

英文世界名人傳記

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LEONARDO DA VINCI

FAMOUS FOLK SERIES

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# LEONARDO DA VINCI

BY

KATHARINE R. GREEN, B.A.

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## FAMOUS FOLK SERIES

By KATHARINE R. GREEN

GEORGE WASHINGTON

ABRAHAM LINCOLN

THEODORE ROOSEVELT

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LEONARDO DA VINCI

## FAMOUS WOMEN OF THE WESTERN WORLD

By CHEN TSUNG-HSI

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WOODROW WILSON

OTTO VON BISMARCK

## PREFACE

Every one who studies the life of that great man, Leonardo da Vinci, is greatly indebted to Vasari. In his "Lives of the Painters," this early biographer gives the alluring picture of Leonardo as he appeared to those of his own generation.

Many writers have, in recent years, been inspired to consider the claims of Leonardo to greatness. This Florentine of the fifteenth century is to them an intriguing figure and they would have the world do him the honor which seems his due.

To several of these writers we owe a debt of gratitude. Through them, has been revealed to us a greater insight into the character of Leonardo, a juster appreciation of his art, and a truer estimate of his work as a scientist. Let us then give our heartfelt thanks to Edward McCurdy ("The Mind of Leonardo da Vinci"), to Mrs. Charles W. Heaton and Charles C. Black ("Leonardo da Vinci and His Works"), to Mrs. Rachel A. Taylor ("Leonardo, the Florentine"), to Clifford Bax ("Leonardo"), to Emil Ludwig (in "Genius and Character") and to Thomas Craven (in "Men of Art").

Just before beginning the writing of this sketch, the author had the great privilege of visiting Florence, the scene of Leonardo's early life, Milan where he spent so many busy years and Paris where in the Louve Gallery are so many of his famous pictures.

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# LEONARDO DA VINCI

## INTRODUCTION

Everyone who loves art feels irresistably<sup>1</sup> drawn towards Italy, for that land has been the home of some of the world's greatest artists. Michael Angelo, Raphael, Titian, are names which everyone venerates.<sup>2</sup> Upon their works of art, masterpieces of painting and sculpture, rests the fame of these great men.

As an artist, Leonardo da Vinci was as great as the greatest of them, but he has a broader claim to renown than have they. Leonardo was a very great artist but he was also a scientist. Indeed he was perhaps one of the greatest scientists the world has ever known. To the men of his own generation, his investigations and experiments made known countless new laws of nature and art. They marveled not only at his great paintings but also at his great insight into natural laws and his many inventions. But, only to us of a later generation, has been revealed the true greatness of the man.

It is only within comparatively recent years that men have undertaken to study Leonardo da Vinci's notebooks. Scattered among the great libraries of Europe, these famous notebooks attracted little attention until the

<sup>1</sup> irresistably, overpoweringly.

<sup>2</sup> venerates, reveres.

present century. Then were discovered, hidden behind a system of inverted writing, some of the most remarkable ideas. To the amazement of mankind, it was found that Leonardo, the artist, should quite as properly be called Leonardo, the scientist.

Indeed it would seem that there has been no scientific discovery or invention made since his time, of which he did not dream, for which he did not plan. In his scientific knowledge and foresight he was hundreds of years ahead of the men of his time.

We, of this generation, heartily echo the words of Vasari, his early biographer, "Truly admirable, indeed divinely endowed was Leonardo da Vinci."

## CHAPTER I

### LEONARDO, A COUNTRY BOY

Not far from Florence where the River Arno winds about among the vine-covered hills of Tuscany,<sup>1</sup> lies the sleepy little village of Vinci. Ancient castles and fortress-like rocks crown the summits of many of the surrounding hills. Little groves of silver-gray olive trees rise from among the fragrant grapevines on the hill-sides. Here and there stands a stately cypress tree, dark against the bright Italian sky.

In this little town of Vinci lived, in the early half of the fifteenth century, a certain Ser Piero—a lawyer and the son and grandson of lawyers. Of him and of his fathers, no one would have heard but for a certain event which happened in 1452. In that year Ser Piero became the father of an illegitimate<sup>2</sup> baby whom they named Leonardo.

Of Leonardo's mother very little is known. She is said to have been a peasant girl called Caterina. Until he was five years old, she kept her beautiful little son with her. Then she gave him up to his father, Ser Piero. In the meantime, she had married a rough peasant and was, by that time, tied down to the drudgery<sup>3</sup> of hard work and poverty.

<sup>1</sup> Tuscany (tūs/kā-nī), an agricultural district of Italy.

<sup>2</sup> illegitimate, born out of wedlock.

<sup>3</sup> drudgery, wearisome and menial toil.



In the same year in which Leonardo was born, Ser Piero married a wife chosen for him by his family. No children were born to him and his wife. They therefore sought out little Leonardo and brought him up in their home as their own son. After the death of his first wife, Ser Piero married again but his second wife was also childless. And so, for twenty-four years, Leonardo was the only child of his father. The loving hopes of his father's family were centered upon him and he received every advantage of culture and education which his father could secure for him.

Leonardo was a beautiful child and loved beauty wherever he found it. He delighted in watching the birds as they rose from the ground or circled in long flight across the bright blue sky. He picked the lovely flowers and studied how they were made. He sang very prettily and learned to play the lute. He adored horses and early learned to ride well.

Whatever his tutors could teach him he learned with eagerness but his curiosity went far beyond such narrow limitations. "In arithmetic," says one of his early biographers, "he often confounded the master who taught him, by his reasonings and by the difficulty of the problems he proposed."

As a little child, Leonardo played in the brilliant sunshine or under the shade of the vines and olive trees. He sniffed with delight the fragrance of the grape and wild rose and almond. As his little legs grew stronger he must have wandered over to play in the river and to watch its dancing waters. Indeed, water seems always to have fascinated Leonardo, and his youthful curiosity may have impelled him to try experiments to study its nature.

As soon as his fingers could grasp a pencil or a piece of chalk, little Leonardo began to make pictures of what he saw. Did he draw pictures of the river, of rocks, of birds and of flowers? Did he try to draw pictures of people? Surely something of the future artist must have shown in these childish sketches, for they delighted Ser Piero.

At what time, Ser Piero moved his family to Florence is not known. When he arrived there, however, he proudly displayed to his friend, Verrocchio,<sup>1</sup> some of his son's drawings and was delighted with the enthusiastic praise of that artist. Indeed, Verrocchio was very glad to welcome this promising youth into his own studio as one of his students and to guide him in the beginning of his artistic career.

<sup>1</sup> Verrocchio (vĕr-ròk'kyò), an Italian goldsmith, sculptor and painter.

## CHAPTER II

### THE FLORENCE OF LEONARDO'S TIME

The Florence with which Leonardo became acquainted in his youth was indeed a city of flower-like beauty. She lay on both sides of the winding Arno surrounded by her strong walls with their eleven convenient city-gates. Beyond the city walls on the gentle slopes of the encircling hills were the pleasant villas,<sup>1</sup> beautiful gardens and rich vineyards. From the top of these hills, could be seen the stately churches and magnificent palaces of Florence, lying a gorgeous picture in ivory, yellow or rosy tints in a setting of green. The shimmering<sup>2</sup> waters of the Arno flowed through the midst of her and across it stretched quaint bridges bordered with their small shops.

Seventy or more towers on the city wall guarded the city by night and by day. From within the city rose the mighty dome of the Cathedral and beside it, the Campanile,<sup>3</sup> that suburb bell tower whose massive proportions had been so skillfully planned that it appears light and graceful.

This beautiful city has had a long and illustrious history. The republic which was established in the thirteenth century had its early beginnings in the eleventh century

<sup>1</sup> villas, country houses of some elegance.

<sup>2</sup> shimmering, gleaming.

<sup>3</sup> Campanile (kām'pā-nō/lā), bell tower

under the rule of the Countess Matilda. That remarkable woman called about her to assist in the government of the city, a group of great nobles, judges and lawyers, who continued to exercise authority in the government after her death at this later time, in the name of the people.

No steady development of republican principles followed this beginning of political freedom. But, in the thirteenth century, the city was divided into two republics. These never, however, developed a really strong position. Their constitution "although of very democratic tendencies, seemed designed to promote civil strife and weaken the central power."

For many years the Florentines continued to try experiments with various systems of government. Unfortunately, they suffered both from the greed of the nobles and from the jealousy and enmity of the neighboring states. But, in spite of these hindrances<sup>1</sup> to good government, in the summer of 1343, the people rose up against a tyrant who had usurped great power. They drove him out, and established a thoroughly democratic and commercial republic.

During the next century or more, the fortunes of the republic of Florence varied. Attacks from without and famines within the city troubled its citizens but the republic survived in spite of all difficulties.

In the early fifteenth century, Giovanni<sup>2</sup> de Medici<sup>3</sup> was elected chief justice of the city. His son, Cosimo de

<sup>1</sup> hindrances, obstacles.

<sup>2</sup> Giovanni, jo-vän'nee.

<sup>3</sup> Medici, më'dê-chē

Medici, gained much popularity with the people by becoming their leader in opposition to the aristocratic party. Cosimo's son, though he remained a private citizen, succeeded in becoming very powerful in directing the affairs of state. Later, his grandson, Lorenzo, though also remaining a private citizen, became an absolute tyrant. He still maintained the old republican form of government, but he exercised complete control of affairs. His spies were everywhere and speedy vengeance overtook any who dared oppose his schemes.

Lorenzo de Medici was a man of loose morals. He took delight in encouraging the people in indulging in the wildest orgies.<sup>1</sup> Moreover, he arranged endless festivals to keep them well entertained, hoping in that way to make them forgetful of their lost liberties.

In spite of the greatest profligacy,<sup>2</sup> Lorenzo was, nevertheless, a patron of art and literature. In his palace were entertained many illustrious men. The most famous of these artists, who lived at Lorenzo's expense, was Michael Angelo.

Lorenzo, who was called "The Magnificent," was at the height of his brilliance and power when Leonardo da Vinci came to Florence and entered the studio of Verrocchio.

<sup>1</sup> orgies, revelries.

<sup>2</sup> profligacy, corruption of morals.

## CHAPTER III

### LEONARDO, A STUDENT IN FLORENCE

Just how old Leonardo was when he entered the studio of Verrocchio is not known. But the boys of Florence were usually apprenticed to the trades at fourteen. Leonardo would not have been younger than that and it seems likely that he was about that age, when he became an art student.

In Verrocchio's studio, the boy found a very congenial<sup>1</sup> atmosphere. With the other students, he listened with rapt attention to the instruction and criticisms of the master and with them, he tried many sorts of artistic expression.

Verrocchio had had a wide and varied experience in art. He had started his career as a goldsmith. There his artistic ability received such high praise, that he was encouraged to attempt other forms of art expression. He was better known as a sculptor than as a painter and his students were encouraged to do a great deal of modeling in clay.

Young Leonardo was very versatile.<sup>2</sup> He was not satisfied to devote himself merely to one branch of art. Though his aim was to become a great painter, he gladly seized the opportunity offered at Verrocchio's studio, to learn the art of modeling. While still a youth he

<sup>1</sup> congenial, sympathetic.

<sup>2</sup> versatile, many-sided.

made in clay "some heads of women that are smiling," and "some heads of boys which possess all appearance of having come from the hand of a master." Vasari tells us that these models in clay were still in existence in his day and that people were still taking plaster casts from them.

Leonardo's interest in art grew until it included architecture. He soon began to design buildings of various sorts.

From art, the young student turned his attention to science. He was the first to urge that the River Arno be made navigable<sup>1</sup> so that boats might travel between Florence and Pisa. He made drawings also of flour-mills and of various other machines which were to be driven by the force of water.

Since it is not likely that Leonardo could have been taught the exact sciences of mathematics, architecture and engineering in Verrocchio's studio, it may be assumed that he studied also with certain other masters then in Florence. Indeed there were in Florence at that time some very famous teachers. One was a very noted teacher of mathematics; another was a famous philosopher; and a third was a noted teacher of mathematics, astronomy, geography and medicine.

Leonardo's eagerness to learn about the operations of nature and his natural love of mathematics would certainly have driven him to these able men for instruction. His later expert knowledge and scientific method of approaching problems of all sorts proves that he had

<sup>1</sup> navigable, deep enough and wide enough to afford passage to vessels.

received scientific training and this was probably in his youth.

An insatiable<sup>1</sup> curiosity drove Leonardo to study all nature so that he might understand the laws which control her and, by endless experiments, he attempted to invent machines which should be able to do some hither-to undreamed-of labor.

One of the things he sought to design was some method of removing mountains. Or, if that seemed too difficult, he proposed to dig tunnels through them so that men might pass easily from one plain to another through the mountains instead of being forced to climb over them. He studied also how harbors might be kept open and their channels kept clean. He devised methods of moving great weights, of drawing water from great depths. "From speculations<sup>2</sup> of this kind, he gave himself no rest," Vasari tells us.

Though he gradually became so keenly interested in these various scientific speculations, still the greater part of Leonardo's time was probably spent in the studio. And the young artist could scarcely have found a better teacher than the kind-hearted Verrocchio. In his studio, Leonardo had also the inspiring companionship of other young artists, students and guests of Verrocchio. Among them, he must have found most congenial, Perugino,<sup>3</sup> a youth of his own age. The latter also became in time a very distinguished artist and was later the teacher of Raphael.

<sup>1</sup> insatiable, incapable of being satisfied.

<sup>2</sup> speculations, thoughts; theories

<sup>3</sup> Perugino, pã'rōō-jé'nō.



Florence is a very beautiful city. No doubt the young art students were urged to contemplate the masterpieces of painting and architecture by which they were surrounded.

Leonardo must have drawn much inspiration from the beautiful buildings of the city. One can imagine him standing for hours at a time in the wonderful Cathedral, studying out the means by which those former artists had achieved so magnificent a building. Did he not stand also before the Campanile absorbed in contemplating its graceful beauty — absorbed quite as much, perhaps, in calculating what proportions were necessary in order to produce such marvelously light and graceful effects? Leonardo must have studied also the fortress-like palaces of Florence — palaces strong enough to withstand a siege and yet decorated in every portion with carvings and paintings.

On bright, warm days or in the early twilight, the youthful artists were accustomed to wander beyond the city walls. Perhaps Leonardo strolled<sup>1</sup> through the lovely gardens or visited the great villas on the hillside; or sat, alone, wrapt in thought, gazing on the fascinating waters of the Arno as they flowed gently towards the sea. Perhaps he planned as he sat there, how these waters might be made more useful to the city by making the river navigable.

Sometimes he wandered, alone, far away from the brilliant city — far into the lonely places where he might study nature undisturbed. He followed the River Arno back along its course and watched with eager eyes the

<sup>1</sup> strolled, walked aimlessly about.

play of its waters over the colored sands. And once, in a lonely spot among the dark, forbidding rocks of the mountain side, he came upon a great cave.

"Unable to resist my eager desire," he wrote in his notebook, "and longing to see . . . the various and strange shapes made by formative nature, and having wandered some distance among gloomy rocks, I came to the entrance of a great cavern in front of which I stood some time, astonished and unaware of such a thing. Bending my back into an arch, I rested my left hand on my knee and held my right hand over my downcast and contracted<sup>1</sup> eyebrows, often bending first one way and then another to see whether I could discover anything inside, and this being forbidden by the deep darkness within, and after having remained there sometime, two contrary conditions arose in me, fear and desire—fear of the threatening dark cavern, desire to see whether there were any marvelous thing within it."

The year 1476 was an eventful one for Leonardo. Ser Piero, who had now married for the third time, began to have other children. This very likely may have diverted<sup>2</sup> his father's interest somewhat from the career of his brilliant, eldest son. In the same year, there was brought against the young artist an anonymous<sup>3</sup> accusation. He and three others had to stand trial for an alleged<sup>4</sup> offense against public morals. Young Leonardo was found by the judges to be innocent of offense but the ordeal must have been a very unpleasant one for him.

<sup>1</sup> contracted, drawn together.

<sup>2</sup> diverted, turned aside.

<sup>3</sup> anonymous, of unknown authorship.

<sup>4</sup> alleged, asserted without proof.

After Leonardo da Vinci left the studio of Verrocchio he did not return to his father's home. Instead he rented a place for himself where he lived independently. He must, however, have received an allowance from his father, for he kept several servants and lived in very good style.

In person, the youthful artist was very pleasing. He was tall and very handsome. His movement were full of grace and beauty, and his charm of manner won the admiration of all with whom he associated. Moreover, Leonardo had a beautiful voice. He had learned to play the lyre and "sang divinely." No wonder he was welcomed by society and mingled freely with the people of refinement of the city.

Pleasant stories are told about Leonardo's kindness to animals. When, for instance, he passed the place where captive birds were sold, he used frequently to buy them. Then he would deliberately<sup>1</sup> open their cages and set the birds free.

From his boyhood, Leonardo had delighted in horses and he became a very good horseman. He was fond of other manly sports as well and was exceedingly strong. Indeed, the story is told that he could, with his bare hands, bend an iron horseshoe.

Leonardo's chief interest, however, was in art and in his search for knowledge.

There is a most interesting history to one of Leonardo's early paintings. It seems that a peasant from his old home brought one day to Ser Piero a flat piece of wood cut from a fig-tree. This he had fashioned into a shield

<sup>1</sup> deliberately, on purpose.

and asked Ser Piero to have it painted in Florence for him. Ser Piero passed on the request to his son and Leonardo "began to consider what he could paint that would most effectually<sup>1</sup> terrify all beholders.<sup>2</sup> For this purpose he collected in a room that no one entered but himself, a number of lizards, hedgehogs,<sup>3</sup> newts,<sup>4</sup> serpents, dragon flies, locusts, bats, glowworms, and every other creature of like kind, that he could find, and out of these he formed a hideous and appalling monster<sup>5</sup> breathing poison and flames, and surrounded by an atmosphere of fire."

When Leonardo had finished painting this monster on the shield, the young artist invited his father to his studio. In preparation for his father's visit, Leonardo had placed the shield on an easel<sup>6</sup> in the center of the room and had drawn the curtain in order to make the light more dim. Ser Piero was so startled, when he entered the studio, to behold this frightful monster that he rushed out in terror believing it to be alive. Leonardo, well satisfied with the effect which his painting had produced, called his father back and presented the shield to him. Ser Piero knew the value of his son's work. He did not return the shield to the peasant. Instead he bought for him another and later, he sold Leonardo's shield to some merchants for a hundred ducats. What became of it finally, no one knows.

<sup>1</sup> effectually, completely; powerfully.

<sup>2</sup> beholders, people looking; eye-witnesses.

<sup>3</sup> hedgehog, a certain sort of small, insect-eating animal.

<sup>4</sup> newt, a certain sort of small animal living either on land or in the water.

<sup>5</sup> monster, huge beast.

<sup>6</sup> easel, a frame for supporting a picture.

Leonardo painted several other pictures of note during these student days, but them we shall discuss in a later chapter.

Leonardo da Vinci certainly had very great talent as a painter. It seems very strange, therefore, that the art-loving Lorenzo gave him no commissions. For some unknown reason, Lorenzo seemed to have preferred others, even when Leonardo as an artist was far superior to many whom he employed.

## CHAPTER IV

### LEONARDO IN MILAN

Leonardo da Vinci was about thirty years old when he left Florence. Why he was ready to leave that beautiful city we do not know. Perhaps it may have been that he felt it an unfriendly place, for in spite of his social popularity, he seems to have been rather a solitary figure there. His father had become absorbed in the young children now crowding his home. His fellow artists, more limited in their interests, may have looked askance<sup>1</sup> at Leonardo's scientific investigations. Also, the latter may have resented the failure of Lorenzo de Medici to give him the recognition he felt his due. Perhaps, when he saw several of his artist-friends gaining fame in Rome, he also longed for new opportunities in which to prove his own worth.

At any rate, in the year 1481, when he was twenty-nine years old, he wrote the following remarkable letter to Lodovico Sforza,<sup>2</sup> also called Il Moro. This prince was then the regent<sup>3</sup> of Milan and afterwards became the Duke of Milan.

“Having, most illustrious lord, seen and duly considered the experiments of all those who repute<sup>4</sup> themselves masters in the art of inventing instruments of

<sup>1</sup> askance, distainfully; distrustfully.

<sup>2</sup> Sforza, sfôr'tsä.

<sup>3</sup> regent, one who rules in the name of the sovereign.

<sup>4</sup> repute, estimate; consider.

war, and having found that their instruments are useless, or else such as are in common use, I will endeavor, without wishing to injure anyone else, to make known to Your Excellency certain secrets of my own; and at an opportune<sup>1</sup> time, should you see fit to put them into execution, I hope to be able to effect all the things enumerated<sup>2</sup> briefly below:

“1. I know how to construct very light bridges, easy to transport<sup>3</sup> from one place to another, by aid of which the enemy may be pursued and put to flight. Also others of a stronger kind, that resist fire and attack. They are easy to fix and to remove. I have means also for burning and destroying those of the enemy.

“2. In case of siege I can remove the water from the ditches, and make an infinite variety of scaling-ladders and other instruments suitable for such purposes.

“3. If by reason of the heights of the defenses or strength of the position the place cannot be bombarded, I have other means whereby any fortress may be destroyed, provided it is not founded on stone.

“4. I have also means of making a kind of cannon that is easy and convenient to carry, and that will throw out inflammable matters, causing great affright<sup>4</sup> and damage to the enemy, and putting him to much confusion.

“5. By means of excavations<sup>5</sup> and tortuous<sup>6</sup> paths made without any noise, I can reach any given . . .

<sup>1</sup> opportune, suitable.

<sup>2</sup> enumerated, to name one by one.

<sup>3</sup> transport, to carry from place to place.

<sup>4</sup> affright, fear.

<sup>5</sup> excavation, a cavity formed by digging out.

<sup>6</sup> tortuous, winding.

[point?], even if necessary to pass under ditches and rivers.

“6. I can make covered wagons secure and indestructible,<sup>1</sup> which entering with artillery among the enemy, will break the strongest bodies of men. Behind these the infantry can follow safely and without any impediment.

“7. I can, if needful, make cannon, mortars, and field pieces of beautiful and useful shape, and different from those in common use.

“8. Where the use of cannon is impracticable,<sup>2</sup> I replace them by . . . other engines of great efficacy and not in common use. In short, according as the case may be, I can make varied and infinite engines of offense.

“9. And in case of the conflict being at sea, I have methods of making many engines of offense and defense, and vessels that will be able to resist the most powerful bombardment.

“10. In time of peace, I believe I can equal all others in architecture, in designing both public and private edifices,<sup>3</sup> and in conducting water from one place to another.

“Item. I can undertake in sculpture works in marble, bronze or terra cotta: likewise in painting I can do what can be done equal to any other, whoever he may be.

“Furthermore, I will undertake the execution of the bronze horse that will be to the immortal glory and eternal honor of my lord, your father, of happy memory, and of the illustrious house of Sforza.

<sup>1</sup> indestructible, cannot be destroyed.

<sup>2</sup> impracticable, unreasonably difficult.

<sup>3</sup> edifices, buildings.



“And if any of the above-mentioned things seem to be impossible and impracticable, I offer to make trial of them in your park or in any other place that may please Your Excellency, to whom I commend myself with all possible humility.”

It seems strange that in the list of his accomplishments, Leonardo did not mention that he was a very good musician. As a matter of fact, his musical ability was the immediate cause of his being invited to Milan.

Il Moro was very fond of music and is said to have delighted especially in the sound of the lyre. Leonardo, so the story runs, had made for himself a silver lyre in the shape of a horse's head in order “to enhance<sup>1</sup> the sweetness of the sound.” When the news of this and of the great skill with which Leonardo played, reached Milan, Il Moro hastened to invite the Florentine artist-musician to visit his court.

This letter of Leonardo's may have been written after his arrival at Milan. If that is so, his introduction to the court had already then been made and the duke and his courtiers had, no doubt, listened entranced<sup>2</sup> to his sweet songs. In that case it would have been unnecessary to remind the duke of his skill as a musician.

The letter certainly indicates that Leonardo was familiar with conditions at Milan. He seems, moreover, to have been well aware of some of the problems which confronted the duke. The way he stressed<sup>3</sup> the value of the services he could render in time of war, seems to

<sup>1</sup> enhance, to increase.

<sup>2</sup> entranced, greatly delighted.

<sup>3</sup> stressed, put emphasis upon.

show that he realized how uncertain was Il Moro's position as head of the government. No doubt he knew of the wars which threatened as well as the struggle in which Il Moro was then engaged.

His letter is certainly remarkable for the number and variety of the devices for carrying on war which Leonardo offered to construct for the duke. He evidently considered himself an expert engineer in every field of work. He confidently affirmed that he could build various sorts of bridges, that he could make many kinds of engines of war, that he could construct tunnels. He could, he said, construct also engines to be used in naval warfare.

Indeed, this engineer of the fifteenth century, had some remarkable ideas regarding the construction of instruments of war. Some of these were never fully developed until four hundred years later at the time of the World War. Tanks and submarines and poison gas—are they not all suggested by the words of Leonardo's letter?

In this letter of his, Leonardo da Vinci claimed also that he could be of service "in time of peace." He evidently considered himself an expert here also. He said that "he could equal all others" in architecture, painting, and sculpture. Moreover he was an expert engineer for constructing an irrigation system.

This Duke of Milan to whom Leonardo offered his services had only lately seized the government of that city. By the time Leonardo arrived, Il Moro's rule had been established for a number of years but still he was surrounded by those who resented his usurpation<sup>1</sup> of authority.

<sup>1</sup> usurpation, forcible seizure of kingly power.

Il Moro was well aware of the unrest at Milan. He fully realized how harsh were the criticisms of his enemies. To divert them from their anger and also in order to cover over the immorality of his followers, he gathered about him a numerous company of learned men—poets and painters and sculptors of fame. Thus he endeavored, by the brilliance of his court, to make men forget its wickedness.

Most famous of all whom Il Moro invited to his court at Milan was Leonardo da Vinci. The duke never failed to realize this nor did he fail in appreciation of him. Moreover he so delighted in his eloquence that he remarked that Leonardo's "speech was as singing."

The duke did not avail himself immediately of Leonardo's offer regarding the engines of war. It was as an artist that his services were first employed. One of his first commissions was for the portrait of a beautiful lady of the Duke's court.

Later the equestrian<sup>1</sup> statue of which the artist speaks in his letter, was decided upon. In preparation for his work on the statue Leonardo began, with characteristic thoroughness, a study of the anatomy of the horse, and of the problems of movement and of balance. A great many of his sketches of horses in various attitudes are still in existence but upon which sketch he formed the statue can never be known. The clay model of the horse and rider was destroyed a few years after its completion.

This clay model for the equestrian statue was set up under a triumphal arch in the open space before the

<sup>1</sup>Equestrian statue, a statue of a horse and rider.

castle of the duke. In 1493, on the occasion of a royal marriage, the statue (though it had not been completed) was uncovered for public view. But even in its unfinished condition, it aroused the greatest enthusiasm in all who saw it. The fame of it spread over all Italy and it was said by some to have surpassed in beauty anything done before in Greece or Italy.

A great calamity befell the world when, about the year 1500, this clay model was destroyed. At that time the French held the city. Some French soldiers, quite unaware of the awfulness of their behavior, used the statue as a target and completely ruined it.

At the time that Leonardo began his work of preparation for the statue, he was given also certain other commissions. He was directed to draw plans for and proceed with the construction of various buildings both public and private. He was given the task also of making the canals for the irrigation of the arid<sup>1</sup> fields surrounding Milan. Indeed, during the ten or more years that Leonardo worked on the model for the equestrian statue, he was constantly employed as well on other projects of great importance.

In 1494, before the clay model of the horse and rider had been completed, Leonardo began to paint a picture of the Last Supper. He painted this on the walls of the dining room of the "Saint Mary of the Graces," a convent especially favored by the Duke of Milan.

Though the scene of the Last Supper was so full of dramatic interest, no great artist before Leonardo's time had attempted to portray it. At this Last Supper,

<sup>1</sup> arid, barren; dry.

Christ met with his disciples in an upper room in Jerusalem, on the evening before his death. After they had celebrated together the Feast of the Passover,<sup>1</sup> Christ broke bread and passed it and the wine once more to his disciples. Thus he established the ceremony which his followers still continue to observe in memory of him.

The Last Supper was a dramatic moment in the lives of all who were present. Judas Iscariot was preparing secretly to betray Christ to his enemies. The other disciples were troubled by Christ's words regarding his approaching trial and death. The heart of Christ was filled with yearning love towards his disciples who were so soon to become actors in such tragic events.

Leonardo seems to have been greatly impressed with the "grand significance" of the scene which he planned to paint. He gave it the deepest study and most profound thought. As his work progressed, he continued to regard it with this same attitude of absorbed attention.

Often he used to go to the convent at daybreak, climb up on the scaffolding,<sup>2</sup> and, forgetting to eat or drink, paint diligently until evening. At other times, however, "he would remain three or four days without touching it, only coming for an hour or two, and remaining with crossed arms contemplating<sup>3</sup> his figures as if criticising them himself."

Sometimes, on the other hand, while engaged in working on his bronze horse, he would suddenly lay down

<sup>1</sup> Feast of the Passover, a Jewish feast in remembrance of the escape of their people from slavery in Egypt.

<sup>2</sup> scaffolding, a high framework upon which workmen stand, as in building.

<sup>3</sup> contemplating, studying thoughtfully.

his tools and hasten across the city to the convent. Though it might be noon when the heat of the midday sun had driven every one indoors, Leonardo did not even try to seek the shade but took the "shortest road to the convent where he would add a few strokes to one of his heads and then return immediately."

Though the painting of the Last Supper progressed with greater speed than many of Leonardo's other undertakings, still, the priests of the convent became very impatient before it was completed. Vasari tells us that: "The prior of the monastery was very importunate<sup>1</sup> in pressing Leonardo to complete the picture; he could in no way comprehend wherefore the artist should sometimes remain half a day at a time absorbed in thought before his work without making any progress that he could see. He would fain<sup>2</sup> have made him work away like the laborers about the place, without ever putting aside his brush.

"Not content with hurrying Leonardo, the prior even went and complained to the Duke, and tormented him to such a degree that the latter was at length obliged to send for Leonardo, whom he courteously entreated to finish the work, assuring him, nevertheless, that he only did so because he was impelled by the importunities of the prior. Leonardo, knowing the prince to be intelligent and discreet, determined to explain himself fully on the subject to him, although he had never chosen to do so with the prior. He therefore discoursed with him at some length respecting art, and made it perfectly

<sup>1</sup> importunate, persistent.

<sup>2</sup> fain, gladly.

manifest to his comprehension that men of genius are sometimes producing most when they seem to be laboring least, their minds being occupied in the elucidation<sup>1</sup> of their ideas, and in the completion of those conceptions<sup>2</sup> to which they afterwards gave form and expression with the hand.

“He further informed the duke that there were still wanting to him two heads, one of which, that of the Savior, he could not hope to find on earth, and had not yet attained the power of presenting it to himself in imagination, with all that perfection of beauty and celestial<sup>3</sup> grace which appeared to him to be demanded for the fitting representation of the Divinity Incarnate.<sup>4</sup> The second head still wanting was that of Judas, which also caused him some anxiety, since he did not think it possible to imagine a form of feature that should properly render the countenance of a man who, after so many benefits received from his master, had possessed a heart so depraved as to be capable of betraying his Lord and the Creator of the world. With regard to the second, however, he would make search, and after all, if he could find no better, he would never be at any great loss, for there would always be the head of that troublesome and impertinent prior. This made the duke laugh with all his heart, and the poor prior, utterly confounded, went away to drive on the digging in his garden, and left Leonardo in peace.”

<sup>1</sup> elucidation, interpretation.

<sup>2</sup> conceptions, ideas; designs.

<sup>3</sup> celestial, heavenly; divine.

<sup>4</sup> incarnate, embodied in flesh.

After working four years upon it, Leonardo finally completed the Last Supper though, we are told, he was never really satisfied with the head of the Christ.

The remarkable artistic values of this, perhaps the most wonderful picture ever painted, we shall consider in a later chapter.

Towards the close of the century, Il Moro's enemies became more active. His relatives, who were deeply incensed<sup>1</sup> at his seizing the authority rightfully belonging to his nephew, began at that time a well-organized campaign against the duke and the latter found himself threatened with the loss of all of his power and wealth.

The duke's friends were so few by that time, that he found it impossible to pay for the bronze necessary to cast the great statue of his father. Indeed he was unable to pay the money which he already owed Leonardo. Instead, in 1499, he gave the artist a pleasant vineyard just outside the city. But Leonardo had very little use of this vineyard, for, in the summer of that same year, Milan was invaded by the French who seized the government. The duke and his particular friends fled away for safety. In the turmoil which followed, Leonardo evidently felt that he could find no task suited to his powers and, before the end of the year, he also left Milan.

<sup>1</sup> incensed, angered.



## CHAPTER V

### LEONARDO, A WANDERER

Leonardo da Vinci spent the next few months in visiting several of the cities of Italy. In Mantua he made a sketch of a certain beautiful lady. His notebooks record also several references to a visit to Venice—noting the nature and action of water and the variations<sup>1</sup> in the tides at that place. From Venice, he seems to have turned his steps towards Florence. At least there is a record of his being there in April 1500.

The Florence to which Leonardo returned after those nineteen years of absence, was still torn by factions.<sup>2</sup> These various parties, after the death of Lorenzo de Medici, struggled desperately to gain control of the city government. Leonardo found many of his old friends very despondent because of the unrest in the city. Would Florence never regain the peaceful liberty which she had formerly enjoyed?

Perugino, Leonardo's old friend, was there to welcome him and so was Botticelli.<sup>3</sup> The youthful Raphael gladly sought to learn from him. They all acknowledged Leonardo da Vinci as one of the greatest masters. Michael Angelo alone became his jealous rival.

Leonardo's first commission after his return to Florence was for an altar piece portraying the Madonna with her

<sup>1</sup> variations, changes.

<sup>2</sup> factions, irregular associations in a political party.

<sup>3</sup> Botticelli, bōt'tê-chèl'lē.

mother and the infant Jesus. When the sketch for this picture "was finished," Vasari tells us, "the chamber wherein it stood was crowded for two days by men and women, old and young; a concourse,<sup>1</sup> in short, such as one sees flocking to the most solemn festivals, all hastening to behold the wonders produced by Leonardo." The picture itself was never completed.

For some reason, Leonardo once more became restless in Florence. Instead of remaining there to paint pictures, he left after a few months to join the forces of Cesare Borgia.<sup>2</sup> He served that young adventurer for several months as architect and general engineer.

During that time Cesare Borgia engaged in a series of military campaigns where Leonardo's skill as an engineer was constantly in demand. The notebooks of the latter show many sketches of fortresses and engines of war, designed evidently for Cesare. Scattered among these sketches are also notes regarding certain laws of nature which Leonardo perceived.

This coöperation between Leonardo and this ambitious young warrior did not last long, however. Perhaps Cesare Borgia no longer needed him, or perhaps Leonardo sickened of the former's "ruthless<sup>3</sup> cruelty and premeditated<sup>4</sup> treachery." However that was, after eight or ten months, Leonardo returned to Florence as a private citizen.

It may have been before his departure from Florence to become a general engineer to Cesare Borgia that

<sup>1</sup> concourse, a crowd; a throng.

<sup>2</sup> Borgia, bôr/jä.

<sup>3</sup> ruthless, merciless.

<sup>4</sup> premeditated, deliberated; planned.

Leonardo began his famous portrait of Mona Lisa. It was, however, not until after his return that he made much progress with it.

The Mona Lisa portrait is a most remarkable picture. Mona Lisa, the wife of a wealthy merchant of Florence, was an exceedingly beautiful young woman. But the artist found in her face something beyond mere physical beauty. "In this portrait of Leonardo's," says Vasari, "there is so pleasing an expression and a smile so sweet, that while looking at it one thinks it rather divine than human." In order to prolong on the face of Mona Lisa this pleasing smile, Leonardo "took the precaution<sup>1</sup> of keeping some one constantly near her, to sing or play on instruments or to jest and otherwise amuse her."

The portrait is said to have taken four years to finish. Evidently it had not been ordered by Mona Lisa's husband, the wealthy merchant, for after its completion it remained in the possession of the artist. Afterwards the latter sold it to Francis the First, King of France, for twenty thousand pounds.

As usual, while at Florence, Leonardo had various projects upon which he was working at the same time. Before he had completed the portrait of Mona Lisa, he was engaged by the Signoria<sup>2</sup> to do a piece of engineering work. They wanted him to assist in constructing a canal to supplement the waters of the Arno. Leonardo had studied just such a problem at Milan where he had done a very successful piece of irrigation engineering. But at Florence the work did not go well. Through no

<sup>1</sup> precaution, prudent forethought.

<sup>2</sup> Signoria, governing body in Florence.

fault of Leonardo's, the building of the canal was soon abandoned by the city.

Shortly after this and before Leonardo had completed his portrait of Mona Lisa, the Signoria decided to decorate the walls of the new Council Hall. They invited Leonardo da Vinci to paint on one wall some scene portraying an incident of Florentine history. They commissioned Michael Angelo to paint some other scene on the opposite wall.

The followers of these two great artists watched with intense interest the preparation made by their respective masters. As the work advanced, these students and friends compared the methods and skill of the two artists and at once a feeling of rivalry sprang up. This rivalry developed into bitter jealousy which continued to grow as the sketches advanced.

Michael Angelo chose for his subject an incident which gave him an excellent opportunity for displaying his genius. He portrayed the historical scene where the enemy surprised a group of Florentine soldiers while the latter were bathing in the Arno.

Leonardo took for his theme a certain battle in which Florence had been engaged. In his treatment of this subject, he did not adhere to the actual story of the event. Instead of the very insignificant struggle which this battle really was, Leonardo describes it in his notes as a terrific conflict: "And then began," he wrote, "a great slaughter of men; none escaped but the foremost of those who had fled or who hid themselves. The battle continued until sunset, when the Patriarch<sup>1</sup> gave his

<sup>1</sup> Patriarch, a high dignitary.

mind to recalling his men and burying the dead, and afterwards a trophy<sup>1</sup> was erected.”

The artist evidently took this liberty with history for the sake of his art. By introducing intense action, he was able to increase the dramatic interest in the picture.

During these years while Leonardo was working on the “Battle of the Standard,” as he called his great war picture, he was busy also with his scientific studies. In 1505, he wrote a small volume “On the Flight of Birds,” and his notebooks show a variety of other observations and experiments.

Old Ser Piero died in 1504 and there immediately arose a dispute about the division of the inheritance. By his third and fourth wives, Ser Piero had had eleven children—nine sons and two daughters. These younger children disputed the right of the illegitimate eldest son to share with them in the property. The lawsuit which resulted lasted for several years. Still, though Leonardo defended his rights at this time, he did not afterwards hold any grudge against his younger half-brothers to whom he left a portion of his own property when he died.

<sup>1</sup> trophy, a memorial of victory.

## CHAPTER VI

### LEONARDO RETURNS TO MILAN

By this time, Leonardo has been away from Milan for seven years. As year after year passed away, his friends there became more and more eager for his return. In response to this feeling, the French governor, in 1506, wrote to the Signoria of Florence, asking that their Leonardo be sent back to Milan.

Leonardo may have been eager to go, but the Signoria, impatient to have the "Battle of the Standards" completed, was unwilling to release him. Finally, however, they agreed to allow him a three month leave of absence.

When again in Milan, Leonardo was evidently called upon to give advice on certain building matters as well as commissioned to paint certain pictures.

At about this time, a small picture painted by Leonardo fell into the hands of the French king who had not yet arrived at Milan. It filled him with such admiration that he immediately summoned to him the Florentine ambassador who thus reports the interview:

"January 22, 1507. Finding myself this morning in the presence of the most Christian King, His Majesty called me and said, 'Your lords must do me a service. Write to them that I desire to make sue<sup>1</sup> of their painter, Master Leonardo, who is now at Milan, and that I wish him to do certain things for me. Do this in such a way that their lordships enjoin<sup>2</sup> him to serve me promptly,

<sup>1</sup> to make sue of, to plead for.

<sup>2</sup> enjoin, command.

and tell him not to depart from Milan before my arrival. He is a good master, and I desire certain things by his hand. Write to Florence at once, and in such a way as to obtain the desired result, and send me the letter. . . . ”

Not content merely to entrust to another such an important matter, Louis XII himself, two days later, wrote to Florence begging that the Signoria direct Leonardo to remain in Milan until his own arrival there.

The Signoria was most unwilling to do this. But, though they were very eager to have their great war picture completed, still they could scarcely refuse the request of the French king. Leonardo seems to have been given no choice in the matter. Unfortunately, there arose no opportunity later for him to return to Florence to complete this work.

Louis XII made his ceremonious entry into Milan in May of the year 1507. In the festivities of welcome, Leonardo certainly had a part—just as he had had a great share in all of the court ceremonies of Il Moro, Duke of Milan.

“During his time,” Vasari tells us, “the King of France came to Milan, whereupon he [Leonardo] was entreated to prepare something very extraordinary for his reception. He therefore constructed a lion, and this figure, after having made a few steps, opened its breast, which was discovered to be entirely filled full of lilies.” The lilies were in honor of France whose emblem flower it is.

Leonardo was now in the employ of the French king but he made a short visit to Florence in 1507. His private affairs needed his presence. Three years previous to this, at the time of Ser Piero's death, the younger sons had tried to exclude the eldest from a share in their

father's estate. They now attempted to set aside the will of his uncle and keep for themselves the property which had been bequeathed<sup>1</sup> to Leonardo. It was for the purpose of defending his rights that Leonardo returned to Florence.

The French king and the governor of Milan seem to have feared that the artist might be detained unnecessarily in Florence. They therefore, both wrote the Signoria urging that the case be tried with all speed and that justice be done their Leonardo.

While waiting in Florence for the decision of the Signoria regarding his uncle's estate, Leonardo occupied himself in painting two pictures of the Madonna. At the same time, he spent his leisure in exploring the libraries of Florence for scientific data. Certain manuscripts of his which are now in the British Museum, are full of the notes he made at this time.

Upon his return to Milan, Leonardo was again employed in engineering work. The canal started by the Duke of Milan had never been finished. The French governor now undertook to complete it. Leonardo was associated with twelve other engineers in this piece of construction work. He is said to have devised<sup>2</sup> a method by which, after the canal had been made navigable, a sufficient quantity of water could still be used for irrigation. To this engineering feat,<sup>3</sup> is largely due the great fertility of the whole valley in which Milan lies, and justly adds glory to the name of Leonardo da Vinci.

<sup>1</sup> bequeathed, gave by will (after death).

<sup>2</sup> devised, invented.

<sup>3</sup> feat, notable act, displaying skill.



As part of his payment for these great services, Leonardo received from Francis XII the right to take twelve inches of water from this canal. This grant of water was not to be made available immediately, however, because of the drought<sup>1</sup> and because the supply of water in the canal had not yet been properly regulated. But Leonardo found considerable difficulty in securing his grant of water, even after the canal was in good working order.

Leonardo's interest in water seems ever to have increased. In his notebooks of this time are many sketches and remarks about canal-making and the natural laws which govern water. There are also studies in the beautiful curves made by falling water, sketches of the waves and of winding streams.

Leonardo is supposed at this time to have been busy also on his further study of anatomy. His notebooks include many sketches of various parts of the human body showing muscles and bones.

Of his paintings during the seven years of his second residence in Milan, nothing definite is known but it is supposed that some of the pictures whose date is uncertain belong to this period.

During his first residence in Milan, Leonardo had taken into his studio certain young artists who desired to have the benefit of his teaching. Among them was the beautiful boy, Salaino, whom the master afterwards fondly called his "son." This boy is described by Vasari as "a youth of singular grace and beauty of person, with curled and waving hair, a feature of personal beauty by which Leonardo was always greatly pleased."

<sup>1</sup> drought, long-continued dry weather.

Leonardo da Vinci was accustomed to go frequently for rest and pleasant companionship to the home of a certain Francesco Melza, near Milan. When the French took the city in 1499, the artist sought quiet and safety there. Soon after his return to Milan in 1506, Leonardo received into his studio the young son of this family. This boy became his beloved pupil and was, from that time on, always with him.

Other young artists also came to study with the great master. Chief among them perhaps was Cesare da Sesto, who has been called Leonardo's "happiest imitator."

Some people have been of the opinion that Leonardo was the head-master of an academy for young men at Milan. It is generally believed, however, that, like the other great artists of his time, he merely received into his studio certain young men. These young artists helped him by preparing his materials and running his errands. In return they were given invaluable criticism and instruction.

When, in 1512, the French were finally driven out of Milan, Leonardo probably retired, for a while to the Melzi Villa. But though he was now sixty years old, he could not long be satisfied with the retirement of a country life. In September 1513, with five of his pupils, he set out for Rome.

## CHAPTER VII

### LEONARDO IN ROME

Political confusion followed the expulsion of the French from Milan. This may have been the reason why Leonardo da Vinci felt it wise to leave there. Though his eyes were turned towards Rome, he went first to Florence, perhaps to attend to some personal affairs.

Soon after the election of one of the Medici brothers as Pope Leo X, Leonardo joined the train of another Medici brother and proceeded with him to Rome. When he arrived there, he was welcomed cordially by the pope and told to "work for the glory of God, Italy, Leo X and Leonardo da Vinci."

At his brother's suggestion, the pope ordered that certain apartments in the Vatican<sup>1</sup> be prepared for Leonardo's use. He wished to have the great artist near him that he might have the pleasure of visiting him while at work. Perhaps he hoped to see him create some wonderful picture. Instead he saw Leonardo occupy himself with making experiments of all sorts.

Vasari gives us a vivid picture of some of these:

"Leonardo, therefore, having composed a kind of paste from wax, made of this, while it was still in its half-liquid state, certain figures of animals, entirely hollow and exceedingly slight in texture,<sup>2</sup> which he then filled with

<sup>1</sup> the Vatican, the palace of the popes in Rome.

<sup>2</sup> texture, composition, or make.

air. When he blew into these figures he could make them fly through the air, but when the air within had escaped from them they fell to the earth. One day the wine-dresser of Belvedere<sup>1</sup> found a very curious lizard and for this creature Leonardo constructed wings made from the skins of other lizards, flayed<sup>2</sup> for the purpose; into these wings he put quicksilver, so that when the animal walked, the wings moved also, with a tremulous motion. He then made eyes, horns, and a beard for the creature, which he tamed and kept in a cage. He would then show it to the friends who came to visit him and all who saw it ran away terrified. He more than once, likewise, caused the intestines of a sheep to be cleansed and scraped until they were brought into such a state of tenuity<sup>3</sup> that they could be held within the hollow of the hand. Having then placed in a neighboring chamber a pair of blacksmith's bellows to which he had made fast the end of the intestines, he would blow into them until he caused them to fill the whole room, which was a very large one, insomuch that whoever might be therein was compelled to take refuge in a corner. He thus showed them transparent and full of wind and remarked that, whereas they had previously been contained within a small compass, they were now filling all space, and this, he would say, was a fit emblem of talent or genius."

No wonder perhaps that this early biographer spoke of these experiments as "follies." Indeed it is hard to

<sup>1</sup> Belvedere, bĕl'vi-dĕr'.

<sup>2</sup> flayed, skinned.

<sup>3</sup> tenuity, thinness.

understand why so great a master should have spent his precious time in such fruitless pastimes.

Leonardo undertook the painting of no great picture while he was in Rome. He did, however, paint several small ones which are very beautiful. Indeed one, a small picture of a boy, Vasari describes as "beautiful and graceful to a marvel."

The pope, hoping for some great painting from Leonardo by which his own name would be made famous, became dissatisfied with the latter. Impatient at his leisurely methods, he exclaimed: "Alas, he will never do anything!"

The artist himself was not happy while at Rome. He was often in poor health and the critical attitude of the pope weighed upon his spirits. When, therefore, he again encountered the jealous enmity of Michael Angelo, he decided to leave Rome. He would go to France "Where the king, already possessing several of his works was most kindly disposed towards him."

## CHAPTER VIII

### LEONARDO, THE SCIENTIST

From his babyhood, Leonardo da Vinci was filled with an insatiable curiosity. He must know not only the appearance, the shape, the color, and action of every object he saw but he must investigate also the inside of it. We can imagine him breaking open fruit to study the seeds, pulling flowers to pieces to count and study their parts. Certainly he watched with the keenest interest the play of running water over the rocks and, like every other boy who lives near a brook or river, he must have tried experiments in building bridges and dams. Tools and machinery interested him greatly and we can imagine him taking things apart to see how they were made and then trying for himself to rebuild them.

This scientific interest in the world in which he lived strengthened as he grew older. Indeed as long as he lived, Leonardo continued to make experiments of all kinds. He tried thus to discover the laws of nature and to harness her for his own purposes. Being of a scientific turn of mind, he wrote down carefully in his notebooks, his observations on natural events. He made also countless sketches of machinery and tools which he planned to perfect.

Leonardo's discoveries and inventions were never the result of chance. He made his plans and drew his conclusions as the result of minute and careful observations.

There are, for instance, scattered among these sketches and diagrams of machines and plans for buildings, notes as to the movement of tides, the distance of the earth from the sun, the size of the pupil in the eye of an owl, the evaporation of the water in the Mediterranean.<sup>1</sup> He wrote down also the laws which he had learned or discovered regarding the motion of flame, the nature of hail. Nothing was too insignificant for his inquiring eye to investigate; no force was so mighty that he dared not attempt to control and use it.

Leonardo's thirst for scientific knowledge found some early satisfaction in the studio of Verrocchio. This master of his had also a keen curiosity regarding the underlying<sup>2</sup> laws of nature. He also studied the anatomy of the human body; he too tried to discover the laws of motion; furthermore he too loved mathematics and music.

Master and pupil must often have discussed these problems together, comparing notes regarding their various experiments and observations. The pupil, however, soon out-distanced his master, for his was the keener intellect.

In order to have first hand knowledge of the human body, Leonardo spent considerable time in a certain hospital in Florence. There he dissected several human bodies, so that he might investigate the action of the muscles. In one of his manuscripts of anatomical<sup>3</sup> drawings, he notes that "in order to obtain an exact and complete knowledge of these, I have dissected more than ten human bodies."

<sup>1</sup> Me-literranean, mĕd'i-tĕr-ĕ-nĕ-ĕn.

<sup>2</sup> underlying, fundamental.

<sup>3</sup> anatomical, pertaining to anatomy.

From his notebooks, it seems certain that the artist had the idea of writing a book entitled "Of the Human Figure." On that account, he made these studies particularly definite and detailed. Unfortunately the book was never completed.

In his investigation of human anatomy, Leonardo worked with a certain young scientist who was called, a few years later, to establish a school of anatomy at Pavia.<sup>1</sup> Regarding this scientist and his relationship to Leonardo, Vasari tells us:

"He was one of the first, as I have heard, who began to throw true light upon anatomy which up to that time had been plunged in the almost total darkness of ignorance. In this he was wonderfully aided by the talent and labor of Leonardo, who made a book drawn in red chalk and annotated<sup>2</sup> with the pen (of the subjects which he dissected with his own hand and drew with the greatest diligence); wherein he showed all the structure of the bones, and added to these in order all the nerves and covered them with sets of muscles; the first attached to the bone, the second those that hold the body firm, the third those that move it."

In the years which followed, Leonardo continued his interest in the mysteries of human anatomy. Whenever he had the opportunity, he continued his studies along this line. His notebooks are full of sketches which prove this and show moreover, that he based his drawings of human figures on his scientific knowledge of their structure.

<sup>1</sup> Pavia, pä-vē/ä.

<sup>2</sup> annotated, supplied with notes.



Though Leonardo's study of anatomy was closely related to his work as an artist, certain others of his scientific interests did not bear this relationship.

From his boyhood, he showed great interest in everything connected with water. While still a youth, he began the study of the motion of water and the laws which govern it. After the most minute observation and most careful thought, he formulated<sup>1</sup> the rules which must be followed in order to control the forces of water for the good of man. He began early to make plans for irrigation systems, whereby the land might be made more fertile. He drew sketches of canals, of dams, and of bridges. Indeed, all through his manuscripts are countless notes on these and kindred subjects. He filled, for instance, one whole book with data concerning mills.

Upon every subject which came to his attention, Leonardo turned the light of his marvelous imagination. He was not content merely to follow along on the lines suggested by other men's inventions. He was, to be sure, eager to improve upon their plans and to perfect their inventions, but his own thoughts went beyond and deeper than theirs and he constantly sought original methods of accomplishing his purposes.

He was particularly interested in discovering new methods for using and controlling water power. Thus we see him planning a suit for a diver to enable a man to stay and work for a limited time under water. Plans for a submarine were also well thought out in his mind, but these he refused to make known to men, lest they being so wicked, would use it for making holes in the

<sup>1</sup> formulated. stated in exact form.

bottoms of ships and sinking them with all their passengers.

Leonardo was interested also in the air. He watched with absorbed eyes the flight of birds and sought to discover how man also might learn to fly. "A bird," he wrote in his notebook, "is an instrument working according to mathematical law. This instrument it is within the capacity of man to reproduce with all its movements, but not with a corresponding degree of strength, though it is deficient only in the power of maintaining<sup>1</sup> equilibrium."<sup>2</sup> We may therefore say that such an instrument constructed by man is lacking in nothing except the life of the bird, and this life must needs be supplied from that of man.

"This life which resides in the bird's members will, without doubt, better conform to their needs than will that of man which is separate from them, and especially in the almost imperceptible<sup>3</sup> movements which preserve equilibrium. But since we see that the bird is equipped for many obvious varieties of movements, we are able from this experience to deduce<sup>4</sup> that the most rudimentary<sup>5</sup> of these movements will be capable of being comprehended by man's understanding; and that he will to a great extent be able to provide against the destruction of that instrument of which he has himself become the living principle and the propeller."<sup>6</sup>

<sup>1</sup> maintaining, keeping.

<sup>2</sup> equilibrium, balance.

<sup>3</sup> imperceptible, that can not be perceived by reason of smallness.

<sup>4</sup> deduce, infer.

<sup>5</sup> rudimentary, undeveloped.

<sup>6</sup> propeller, that which drives forth.

Leonardo's skill as an architect was well known in his own age. His plans for various buildings were studied with great interest and were much praised. His genius was versatile.<sup>1</sup> He seemed able to draw detailed plans for every sort of building—for humble dwellings for common people, for temples, for palaces for the wealthy, or for fortresses for the protection of the state.

He was full also of new ideas for the improvement of living conditions. These he developed with well thought out plans and inventions. When he discussed these with the Duke of Milan, he became urgent that the latter should build a model city after his plans. "There will be," he assured him, "eternal fame also for the inhabitants of that city built and enlarged by him."

In Leonardo's plans for the model city, he described a system of streets of different levels. Thus he sought to provide for separate highways for wagons and carts from that used by people on foot. His plans included also data regarding the proper height of the houses in relation to the width of the streets and an adequate system of canals for the conveyance<sup>2</sup> of goods as well as for irrigation.

Leonardo had ideas about making possible the better housing of the poor. "Let the houses," he says, "be changed and arranged in order, and this will easily be done when they are first made in parts on the open spaces and then the framework can be fitted together on the site<sup>3</sup> where they are to be permanent. Let the

<sup>1</sup> versatile, many-sided.

<sup>2</sup> conveyance, the carrying.

<sup>3</sup> site, definite place.

country folk inhabit a part of the new houses. . . .” Thus he anticipated the present method of preparing for the use of home building, certain materials in standard sizes so that the work of construction is made quicker and less expensive.

In order to please his noble patron. Leonardo put his creative imagination to the task of inventing mechanical toys for the amusement of the court. We hear, for instance, of his making figures of animals which, when blown up, would float. We see him invent the lion which could take a few steps and then open its breast to offer lilies to the king of France. Along this line, were his share in the ceremonies where he invented and managed the court festivals for the Duke of Milan.

It seems strange that this peace-loving and amiable Leonardo should have been so much interested in the construction of engines of war. But his manuscripts are full of countless sketches of various machines for carrying on warfare. There we find diagrams for cannon, for mines, for machines for throwing great stones against the enemy, for fortresses, and for many other inventions for hurling destruction.

Among the observations made in his notebooks are many of plant and animal life. When, for instance, he was wandering in the mountains, he observed there, “things produced in the salt water, and now found again in the high mountains far from the seas.” These “things” which he observed were fossil shells and fish. Pondering on this odd discovery, he came to the conclusion

that the seas at one time had extended over these mountains and so left behind these various mementos.<sup>1</sup>

He notes also various laws which he discovered or guessed, such as the law of gravitation and that of the circulation of the blood. But these and countless other discoveries of his lay buried for centuries in his manuscripts, so that other men have been given the glory due his name.

Among his many discoveries are jotted down bits of prophetic vision. He saw as through the mist of time, the day when the steam engine and the telescope would become realities. By his study of the human eye and the images which are formed by means of its lens, he might even have caught the first hint of a possible camera.

This latter study took him naturally into a very careful consideration of the laws of light and darkness and of distances. And he made some most important observations along these lines.

Leonardo was himself a musician but being also a scientist, he was not satisfied merely to create lovely sounds on his harp. He undertook in addition to study the laws of sound. He analyzed the laws which govern the echo. Though it was hidden from the other scientists of his day, he realized that sound travels at a fixed rate of speed. As he put it: "It is possible to know by the ear the distance of thunder, if we have first seen lightning. . . ."

Indeed it would seem almost impossible to find a field in which Leonardo da Vinci did not make scientific investigations and discover important laws.

<sup>1</sup> memento, a token of remembrance.

In order to protect his notes from the eyes of the curious, Leonardo employed what is known as mirror-writing. That is, he wrote from right to left—so that it was necessary to use a mirror in order to read what he had put down. Using this method, he filled about five thousand pages of notes covering in their scope practically every kind of human knowledge.

It seems evident that he planned to rearrange this material in his notebooks in an orderly fashion and publish it in a series of books. Titles for some of these proposed volumes are found among his notes. But this work of rearrangement was never done and the priceless volumes of his manuscripts are scattered in various libraries and museums.

## CHAPTER IX

### LEONARDO DA VINCI, THE ARTIST

In modern times, the critics have delighted to dwell upon the scientific genius of Leonardo da Vinci. Indeed as a scientist he stands in a unique and prophetic position. But his artistic genius was also of the highest order. Unlike many other artists, he can truly be said to have made science the foundation of his art.

He was not content merely to try to depict<sup>1</sup> what his eyes saw. He must know the laws which govern the visible world. For instance, he studied anatomy in order to be able to draw the human body accurately. The laws regarding the proportions of the human body which he discovered, he never disregarded in his paintings of men and women. His pictures show, therefore, a remarkable realism<sup>2</sup> because he based his representations on actual laws of nature rather than entirely on imagination. The arms and legs of his painted figures seem truly alive because he knew how the muscles and nerves are interwoven about the bones in living men and women.

Present-day painters of the human form study anatomy as a matter of course. Art students, as well as medical students take courses in dissection at some hospital. But in the fifteenth century this was not an established proceeding. In those days art did not fully realize

<sup>1</sup> depict, make a picture of.

<sup>2</sup> realism, depicting persons or scenes just as they exist.

her dependence upon her sister, science, and, in the pictures which some of the early artists produced, the figures are poorly proportioned and lack vitality. They are creatures solely of the artist's imagination. They are not modeled from life and they are not lifelike.

Verrocchio, Leonardo's teacher, was much interested in science and the two men worked together on many of the problems where art is grounded on scientific knowledge. Later, Leonardo carried these studies much further and became in this respect, the forerunner of modern art.

Verrocchio was, primarily,<sup>1</sup> a sculptor. He encouraged his students also to model figures in clay. Leonardo thoroughly enjoyed these early studies and invented for himself some new methods in plaster modeling. "He sometimes," so Vasari tells us, "formed models of different figures in clay, on which he would arrange fragments of soft drapery dipped in plaster; from these he would then set himself patiently to draw on very fine cambric or linen that had already been used and rendered smooth. These he executed in black and white with the point of the pencil in a most admirable manner, as may be seen by certain specimens from his own hand which I have in my book of drawings. He drew on paper also with so much care and so perfectly that no one has ever equaled him in this respect."

Vasari tells also that Verrocchio thought so well of his young student's talent that he assigned to Leonardo a part in painting the picture of St. John baptising Christ, upon which the master was then engaged. Leonardo

<sup>1</sup> primarily, in the main.



is said to have "painted an angel holding some vestments;" and although he was but a youth, he completed that figure in such a manner, that the angel of Leonardo was much better than the portion executed by his master, which caused the latter never to touch colors more, so much was he displeased to find that a mere child could do more than himself."

Certainly this angel does seem more lifelike than the other figures in the painting and it is believed to have been painted by Leonardo. But though Verrocchio must have appreciated the beauty of this angel figure, still it is not generally believed that he thereafter refused to do any more painting himself.

By the time Leonardo was twenty, he had achieved sufficient reputation as a gifted artist to be admitted into the painters' guild at Florence. Five or six years later he moved into a studio of his own. It is generally supposed that Leonardo was already in his own studio when his father took to him the shield asking him to decorate it. This early painting is very remarkable. Though no such monster such as Leonardo depicted had ever existed, still he drew such a lifelike figure that it terrified old Ser Piero. The young artist had studied so minutely the bodies and movements of his collection of loathsome creatures that he was able to invent a monster which seemed fiercely alive.

During these youthful days, Leonardo painted many other pictures also. One of a Madonna the pope greatly prized. In this picture, the artist painted "a bottle filled with water in which some flowers were placed, and

<sup>1</sup> vestments, clothing, particularly a robe of state.

not only were these flowers most vividly natural but there were dewdrops on the leaves which were so true to nature that they appeared to be actual reality."

In those early days, the young artist seemed pleased to invent strange scenes. Perhaps his success with the shield suggested to him the possibility of creating other fantastic pictures. Vasari describes in detail two purely imaginative pictures drawn by Leonardo at this time. One was of "Neptune<sup>1</sup> in his chariot drawn by sea-horses, and depicted with so much animation that he seems to be indeed alive; the turbulent waves also . . . surrounding the chariot, with the monsters of the deep, the winds, . . . all contributed to the beauty of the work." The other picture was of a head of Medusa<sup>2</sup> "to which he gave a circlet<sup>3</sup> of twining serpents."

In spite of the genius that Leonardo showed in these and other early works, he seems to have received very little recognition in his beloved Florence before he left that city when he was about thirty years old. Still he was known to be an artist of rare genius and, as such, the Duke of Milan immediately employed him. One of his early works after arriving at Milan was an altar piece, representing the Birth of Christ. This picture, the duke thought worthy to be presented to the emperor.

The two great masterpieces upon which Leonardo worked while in Milan were the Last Supper painted on the walls of the Monastery of Saint Mary of the Graces and the colossal equestrian statue of which only the clay model was completed.

<sup>1</sup> Neptune, old Italian god of the sea.

<sup>2</sup> Medusa, an imaginary winged monster having serpents for hair.

<sup>3</sup> circlet, wreath.

Of the artistic quality of the equestrian statue we can know only by reports of its effect upon the beholders, for no trace of it remains to-day. But Vasari tells, that "All who saw the large model in clay which Leonardo made for this work, declared that they had never seen anything more beautiful or more majestic. . . ."

### *The Last Supper*

Leonardo's first great painting was of the Last Supper. This he painted on one of the walls of the convent at Milan. Alas, this masterpiece has suffered very seriously from the dampness of the wall and from ill-treatment but still "The Last Supper," one of the biographers tells us, "even in its present ruined condition, affords as does no other work, the most impressive example of what Leonardo's ideals in art really were. The absorption in scientific studies so perceptible in certain other of his paintings is here seen welded<sup>1</sup> to it in perfect harmony."

The painting occupies the whole end of the dining room, whose lines of ceiling and wall are prolonged in the picture. Across the scene stretches a long, narrow table behind which the disciples are arranged in groups of three with Christ, the central figure. Behind these figures appears to be the wall of the room in which they are. Three windows give a view of a quiet country scene. The Christ sits directly in front of this central window, which beautifully frames his head and shoulders.

<sup>1</sup> welded, closely joined.

The moment chosen by the artist is that dramatic instant after Christ had spoken the words: "One of you shall betray me."

In great agitation and horror, the disciples turn this way and that—some of them spring to their feet, while others remain seated. But all are filled with emotion. Leonardo sought to depict this intense emotion by the attitudes of the various figures. How deeply he pondered over this problem is very clearly seen in a passage in one of his notebooks now in a museum in London. There he wrote down very tersely the emotions which he wished these figures to express by their attitudes:

"One who was drinking has left the glass in its position and turned his head towards the speaker. Another, twisting the fingers of his hands together, turns with stern brows to his companion. Another, with hands spread open and showing the palms, shrugs his shoulders up to his ears, and makes a mouth of astonishment. Another speaks into his neighbor's ear, and he who listens to him turns toward him and lends an ear, holding a knife in one hand and in the other the bread half cut through by the knife. Another is turning, holding a knife in his hand, upsets with his hand a glass over the table. Another lays his hand on the table and is looking. Another breathes hard from full mouth. Another leans forward, and sees the speaker between the wall and the man who is leaning."

The painting did not actually follow these notes in all of their details, but still in the picture we see the same great variety united in a harmonious whole. In other words, "These several actions, varying according to the differing natures of the disciples all express the same

emotion. The disciples are all stirred by the one impulse of surprise. They are all amazed at the words which have just been uttered by Christ:

“Verily I say unto you that one of you shall betray me.”

The instant is a truly dramatic one, for it reveals the various personalities of the disciples and their relationship to Christ. Judas, for example, plainly shows his character by his attitude and expression. “His fingers clutch the bag; his face is at once furtive<sup>1</sup> and menacing.”<sup>2</sup> Though he sits with the other disciples, he is plainly of a different sort. But his treachery is not yet apparent to the others or they would have drawn away from him in horror. Thus each disciple shows by the expression of his face as well as the attitude of his body his own reaction to the words just spoken.

### *The Virgin with St. Anne*

Several of Leonardo's famous masterpieces were produced while he was in Florence after his long sojourn in Milan. The first of these was the cartoon for the altar piece representing “Christ as a child of about a year old stretching almost out of his mother's arms and seizing a lamb and apparently about to embrace it.” The Virgin, half rising from the lap of her mother, takes hold of the child as if to pull it away from the lamb. St. Anne<sup>3</sup> starts from her seat in an attempt to keep her daughter from interfering with the child. This picture is

<sup>1</sup> furtive, stealthy; secret.

<sup>2</sup> menacing, threatening.

<sup>3</sup> St. Anne, the name given to the mother of the Virgin Mary.

supposed to have a deep spiritual meaning. The lamb, a sacrificial animal, represents the death of Christ on the cross. His mother would fondly restrain him from this sacrifice, but St. Anne, perhaps intended to represent the church, realizes that the sacrifice of Christ is necessary and so does not wish to have the child hindered.

“In the picture of the Virgin seated on the knees of St. Anne, her mother,” to quote a French critic, “the shadows are more subdued than in the Virgin Among the Rocks; the painter has certainly not employed in this picture that dark tint which has marred<sup>1</sup> his other paintings; the coloring is lighter and cooler. In the landscape strewn with rocks and little trees, of which you may count the leaves, St. Anne holds on her knees the Virgin, who gracefully leans towards the Infant Jesus. The Child is playing with a little lamb, which He holds gently by the ear, with a charming infantile<sup>2</sup> action which takes nothing from the nobility of the composition. A few slight lines cross the forehead and cheeks of St. Anne, but do not detract<sup>3</sup> from her beauty; for Leonardo shrank from the representation of sadness, and would not afflict the eye by the spectacle of decrepitude.<sup>4</sup> The head of the Virgin is exquisitely fine in outline; her face beams with virginal grace and maternal love; her eyes are bathed in tenderness, and her half smiling mouth has that indefinable expression of which Leonardo alone knew the secret.”

<sup>1</sup> marred, disfigured.

<sup>2</sup> infantile, babyish.

<sup>3</sup> detract, take from.

<sup>4</sup> decrepitude, feebleness as of old age.

*The Virgin Among the Rocks*

Of the Virgin Among the Rocks, painted in this period, the same critic says, "The aspect of the Virgin in the 'Virgin Among the Rocks,' is mysterious and charming. A grotto<sup>1</sup> of basaltic<sup>2</sup> rocks shelters the divine group, who are sitting on the margin<sup>3</sup> of a clear spring; in the transparent depths of which we see the pebbles of its bed. Through the arcade<sup>4</sup> of the grotto, we discover a rocky landscape, with a few scattered trees, and crossed by a stream, on the banks of which rises a village. All this of color indefinable . . . which accords marvelously with the figures. What more adorable type than that of the Madonna! It is especially Leonardo's. Her head is spherical in form; the forehead well-developed; the fine oval of her cheeks is gracefully rounded so as to enclose a chin most delicately curved; the eyes with lowered eyelids encircled with shade and the nose . . . finely shaped; with nostrils tenderly cut, and trembling as though her breathing made them palpitate;<sup>5</sup> the mouth a little large, it is true, but smiling with a deliciously enigmatic<sup>6</sup> expression that Da Vinci gives to his female faces; a tiny shade of mischief mingling with the purity and goodness. The hair is long, loose and silky and

<sup>1</sup> grotto, a small cave.

<sup>2</sup> basaltic, a sort of dark stone often found in curious shapes.

<sup>3</sup> margin, edge.

<sup>4</sup> arcade, a series of arches.

<sup>5</sup> palpitate, flutter.

<sup>6</sup> enigmatic, puzzling.

falls in crisp<sup>1</sup> meshes<sup>2</sup> around the shadow-softened cheeks, according with the half-tints with incomparable<sup>3</sup> grace.”

### *Mona Lisa*

The picture of *Mona Lisa* has been described as “probably the most famous portrait in the world.” In the affections of the world, it vies<sup>4</sup> with the marvelous *Last Supper*.

What Vasari says of it is full of interest. “Whoever shall desire to see how far art can imitate nature, may do so to perfection in this head, wherein every peculiarity that would be depicted by the utmost subtlety<sup>5</sup> of the pencil has been faithfully reproduced.

“The eyes have the lustrous<sup>6</sup> brightness and moisture which is seen in life, and around them are those pale, red, and slightly livid<sup>7</sup> circles, also proper to nature, with the lashes, which can only be copied, as these are with the greatest difficulty. The eyebrows also are represented with the closest exactitude;<sup>8</sup> where fuller and where more thinly set, with the separate hairs delineated<sup>9</sup> as they issue from the skin, every turn being followed, and all the pores exhibited in a manner that could not be more natural than it is; the nose with its beautiful and delicately roseate<sup>10</sup> nostrils, might easily be alive; the mouth,

<sup>1</sup> crisp, curly.

<sup>2</sup> meshes, networks.

<sup>3</sup> incomparable, supreme.

<sup>4</sup> vies with, rivals.

<sup>5</sup> subtlety, skill.

<sup>6</sup> lustrous, shining.

<sup>7</sup> livid, ashy pale.

<sup>8</sup> exactitude, exactness.

<sup>9</sup> delineated, pictured.

<sup>10</sup> roseate, rose color,



admirable in its outline, had the lips uniting the rose tints of their color with that of the face, in the utmost perfection, and the carnation<sup>1</sup> of the cheek does not appear to be painted, but truly of flesh and blood. He who looks earnestly at the pit of the throat cannot but believe that he sees the beating of the pulses, and it may be truly said that this work is painted in a manner well calculated to make the boldest master tremble, and astonishes all who behold it, however, well accustomed to the marvels of art."

*The Battle of the Standards*

When Leonardo was given the historical picture to paint on the wall of the Council Hall at Florence, he attacked the problem of designing this great picture with the studious care of a scientist. As usual, he worked very slowly. It took him three years to make his sketch of the battle scene. In his notebooks are endless drawings and descriptions of the proper way in which to portray a battle. Surely after his own experiences on the battle fields of Cesare he knew intimately the carnage<sup>2</sup> of warfare and was prepared to depict its horror.

"Show first," he noted, "the smoke of the artillery mingled in the air with the dust stirred up by the movement of the horses and of the combatants."<sup>3</sup> The combatants are seen through this haze of conflict. The air is full of flying arrows and smoke follows the course of the balls shot from the guns. In his notes, Leonardo

<sup>1</sup> carnation, flesh-color.

<sup>2</sup> carnage, bloody slaughter

<sup>3</sup> combatants, fighters.

dwells much upon the passion of the combat, the agony of death. In the faces of the fighters is either the concentrated<sup>1</sup> fury to kill or the pallid<sup>2</sup> despair of the vanquished<sup>3</sup> who, with pain-lined faces, await their death. Of the dead, some lie half-buried in the dust; others mingle their blood with the dust changing it to crimson mud. Others lie struggling in the agony of death, with fists clenched and limbs distorted. One lifeless body is dragged along by the furious horse. The victors as they leave the combat, wipe the mud from their faces. In the battle scene, Leonardo would also include a river through which the horsemen gallop—scattering the foam in all directions.

How far the design for this great war painting fulfilled the artist's own ideals for such a picture, one cannot tell, for the picture on the wall was never finished and even the cartoon of it, over which Leonardo worked for these three years, has quite disappeared. Still there exist copies of it which show how great a masterpiece the drawing was.

#### *Leonardo da Vinci's Notebooks*

The finished pictures of Leonardo da Vinci are few but his sketches and studies of infinite variety fill thousands of pages of his notebooks. There he sketched the flight of birds, the formation of clouds. There he drew the most enchanting clusters of delicate flowers, the most sturdy of powerful trees. Rocks and waterfalls, rivers and the waves of the sea—every phase of nature in every

<sup>1</sup> concentrated, intensified.

<sup>2</sup> pallid, very pale.

<sup>3</sup> vanquished, conquered.

place where he went, reappeared in these notebooks of the artist.

Of sketches of human figures and faces, there is no end. Leonardo seems to have taken an especial interest in grotesque<sup>1</sup> and unusual faces. It is said, for instance, that he would follow for hours, some one having a strange face until he had become so familiar with its unusual lines that he could return to his studio and, from memory, draw that face. At times, also, he used to invite to his studio, groups of uncouth<sup>2</sup> peasants, that he might study their faces as they laughed and talked. His interest in the grotesque led him, on one occasion, to sketch the figure of a man as it swung from the gallows. This he did with considerable care, noting down at the side of his sketch, the kind and colors of the clothing worn by the criminal.

Whenever he was engaged on the production of some particular work of art, Leonardo filled pages and pages of his notebooks with endless studies in design. Moreover, he sketched the details by which he expected to develop his theme, thus testing out beforehand various possible treatments of the subject.

"The eye is the window of the soul," wrote Leonardo in his notebook. The artist, therefore, expresses his own soul by what his eyes seize upon to include in his picture. The Master advises all artists to study every sort of person, every kind of place, in a word, to go directly to nature, for "the painter who draws merely by practice and by eye, without vision," he pointed out, "is like a

<sup>1</sup> grotesque, fantastic.

<sup>2</sup> uncouth, awkward.

mirror which copies all the objects placed before it, without being conscious of their existence.”

In his own pictures, Leonardo never merely copied anything. A real picture must give the one who gazes upon it something of value to think about. For instance, the artist must have in his heart and mind some definite idea which he wishes to express. If the picture is to be a great masterpiece, he must express this idea very clearly and with power.

Judged by these standards, Leonardo himself stands supreme as one of the greatest if not the very greatest artist who has ever lived.

## CHAPTER X

### LEONARDO IN FRANCE

After his complete failure to achieve fame at Rome, Leonardo was doubtless very grateful for the warmth of admiration which awaited him in France. There the French king allowed him the use of a beautiful country villa, and thither came from the court and town those who wished to pay their homage to the great painter.

A vivid picture of the later life of Leonardo da Vinci is left us in the record of an eye-witness, a certain Italian, well-known in his own day.

“On the tenth of October 1517,” he writes, “Monsignor<sup>1</sup> and the rest of us went to see, in one of the outlying parts of Amboise,<sup>2</sup> Messer Lunardo Vinci, the Florentine, an old man of more than seventy years, the most excellent painter of our time, who showed His Excellency three pictures, one of a certain Florentine lady done from the life . . . another of Saint John the Baptist as a youth, and another of the Madonna and Child in the lap of Saint Anne, all most perfect, and from whom, since he was then subject to a certain paralysis of the right hand, one could not expect any more good work. He has given good instruction to a Milanese pupil who works very well. And although the aforesaid Messer Lunardo cannot color with the same sweetness as he used to, he is still able to make drawings and to teach the others.

<sup>1</sup> Monsignor, a title of honor given certain Catholic officials,

<sup>2</sup> Amboise, an'bwāz/.

“This gentleman has written of anatomy with such detail, showing by illustrations the limbs, muscles, nerves, veins, ligaments, intestines and whatever else there is to discuss in the bodies of men and women, in a way that has never yet been done by anyone else. All this we have seen with our own eyes; and he said that he had dissected more than thirty bodies of men and women, of all ages. He has also written of the nature of water, of divers<sup>1</sup> machines and of other matters, which he has set down in an infinite number of volumes all in the vulgar<sup>2</sup> tongue, which if they should be published will be profitable and very enjoyable.”

There are, to be sure, certain errors in this description—Leonardo was, for instance, only sixty-seven when he died, still this record is of great value to us because of the insight it gives us unto the life of Leonardo while in France.

The master had now reached a venerable age and his days of great achievement were over. His right hand was crippled, so that he could himself no longer paint, but he continued to give his pupils the benefit of his priceless criticism.

The “infinite number of volumes” were undoubtedly Leonardo’s manuscripts which have aroused great wonder and admiration among the artists and scientists of our own age. Though this Italian visitor mentions but a few of the subjects treated in the “infinite number of volumes,” we know better to-day the infinite range of Leonardo’s observations on nature and the scientific accuracy of his data.

<sup>1</sup> divers, various.

<sup>2</sup> vulgar tongue, common language.

It is not known that Leonardo took any part in any of the arrangements for court ceremonies in France, as he had been in the habit of doing for the Duke of Milan. The records of the French court at that time make no mention of his having done so.

Still we learn from the autobiography of an artist of Leonardo's day, that the French king granted Leonardo da Vinci a yearly salary of seven hundred crowns. Though the great artist was no longer able to devote himself to any great works of painting, sculpture, or engineering, still he was held by the French king in the greatest veneration.

"Since his [Leonardo's] genius," writes this artist of the sixteenth century, "was as varied as it was great, and since he had some knowledge both of Greek and Latin letters, King Francis being violently enamored<sup>1</sup> of his great talents, took so great a pleasure in hearing him discourse that there were few days in the year when he was separated from him, and it was for this reason that he did not have the opportunity of putting into actual use the splendid studies which he had carried on with such devotion. I feel that I must not neglect to repeat the exact words which I heard from the King's own lips about him which he told me in the presence of . . . several people of note. He said that he did not believe that there had ever been another man born into the world who had known as much as Leonardo, and this not only in matters concerning sculpture, painting and architecture, but because he was a great philosopher."

<sup>1</sup> enamored, inspired with ardent love.

Leonardo da Vinci died on the second of May, 1519. His beloved and loyal student, Melzi, was left the executor of his estate. In the following touching letter, Melzi informs the brothers of his Master of the latter's death:

“To the Lord Julian and other honorable brothers of Leonardo's:

“I believe you are aware of the death of Master Leonardo, your brother, who had always for me the tenderness of the kindest father. It would be impossible for me to express the sorrow which this wretched event has caused me; all that I can tell you is that as long as my body contains a spark of life, so long shall I suffer a killing grief, as I ought to do, for Leonardo never let a day pass without giving me some proof of his great affection. So rare a man—for nature can never produce another such—must be universally regretted. May it please Almighty God to allow him an eternal rest. He died on the second of May, well prepared to receive the Sacraments of the church.

“Leonardo had received a letter from the Most Christian King permitting him to make a will and to leave his worldly good to whomsoever he wished; which thing he would not have been able to do without this letter, having received from the bounty of Francis, the First. All his wealth which he possessed in France would have been lost to him, for such is the custom of this country. Master Leonardo thus made his will, which I would have sent to you had I been able to entrust it to a safe person. . . .

“Here is all that is contained in the will concerning you:”



Then he enumerates<sup>1</sup> certain gifts left by this generous elder brother to these half-brothers who had, only a few years before, tried to rob him of his inheritance.

<sup>1</sup> enumerates, names over

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英文世界名人傳記

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