used to make macaroni. Clifford Wright notes that hard wheat is high in gluten and low in moisture content, and "[t]hese characteristics of hard wheat are important because, first, it prevents the stretching and breaking of pasta during the curing and drying process and, second, because it maintains its texture and taste better during the cooking process than does soft wheat."

Flour is listed, too, and it was probably soft wheat flour for baking bread, rolls, or pies. **Millet**, which we think of as bird food, was essentially a peasant food, boiled in a meat broth to make a gruel. Millet makes "porridge and very sweet bread," writes Platina. "The principle use of millet kneaded with must is for leaven, since it lasts a year." He also noted that "[m]illet and Italian millet deplete the earth and for this reason should not be sown among vines or fruit trees."

There is no mention of **corn**, **white maize**, **red maize**, or **bran** in Platina's book, but he does discuss **wheat**, which is "easily digested, purges, and cools. Its frequent use closes the fibers of the liver and spleen," and "nothing is more productive and pleasant than wheat, which nourishes much more if it is grown in the hills and not on the plain," Platina states. The **bread** made from the wheat flour is leavened, sourdough-style, but "[l]et the baker be careful not to put in too much or too little leaven, for, from the former, bread can acquire a sour taste, and, from the latter, it can become too heavy to digest and too unhealthy, since it binds the bowels."

Herbs and Spices

The word "herbs" was used in a generic sense, again probably meaning whatever was available. Not only seasonings, **mint** and **parsley** were primary ingredients in Martino's Herb Soup. **Thyme** was used to season chicken, and Martino uses it in a green sauce.

Nutmeg was prominent in relishes, and **mustard**—probably the most popular condiment of the era—was used on meats and in egg dishes. An example is Martino's Mustard Relish, called Red, or Purple, Mustard:

> Take your mustard seeds and pound them well, then take raisins and pound as well as you possibly can. Add a little toasted bread, some sandalwood and cinnamon, and a bit of verjuice, vinegar, or grape must to thin the mixture a little, then pass it through a sieve.

Buckwheat is commonly thought to be a grain, but it's actually the seed of an herb. The seeds are used to make buckwheat flour; buckwheat groats are hulled, and the crushed seeds are cooked like rice. Buckwheat groats are "among the grains of good juice" and are a "bread-maker that makes a good broth," notes Platina. **Pepper**, which is not mentioned in the notebooks but was certainly used by Leonardo, was thought to grow on trees, an idea borrowed from Pliny. "Pepper is warm and dry, and for this reason it warms the stomach and liver, is harmful to the bilious, releases and drives wind from the bowels and moves the urine."

Mint "makes the heart glad, helps the stomach, kills worms, and is especially effective against the bite of a rabid dog," writes Platina, while **parsley** roots "act wonderfully against poison," and because bitter, the parsley root "suits medicine more than eating." Wild **thyme** "is effective against snakes, and when it is cooked in vinegar and smeared on the temples, it takes away headaches wonderfully." Cultivated thyme, "when taken in food, dispels dim eyesight, kills worms, moves the urine, brings on the menstrual period in women, and draws out stillbirths." **Nutmeg** "helps the human body by its force and fragrance, sharpens weakened vision of the eyes, settles vomit, and induces appetite by soothing the

stomach and liver." **Mustard**, like many of the herbs and spices described by Platina, is as much of a medicine as a food. "When smeared on an ailment of the body, it shows the force of its burning," Platina writes, indicating the early use of a mustard plaster. It also "drives out ills in the lungs, lightens a chronic cough, makes spitting easy... warms the stomach and liver... creates thirst, and stimulates passion."

Legumes

Beans, undoubtedly fava beans, are used in several of Martino's recipes, but **kidney beans**, on Leonardo's shopping list, are not mentioned by Martino. Since kidney beans, *Phaseolus vulgaris*, are a New World variety, they would not have been known by Martino, and it seems unlikely that they would have been in Italy so soon after 1492. Leonardo used the term "fagiuoli" to describe them, but fava beans are simply *fave* in modern Italian. Interestingly, *fagioli* is Italian for New World beans. **Peas** do show up in in a recipe Martino calls Fresh Peas with Salt Meat. After giving some advice on how to plant the pea, Platina notes that "it is sweet and less flatulent and harmful than the broad bean."

Platina calls the fava **bean** the "broad bean," and it appears in several recipes. According to him:

> Pythagoras abstained from eating broad bean porridge: either because, as he himself used to say, the souls of the dead reside in them, or else because this food, by its inflation, is uncommonly contrary to those seeking peace of mind, and it arouses the passion that resides in the testicles, which they used to say were similar to beans.

Platina, like Leonardo, mentions the mysterious **kidney bean** and even calls it "phaseolus," which is the genus name for many New World beans today. Platina is not kind to the kidney beans, writing that they "fill the head with gross and bad humors and bring on dreams, and indeed bad ones." He also writes that they are fattening but they do "lubricate the bowels." After eating kidney beans, "it is very necessary to drink pure wine."

Fave

"The fava bean has had the worst reputation of any of the common foods, and the most peculiar history. Pisanelli maintained that the bean would provoke *horribili sospiri*—horrible sighs. The gentle and tolerant Castelvetro said it could only be eaten by pregnant women, unwise children, pigs, and other animals. Other Renaissance writers believed that it induced nightmares and corrupt dreams. And although Tanara described the fresh bean as "food for princes," it is usually associated with the plebs, and poverty. The association was not unreasonable; the fava was one of the fundamental foods of the countryside."

—Berengario delle Cinqueterre

Meat

The word "meat" is used, but the type of meat to buy is unspecified. **Beef** and **good beef**, *bon bove*, are mentioned and were the main ingredients in stews, meatballs, turnovers, and kebabs. Platina both praises and denigrates beef and good beef. In the first place:

> No one doubts that beef, the label under which I list bull, cow and veal, is of great use to people by intelligence, drawing vehicles, milk, cheese, and hide for use in shoes. Hence it was a fact that among the ancients one was considered as guilty of capital offense to kill an ox without cause as one who killed a man.

But, don't eat beef, because it is "very hard to both cook and to digest" and offers "gross, disturbed, and melancholic nourishment," says Platina. Additionally, "it drives a person toward quartan fever, eczema, and scaly skin disease." It is possible that these negative comments about beef influenced Leonardo, who in his later years embraced vegetarianism.

Sweets

The only sweet mentioned besides **sugar** was **anise** candy. Leonardo mentions in his notebooks that his assistant Salai stole some money to buy anise sweets. Platina liked anise, writing that it improves the appetite and "represses the vapors that are seeking the head." It eliminates bad breath, "moves the urine, cures headaches, is good for the nerves, and increases passion."

Vegetables

The word "vegetables" is used in a generic sense, as is **salad**. I presume "salad" is a generic term for salad ingredients like lettuce and carrots rather than a salad mix like the ones sold in today's supermarkets. Martino doesn't mention them, but they were used between courses as a palate refresher in court dinners.

Platina describes the ingredients in a seasoned **salad** as "lettuce, borage, mint, calamint, fennel, parsley, wild thyme, marjoram, chervil, sow-thistle, lancet, nightshade, flower of fennel, and several other aromatic herbs." They are washed, drained, salted, and then sprinkled with oil and vinegar.

Miscellaneous

Vinegar was used with olive oil in salads, and, as Gillian Riley notes: "It had many uses in cooking, salads, pickled and preserved food, and as a refreshing drink, diluted with water and sometimes mixed with honey; it also had many medicinal uses." Vinegar, warns Platina, "is quite damaging, although it is given to melancholics, those with inflamed eyes, those laboring under pain in the joints, paralytics, or those subject to spasms, because it makes its way, with the bad humors, to the nerves and joints." He advises moderation and pouring vinegar over the bites of poisonous animals and notes that M. Agrippa "was freed from the worst pain of gout in his last years by soaking his feet in warm vinegar."

Sugar was the sweetener of candies, cookies, and pies and was used to create elaborate sculptures for feasts. The whiter the sugar the better, Platina advises. The "ancients used sugar merely for medicinal purposes," but by Leonardo's time that usage was expanded and sugar was an ingredient in many of the dishes in both Martino's and Platina's books. By melting sugar, writes Platina, "we make almonds... pine nuts, hazelnuts, coriander, anise, cinnamon, and many other things into sweets."

Wine was the drink of choice in Leonardo's house, and consumption of wine in northern Italy was about eight-tenths of a liter per person per day. The best drinking wines, according to Sir Robert Dallington, were *Passerina* and *Lugliola*. Platina praises wine but urges moderation and diluting the wine. Then he describes the various wines produced not only in Italy, but also in Corsica and Greece, and ends his commentary with the observation that his time "produces better wines than men."

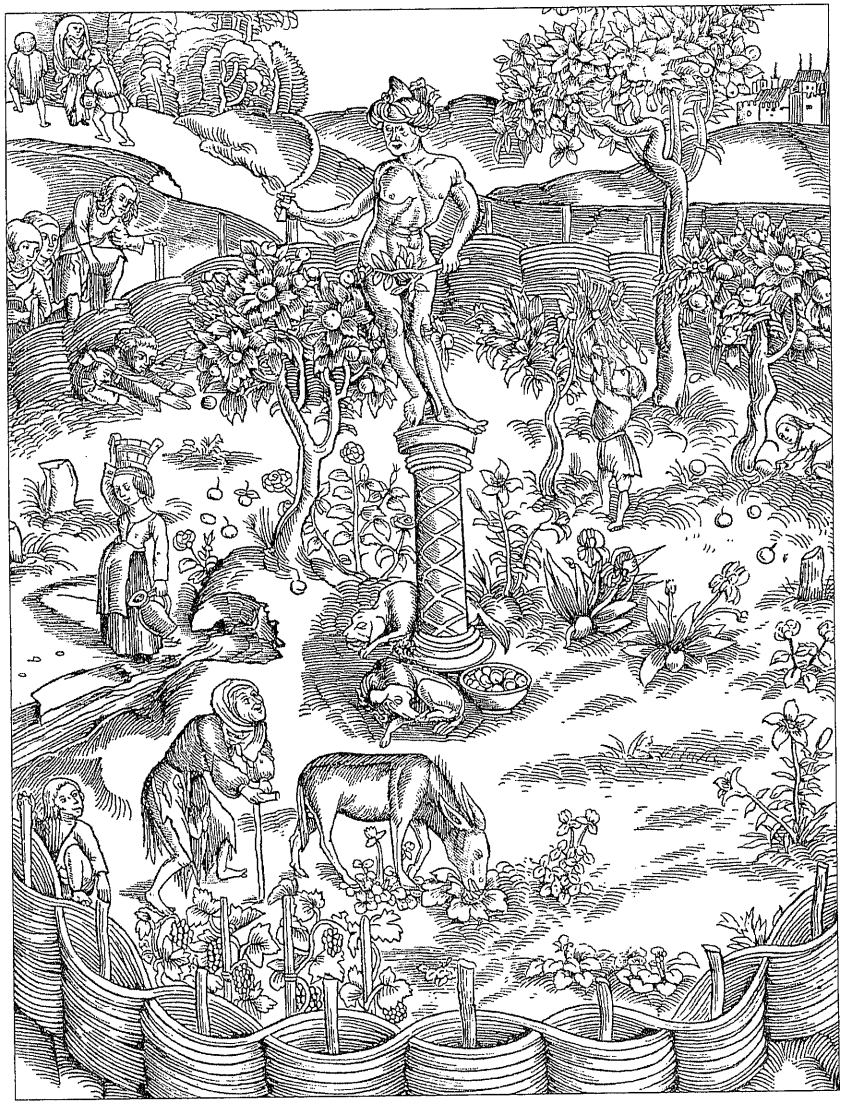
On Wine, by Platina

> Hence it is that nothing aids tired bodies more swiftly, if it is used moderately. In a similar manner, nothing is more harmful if moderation is absent. Because of drunkenness, men become trembling, troublesome, pallid, befouled, forgetful, bleary-eyed, sterile, slow to procreate, gray haired, and old before their time. It is enough for us briefly to enumerate what wines are valuable, but first I urge the readers not to think on this account that I am very greedy for wine, since no one drinks it more diluted than I, by custom and by nature.

Leonardo's Kitchen Designs and Inventions

In 1482, at the age of thirty, Leonardo moved from Florence and joined the court of Ludovico Sforza, the duke of Milan. In addition to creating masterworks like *The Last Supper*, Leonardo was a musician, a designer of war machines and defenses, and a producer of elaborate court spectacles like the "Feast of Paradise." In one instance, he was even doing some remodeling of the Sforza castle, most probably the apartments of Duchess Beatrice. So while working on *The Last Supper*, he was supervising remodeling of his lord's castle and also taking on some outside design work, probably on the mansion of Mariolo de' Guiscardi, an important Milanese courtier. In the *Codex Atlanticus*, Leonardo gives his ideas on kitchen design:

> The large room for the retainers should be away from the kitchen, so the master of the house may not hear their clatter. And let the kitchen be convenient for washing the pewter so it may not be seen being carried through the house.... The larder, woodstore, kitchen, chicken-coop, and servants' hall should be adjoining, for convenience. And the garden, stable, and manure-heaps should also be adjoining.... Food from the kitchen may be served through wide, low windows, or on tables that turn on swivels.... The window of the kitchen should be in front of the buttery [pantry] so firewood can be taken in.



A Renaissance garden, c. 1500
North Wind Picture Archives

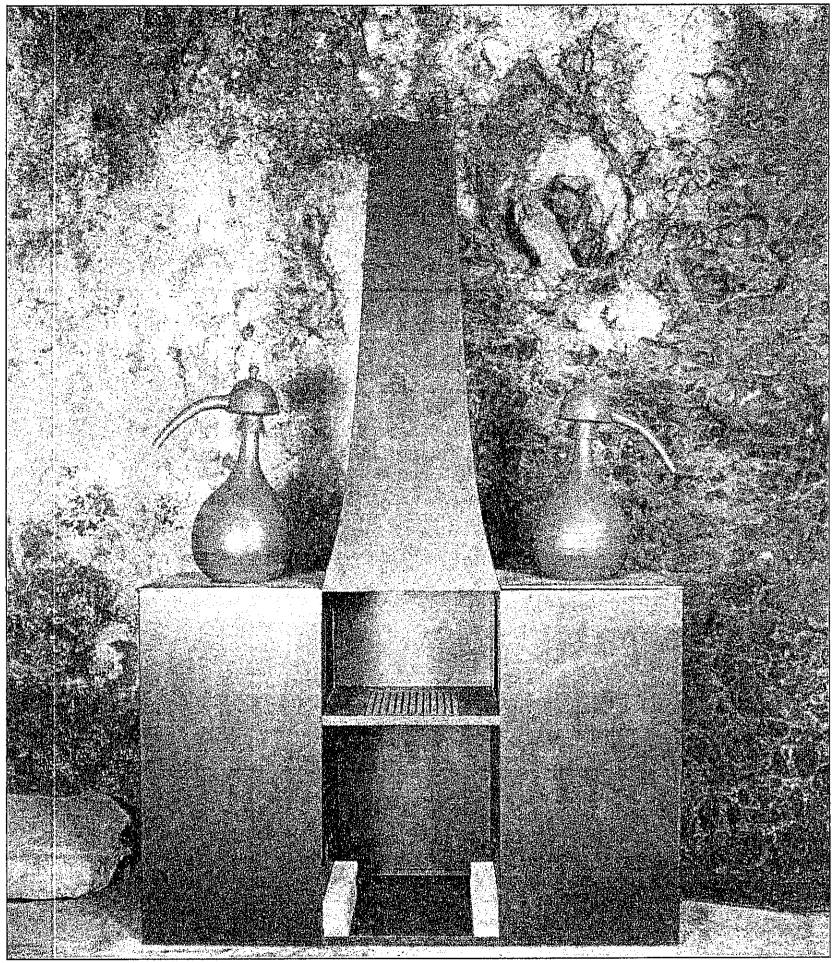
Unfortunately, any drawings Leonardo might have made of kitchens have never been found. But from other passages in his notebooks, we can get an idea of what foods he appreciated and what he was buying.

Always the inventor, Leonardo was interested in saving human effort. In drawings in the *Codex Atlanticus*, he invented two devices for turning meat on a spit over the fire to save effort on the part of the cooks. One of them used a counterweight lowered by rope wrapped around a cylinder. As the weight was lowered, it turned the cylinder, which turned the gears that turned the two spits. Of course, this invention required that the cooks turn the cylinder to hoist the counterweight once it had reached the ground.

The second automatic spit-turner is more ingenious because it harnessed the power of heated air. It is the first appearance in history of an air screw. Bern Dibner, writing in *The Unknown Leonardo*, notes: "Like an ingenious home handyman, he put his discovery to practical use in the kitchen... it promised to liberate the cook." Rising heated air in a chimney turned the vaned turbine, which turned the gears and the spit placed over the fire. "The roast will turn slow or fast depending on whether the fire is small or strong," notes Leonardo.

Devices like this were actually used in Renaissance kitchens. Italian food experts Capatti and Montanari explain: "A more advanced type of skewer involved a fan that, when set in motion by the hot air rising above the flames, caused a cylindrical cogwheel to rotate; this in turn moved the serrated wheel attached to the rod." It is tempting to believe that Leonardo provided the inspiration for this type of spit-turner, but that will probably never be known because we have no information on whether or not he showed his notebook designs to anyone. Leonardo is believed to have been very secretive about his notebooks, and they were never published during the Renaissance.

But we do know the primary result of the evolution of semi-automated spit-turners. In Scappi's *Opera* there is an illustration of Scappi's own device that winds up like a clock by way of the large drum at the bottom. When released, the chain turns the wheels and cogs that rotate the three spits on which the meats are skewered. Each spit turns at a different rate and is a different distance from the heat, giving the cook great leeway to cook different roasts at the same time. In the illustration, the top spit has a leg of lamb or veal that needs a longer cooking time than the sausages and small birds on the bottom spit. This style of spit-turner became common in Europe in later centuries, and some examples that have survived



Model of Leonardo's alchemic stove
Museo Ideale Leonardo da Vinci; photo by Marco Budinis

the centuries still function, although they need an engineer to maintain and adjust them.

Leonardo's attempt to control and better utilize the cooking fire was further refined in what some sources believe is the first working barbecue unit. The wood was placed in the bottom of the unit through an opening that also served as the vent for air to enter and keep the fire going. The food to be grilled was placed on a grate on top of the unit. The device is remarkably similar to barbecue units produced today.

Like with most of Leonardo's inventions, it is not known if any of these devices were actually constructed. Leonardo himself was never satisfied with his inventions. In the words of Bern Dibner, "No solution was ever adequate, for he would return later to some similar device to accomplish the same task by using different parts or a different assembly of parts."

Other, non-food-related inventions included his "tank," a device that resembles a flying saucer with guns protruding that was able to roll along the ground, giant automatic crossbows, large mortars firing shrapnel shells, flying machines, diving devices, and even more mundane devices like mechanical looms.

Biographer of Leonardo, Michael White, observes:

> The most distinctive aspect of his work as a military designer, and indeed an obsession which showed itself in many of Leonardo's ideas and plans, was his devotion to the notion of automation. This is particularly startling when we recall the world in which he lived, a civilization in which the fastest speeds were attained on horseback, in which carts and carriages provided the most sophisticated means of transport, a time three centuries before the first steam engine.

An interesting debate has evolved over another of Leonardo's inventions, the lock that made canals navigable. The Milanese cleric, Giovanni Ambrogio Mazenta (1565–1635), had thirteen of Leonardo's manuscripts in his possession and wrote in his memoirs about Leonardo's technical achievements, which many later scholars have insisted were never built. Ladislao Reti, in his essay "Elements of Machines," writes: "The information contained is significant because it is based on the widespread tradition still alive at the time" about the practical uses of Leonardo's ideas. "Mazenta writes of 'Leonardo's invention of machines and gates to level, intercommunicate and make navigable' the waterways connecting the Lombard lakes." He also mentions "many machines depicted in [Leonardo's] books, that have been put to use in the region of Milan, like weirs, locks, and gates, mostly invented by Leonardo."

Is this just hyperbole based on Leonardo's enormous reputation as an inventor? And what does it have to do with food? Well, as with many things about Leonardo, we don't know for certain. But the legend lives on. In his 1971 book, *The Food of Italy*, Waverly Root observes: "When Leonardo da Vinci's invention of the lock made the Po navigable and

extended the reach of the Naviglio, it brought into Milan rich cargoes of cream, butter, *mascarpone* cheese, honey, vegetables, and fruit."

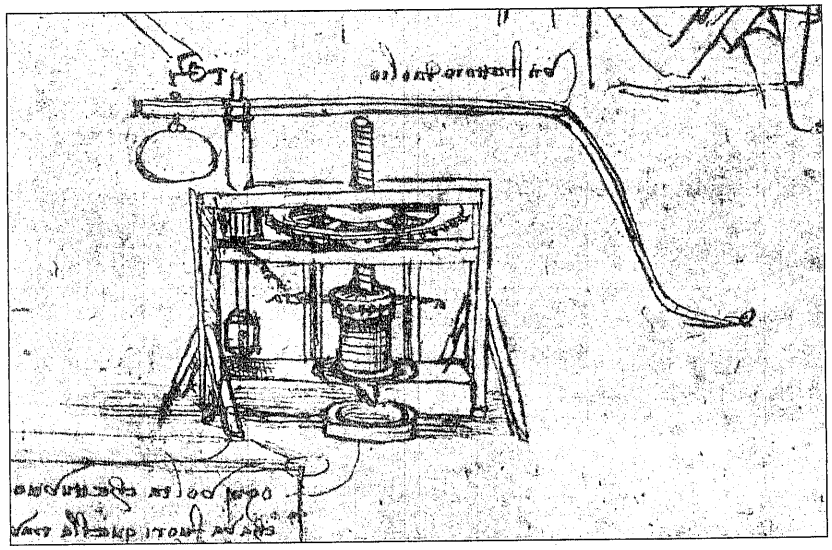
Leaving Milan

We have seen that Leonardo was busy with many projects, and even when he was at a party he was working. Giovanni Paolo Lomazzo (1538–1600), a painter who became a writer, collected anecdotes about Leonardo like this one:

> There is a story told by men of his time, who were his servants, that he once wished to make a picture of some laughing peasants (though in the event he did not paint it, but only did a drawing). He picked out certain men whom he thought fitted the bill, and having become acquainted with them, he arranged a party for them, with the help of some friends, and sitting down opposite them, he started to tell them the craziest and most ridiculous things in the world, in such a way that he made them fall about laughing. And so without them knowing he observed all their gestures and their reactions to his ridiculous talk, and impressed them on his mind, and after they left he retired to his room, and there made a perfect drawing which moved people to laughter when they looked at it, just as much as if they were listening to Leonardo's stories at the party.

We can speculate that quite a bit of that wine on Leonardo's shopping list was served at this party. The images referred to by Lomazzo are known as Leonardo's "grotesques," or as Leonardo called them, the "buffoonish, ridiculous and really pitiable."

During this time in the early 1490s, Leonardo was making progress on the bronze horse, the monument for Ludovico's father. For the wedding and feast of Ludivico's niece Bianca to the Holy Roman Emperor, Maximilian of Habsburg, in November of 1493, Leonardo presented the clay model of the bronze horse of Ludovico's father to the delight of the people of Milan. Giorgio Vasari wrote of it: "Those who saw the great clay model that Leonardo made considered that they had never seen a finer or more magnificent piece of work." Leonardo took careful notes on the casting of the horse in bronze, but that would never happen. Worried about the possibility of a French invasion of his territory, Ludovico sent the tons of bronze that would have been used for the horse to his father-in-law, Ercole



Leonardo's plan for an olive oil mill

Museo Ideale Leonardo da Vinci; photo by Marco Budinis

d'Este, who used it to make cannons in 1494. Ludovico was in debt to d'Este—he owed him 3,000 ducats—so perhaps the bronze was a partial repayment. "A tremendous blow to Leonardo and his studio" is how the biographer Nicholl describes the transfer of the bronze, but Leonardo only writes, "Of the horse I will say nothing because I know the times."

Leonardo apparently understood the situation, and, besides, he soon had another project, a painting for Ludovico at the refectory of the Dominican monastery of Santa Maria delle Grazie: the wall mural known as *The Last Supper*. Leonardo was faced with an interesting challenge while painting *The Last Supper*. At the supper table, as portrayed in his quasi-fresco, how would the disciples react after Jesus says, "Verily I say unto you, that one of you shall betray me"? In his notebooks, Leonardo plans how he will paint their reactions:

> One who was drinking and has left the glass in its position and turned his head towards the speaker.... Another who has turned, holding a knife in his hand, knocks over a glass on the table.... Another leans forward to see the speaker, shading his eyes with his hand.

In the painting, the figure of Judas even spills a salt cellar. Some of the disciples pictured are real portraits of Milanese courtiers and popular citizens. Leonardo paints them in a manner different from the versions of the supper that preceded his—instead of a linear grouping along the table, Leonardo goes for a wave perspective, as Nicholl puts it, "formed of four subgroups, each of three disciples: knots and huddles of men suddenly in crisis. Leonardo has found his dramatic moment. . . ." And that moment comes during the most famous supper in world history.

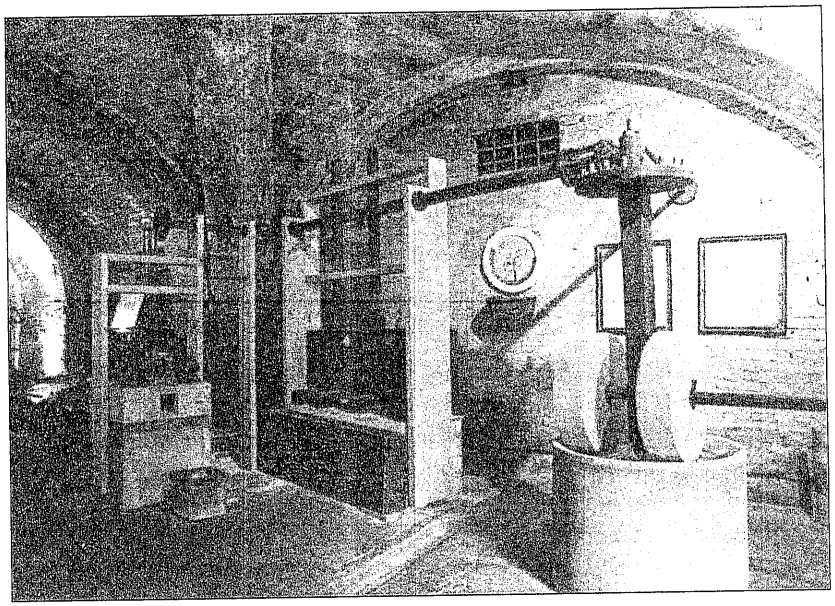
While he was working on *The Last Supper*, Leonardo was having financial problems—specifically problems with collecting his salary from Ludovico. In his notebooks, he drafted a letter to the duke: "It vexes me greatly that you should have found me in need and... that having to earn my living has forced me to interrupt the work and to attend to lesser matters. . . ." The "lesser matters" were probably the remodeling and painting work he was doing for the duchess.

In reality, the ongoing war had drained Ludovico's resources. His wife died in 1497 in childbirth, and the French were now allied with Florence and Naples against Milan. There was an uprising against Ludovico led by Gian Giacomo Trivulzio in August of 1499, and days afterward, Ludovico fled to Austria. The French triumphantly entered Milan in October, and one of their first actions, after burning, looting, and raping, was to have the archers use Leonardo's famous clay horse, the model for the statue, for target practice, nearly destroying it.

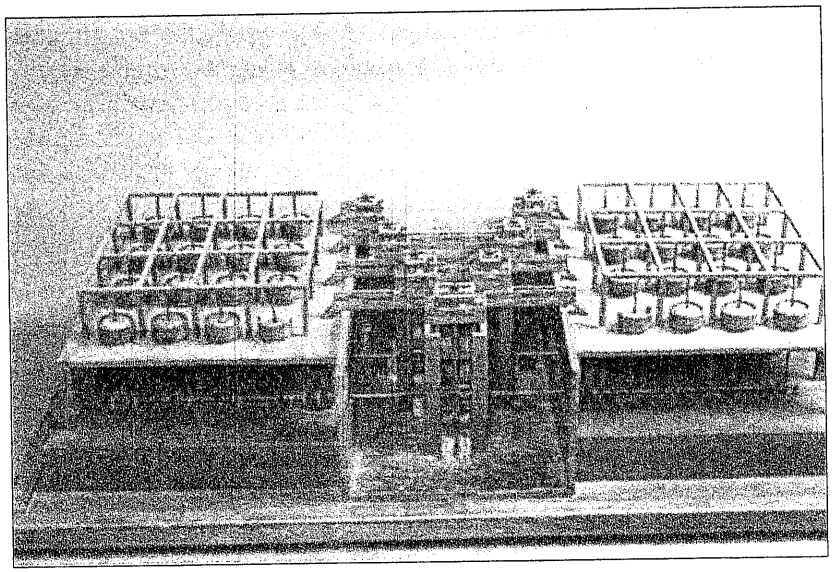
Leonardo got the message, transferred his savings to a Florentine bank, and fled Milan in December of 1499. "It was a different Leonardo who leaves now," writes Nicholl, "forty-seven years old, his chamois jerkin buttoned up against the cold, quitting the uncertain accomplishments of the Sforza years for an even more uncertain future." And the historian J. H. Plumb observes of the Sforzas, "The great horse designed by Leonardo for Ludovico in memory of his father seems curiously symbolic of their destiny—conceived in grandeur, executed in clay, never cast, ruined by the French, and destroyed by time."

Prophecies and Fables

Before he left Milan the first time, Leonardo wrote, probably as entertainment for the court, a series of "prophecies" in the form of riddles, and some of them concern food: "There will be many who will flay their mother and turn her skin inside out." (Farmers who till the land.) And he



Model of Leonardo's olive oil mill
Museo Ideale Leonardo da Vinci; photo by Marco Budinis



Model of Leonardo's water-powered wheat mill along the Po River
Museo Nazionale della Scienza e della Tecnologia

writes ironically, "The nut-tree by the roadside showed off to travelers the richness of its fruits; everyone stoned it."

"With merciless blows many little children will be taken from the arms of their mothers and thrown to the ground and then torn to pieces." (Fruits, walnuts, olives.) Nature is seen as being exploited by man—harvest is an act of wounding. However, olives are seen in another way: "And things will descend with fury from above, and will give us nourishment and light."

"Men will severely beat what gives them life." (Those who thresh grain.)

"Innocent children shall be taken from their nurses and will die with great wounds at the hands of cruel men. (Baby goats.)

"And many will be robbed of their stores and their food, and will be cruelly submerged and drowned by folks devoid of reason." (Bees.)

The biographer Kenneth Clark writes that these "prophecies" are not jokes. Given Leonardo's love of animals, they "represent his refusal to take as a matter of course the suffering which man's technical skill has allowed him to inflict on the other animals." Another biographer, Serge Bramly, believes that these prophecies "that turn on the identification of children may reflect wounds suffered from illegitimacy and his parents' separation." Leonardo's sentiment toward animals seems unusual in light of the fact that he designed machines so that men could kill each other more easily, but then Leonardo tends to be enigmatic.

Leonardo also lamented: "Eggs which being eaten cannot produce chickens. Oh, how many will those be who will never be born?" On the other hand, of course, Leonardo had eggs on his shopping list. This ambivalence surfaced again, when Leonardo wrote his legend "The Wine and Mohammed," even though wine, too, was on his shopping list.

> Wine, the divine juice of the grape, finding itself in a golden and richly wrought cup on Mohammed's table, was puffed up with pride at so much honor; when it was struck by a contrary mood, saying to itself: "What am I about, that I rejoice, not perceiving that I am now nearing my death and that I shall leave my golden abode in this cup in order to enter the foul and fetid caverns of the human body and be transmuted from a fragrant and delicious liquor into a foul and base fluid. And, as though so much evil were not enough, I for a long time have to lie in hideous receptacles, together with other fetid and corrupt matter cast out from human intestines." And it cried to heaven imploring vengeance for so much damage, and that an end be henceforth put to so much insult, and since this country produced the finest and best grapes in the whole world, these at least should not be made into wine. Then Jove caused the wine drunk by Mohammed to rise in spirit to his brain, contaminating it and making him mad, and giving birth to so many follies that when he had recovered, he made a law that no Asiatic should drink wine; and henceforth the vine was left free with its fruit.
>
> As soon as wine enters the stomach, it begins to ferment and swell; then the spirit of that man begins to abandon his body, rising toward heaven, and the brain finds itself parting from the body. Then it begins to degrade him, and makes him rave like a madman, and then he commits irreparable errors, killing his friends.

Leonardo tends to exaggerate a bit; but this is a legend, after all, and it is entirely possible that he is writing this tongue-in-cheek. Not only is wine on his shopping lists, Leonardo admits to buying it. In 1495, he wrote: "On Tuesday I bought wine for the morning, on Friday the 4th day of September the same." So not only is Leonardo buying wine, he's drinking it in the morning! Bramly writes, without specific attribution, that Leonardo advised: "Wine is good, but at table, water is preferable."

In Leonardo's fables, contained within his notebooks, trees, plants, animals, and even rocks become sentient creatures, and he presents a picture of the Italian countryside. In his fable "The Chestnut and the Fig Tree," Leonardo again addresses the idea that harvesting fruits and nuts from trees is cruel:

> The chestnut, seeing a man upon the fig-tree, bending the boughs toward him and plucking the ripe fruit which he put into his open mouth to destroy and gnaw with his hard teeth, tossed its long boughs and with tumultuous rustle exclaimed: "O fig! How much less are you protected by nature than I. See how with me my sweet offspring are set in close array: first clothed in soft wrappers over which is the hard but softly lined husk; and not content with taking this care of me, and giving them so strong a shelter, she has placed over this sharp and close-set spines so that the hand of man cannot hurt me." Then the fig-tree and its offspring began to laugh and after the laughter it said: "You know man to be of such ingenuity that

> he will bereave you of your fruits by means of rods and stones and stakes; and when they are fallen, he will trample them with his feet or hit them with stones so that your offspring will emerge from their armor crushed and maimed; while I am touched carefully by his hands and not like you with sticks and stones."

The point of the fable is that egotistical people who look down on others are put in their place, but the irony here is that no matter how well protected the "offspring" are, they both end up in the stomach of man.

In another fable about trees, Leonardo seems to be justifying his own lack of procreation:

> The fig-tree standing by the side of the elm and seeing that its boughs were without fruit and that it nevertheless had the audacity to keep the sun from its own unripe figs said reprovingly: "O elm, are you not ashamed to stand in front of me? But wait till my offspring are ripe and you will see where you are!" But when her fruit were ripe, a troop of soldiers passing by fell upon the fig-tree and tore off the figs, cutting and breaking the boughs. And as the fig-tree stood thus maimed in all its limbs, the elm-tree asked it: "O fig-tree, how much better it is to be without offspring than to be brought through them into so miserable a plight."

In the fable "The Privet and the Blackbird," Leonardo shames people who think that the world revolves around them, again using the theme of the taking of fruit from the plant:

> The privet feeling its tender boughs, loaded with young fruit, pricked by the sharp claws and beak of the insolent blackbird, complained to the blackbird with piteous remonstrance entreating it that since it stole the delicious fruits it should at least spare the leaves which served to protect them from the burning rays of the sun, and desist from scratching the tender bark with its sharp claws. To this the blackbird replied with an angry upbraiding: "Oh, be silent, uncultured shrub! Do you not know that nature made you produce their fruits for my nourishment; do you not see that you are in this world to serve me with food; do you not know, base creature, that next winter you will be food and prey for the fire?" To these words the tree listened patiently, and not without tears. Shortly afterwards the blackbird was caught in a net and boughs were cut to make a cage and imprison it. Branches were cut from the pliant privet, to serve for the plaited twigs of the cage; and seeing that it was the cause of the blackbird's loss of liberty the privet rejoicingly said: "O blackbird, I am here and not yet burnt as you have foresaid. I shall see you in prison before you see me burnt."

Leonardo was something of a fatalist in these fables: "Man and the animals are merely a passage and channel for food, a tomb for other animals, a haven for the dead, giving life by the death of others, a coffer full of corruption." He goes on morbidly to write, "Men shall come forth out of graves changed to winged creatures [flies that feed on corpses] and they shall attack other men, taking away their food even from their hands and tables."

But Leonardo went on and had some fun.

The Company of the Cauldron

In the early 1500s, the Florentine sculptor Giovan Francesco Rustici formed a group called the Company of the Cauldron and staged banquets. Each member of the group could bring four guests and was expected to supply one creative dish. Waverly Root states that it was the first cooking academy since Roman times. "The result sounds like a deliberate parody of the décor and food of a grand Medici court banquet," notes Roy Strong. Paul Barolsky, author of the interesting book *Infinite Jest: Wit and Humor in Italian Renaissance Art*, describes one of the events:

> One of the most extraordinary of these was made by Andrea del Sarto, who confected an octagonal structure like the Bapistery of Florence. The pavement was made of jelly, its columns, which looked like porphyry [colorful Egyptian rock], were large sausages, the bases and capitals were made of parmesan cheese and the tribune of marzipan. Sarto's playful tour de force in what might be called gastroaesthetics (a neglected field) is reminiscent of the witty and elaborate culinary creations described by Petronius in the *Satyricon*....

The first Leonardo biographer, Giorgio Vasari, completes the description:

> In the middle was a choral music-rest made of cold veal with a book of lasagna that had letters and notes to sing of [made of] pepper grains and those who sang and read were thrushes cooked with open mouths and held up by certain cassock-like clothing made of thin slices of pork and behind these as counter-basses were two large pigeons, with six ortolans [larks] who were the sopranos.

Historian Giuseppe Conti wrote *Facts and Anecdotes of Florentine History* in 1902. In it, he describes the Company of the Cauldron, or Paiuolo:

> The Company founded by Rustici was that of the Paiuolo. The Company of Paiuolo was composed of a party of gentlemen who gathered in the room of the Sapienza. At the dinners and to pass the time each of the twelve members conducted no more than four people; and everyone was obliged to bring a dinner of his own invention; and if there was found two who had had the same idea, they were given a punishment at the pleasure of the Signore, who was the leader. He would then collect the dishes that were brought and redistribute them as he liked. As soon as he had formed the Company of the Paiuolo, Giovan Francesco Rustici gave a dinner to his companions; and to justify the title, brought into the room a vat, that was attached to the ceiling by a large handle held there by a iron hook, the room was painted and curtains hung to add to the effect of them being in an enormous *paiuolo* (pot). The companions who had just arrived on the threshold were surprised and applauded this strange sight; and entering began to laugh like crazy at the vat, where inside were seats and in the middle a table. From the ceiling, attached by a handle, was hung a chandelier, that lighted the inside of the *paiuolo*. When they were all seated, the table opened and there appeared a tree with many branches on which were ingenuously placed two dishes of the main course for everyone of the invited. The tree disappeared when the first dishes were finished, and reappeared with others. Around the paiuolo were servants, who poured vintage wines. . . .

In 1508, Leonardo was back in Florence, living in the house of his rich patron, Piero di Braccio Martelli, as was Rustici. Rustici had a menagerie

in his studio consisting of an eagle, a crow "who could speak like a man," snakes, and a porcupine trained like a dog. Leonardo and Rustico were friends, and undoubtedly Leonardo participated in some of the banquets held there. Serge Bramly notes, "Leonardo, himself much given to jokes of all kinds and perhaps the first among artists to possess many animals, must have felt at home in the free and easy atmosphere of the Casa Martelli."

The Vegetarian

Leonardo writes in his notebooks, "Now does not nature produce enough simple [vegetarian] food for you to satisfy yourself? And if you are not content with such, can you not by the mixture of them make infinite compounds, as Platina describes and other writers on food?" These quotes are often given as evidence that Leonardo was a vegetarian, but this is not well known today.

Colin Spencer, author of *The Heretic's Feast: A History of Vegetarianism*, bemoans the fact that Leonardo is not more celebrated as a famous vegetarian. "Yet in the sixty or so biographies in the London Library on his life and work," he writes, "only one book bothers to discuss his vegetarianism." That may be true for the earlier biographies, but the more current ones do discuss it. Nicholl refers to his "famous vegetarianism," and Bramly notes: "There cannot have been many vegetarians in Renaissance Italy."

Sigmund Freud thought that Leonardo was a man torn between pity and aggression. His vegetarianism was part of the "pity" side of him because he didn't like what he thought was cruelty to animals; the "aggression" side of him were his designs of military weapons and, according to Freud, his suppressed sadism from his practice of accompanying condemned criminals to execution so that he could draw their facial expressions upon death.

Although he is sometimes referred to as a lifelong vegetarian, there is considerable evidence that Leonardo ate meat in his early life and probably turned totally vegetarian only in his later years. In the *Codex Leicester*, Leonardo designed a meat-roasting jack, a device for turning a roast, and in MSS B of the Library of the Institut de France there is a description of his design of a stove for smoking meats. "And the smoke proceeds to spread itself throughout the numerous flues," Leonardo wrote, "and to cure salted meats, tongues, and sausages to perfection."

Later in life, however, Leonardo seems to have rejected eating meat. According to a Florentine traveler, Andrea Corsali, writing from Cochin,

India, to Giuliano de' Medici, the Gujarati people there "do not feed on anything that has blood, nor will they allow anyone to hurt any living thing, like our Leonardo da Vinci; they live on rice, milk and other inanimate foods." Biographer Eugene Muntz writes in *Leonardo da Vinci: Artist, Thinker, and Man of Science* (1898): "It appears that from Corsali's letter that Leonardo ate no meat, but lived entirely on vegetables, thus forestalling modern vegetarians by several centuries." But what about Leonardo's surviving shopping lists, which include meat? Charles Nicholl notes: "The fact that meat is bought every day does not show that Leonardo was at this point a meat-eater, only that he did not insist on others in his household abstaining."

Some scholars have speculated that Leonardo's life was in danger in fifteenth-century Italy simply because he was a vegetarian. The then-prevailing Catholic orthodoxy held that, because God had given humankind dominion over all the animal kingdom, it was nothing short of blasphemy to refrain from eating flesh. The Church called vegetarian food "the Devil's banquet" and could have burned vegetarians at the stake for heresy. Yet, somehow Leonardo got away with it, just as he got away with other forms of heresy, like his publicly avowed belief in rational science and "humanism" and his arrest (charges later dropped) for sodomy. One of the great mysteries about Leonardo is, in light of his secular views, how he still received commissions and money from the Church. It could be a simple matter of his fame as a painter, or because Leonardo was a hired painter and the Church (and other patrons) wanted him to paint religious scenes.

Leonardo believed God was the *primo motore*, or prime mover, but he attributed the functioning of the world to nature and formulated a religious philosophy that relied more on a respect for life than constant supplication to God. Out of this philosophy evolved his vegetarianism. He could have been burned at the stake for being a heretic, or hanged—but he wasn't.

Leonardo's Salad Dressing

In his notebooks, Leonardo includes what appears to be part of a salad dressing recipe—a list that consists of "parsley (10 parts), mint (1 part), thyme (1 part), vinegar, a little salt." Using this sketchy information as a basis, I have created the following dressing and added olive oil to it. Serve it with a salad Platina-style, consisting of lettuce, mint, fennel, parsley, thyme, and marjoram.

INGREDIENTS

10 teaspoons fresh Italian parsley, minced
1 teaspoon fresh spearmint, minced
1 teaspoon fresh thyme, minced
¾ cup olive oil
¼ cup wine vinegar
Salt and freshly ground black pepper, to taste

Combine all ingredients in a jar and shake well.

YIELD: 1 cup