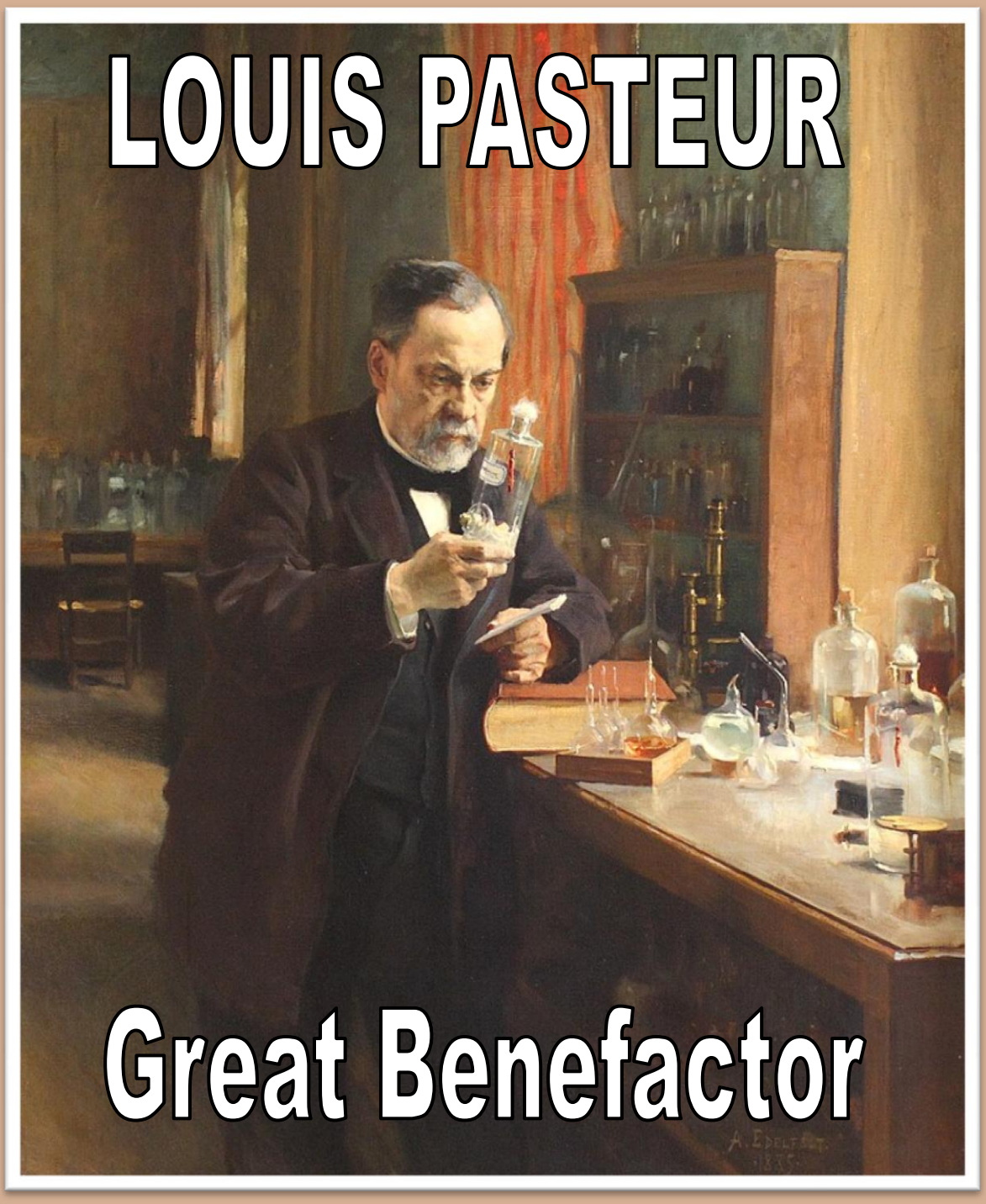
LOUIS PASTEUR
Great Benefactor

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(Author Unknown)

Cover Art: **Louis Pasteur by Albert Edelfelt (1854 – 1905). This oil on canvas portrait was painted around 1885. It is currently in the Musée d'Orsay, in Paris, France and is in the Public Domain. ***

“Mad dog! Mad dog!”

With shrieks of terror, people fled in all directions as the savage animal with its bloodshot eyes and foaming mouth rushed howling down the street. Alas, one small girl of five, fearful and hesitant, stood in its path. With a mad fury, it sprang at her biting her face. Taken to hospital, she began to develop the symptoms of hydrophobia, a disease accompanied by convulsions, intense thirst and an inability to swallow for which there was no remedy. A month later a middle-aged man, his expression one of acute suffering, stood watching her as she lay dying in agony.

“Poor child, poor child!” he murmured.

“Oh, if only I could discover how to cure or prevent this terrible disease.”

He was not, as might be thought, the father. The child was a stranger to him. But Louis Pasteur could never forget that he himself had lost three little daughters from tuberculosis and typhoid fever so, as a famous scientist, he was trying to discover the cause and cure for these and other dreaded diseases. Now the sight of this child in her anguish made him determine to embark on new experiments with regard to hydrophobia. He set to work.

DANGEROUS EXPERIMENTS

Such experiments entailed keeping mad dogs kenneled near his laboratory. The work was excessively dangerous for these were the days when there were no anesthetics to render such animals unconscious. There was, for example, the occasion when two of his assistants, having dragged a mad bulldog from its cage with a lasso, had to hold down the struggling beast with their hands while Pasteur drew up a few drops of the deadly foaming saliva into a tube held between his lips. One drop of that saliva into a scratch, one bite from that snapping jaw and those heroic men would have paid the penalty of madness and death. Using small animals for his purpose after extensive research and trial, the scientist believed that through inoculation of the disease in a very mild form he held the secret, not of a cure but of a preventive.

“But how can it be tested out on a human being?” he asked himself “No one would take the risk of being inoculated with hydrophobia. Perhaps I shall have to try it out on myself.”

It was while he was considering this idea that a little peasant boy was brought to him in a pitiful state.

“He was on his way to school,” sobbed the mother, “when he was attacked by a mad dog. See, he is bitten in fourteen places!”

Louis Pasteur surveyed the child thoughtfully. He was doomed to die an agonizing death from hydrophobia in any case. Surely then this was a God-given opportunity to try his new treatment! The mother gave her consent and his colleagues urged that there was not a moment to be lost. Realizing the seriousness of such an act, Pasteur administered the first injection.

WRACKED WITH ANXIETY

During the next few days, racked with anxiety at the thought that he was deliberately injecting a helpless child with the virus of a deadly disease, he could scarcely eat or sleep. The boy, however, developed none of the usual symptoms and, at last, the final dose was given. Breathless those beside him watched and waited, but the boy remained unaffected. At the end of a month little Joseph Meister was quite well. Louis Pasteur had conquered the terror of hydrophobia. This was but one of the many discoveries made by this brilliant scientist yet, except that he was particularly good at drawing, as a young boy he had not appeared to be specially gifted.

HUMBLE HOME, PARENTS

He was born on December 27th in 1822, in a humble home and of humble parents. His mother was the daughter of a gardener and his father (who had once served as a conscript in the army of Napoleon) was a tanner, first at Dole and later at Arbois. The child received the name of Louis at his baptism as a Catholic in the village church but he was not brought up as a practicing Catholic. A few years previously, the French Revolution had destroyed much of the faith in France and many of the priests and religious (along with their schools and good works) had been swept away. Therefore, when Louis was born, those were things of the past, as seen in England at the time of Henry VIII.

Louis, therefore, received no religious instruction either at home or at the village school he attended. He was a quiet boy and worked well at his lessons, but, like many of his companions, he much preferred holidays to school. What greater joy than to ramble with them over the countryside or to go on fishing expeditions up the river that flowed past the tannery! He enjoyed, too, the simple pleasures of home and the companionship of his three sisters. Sometimes on Sunday, he would walk proudly beside his father whose military frock coat bore the coveted ribbon of the Legion of Honor, which, as a simple sergeant major, he had received on the field of battle from the hands of Napoleon himself.

“THE ARTIST”

Meanwhile it had been discovered that Louis had a real gift of catching a likeness with his pencil or crayons. One can picture his schoolfellows clustering round his sketchbook with exclaiming, “Look, there’s Charles—and Pierre—and Jean. Oh, Louis, they are good!”

“He’ll be a famous artist when he grows up. We’ll call him “the artist!”

And they did.

However, Divine Providence had ordained another kind of fame for Louis Pasteur. His father, despite the fact that he was but a poor ignorant tanner, had determined to give his son a good education. So Louis left the village school for the college at Arbois and every evening his father would try to encourage in him a love of learning by helping him with his homework. In later life, Pasteur said of his father, “I owe everything to him—he had a passion to know and to study.”

AN EXCEPTIONAL PUPIL

Meanwhile, discovering that the new pupil’s apparent slowness sprang from a reflective and analytical mind, M. Romanet, the Principal of the college, also set himself to enkindle the lad’s ambition. Louis, who greatly admired his master, willingly responded. When he was sixteen, M. Romanet had a talk with Louis’ father.

“Your son has exceptional gifts. I suggest that he should be sent to Paris to study for entrance examinations to the Ecole Normale, the training college for professors and scientists.”

Although it was no easy matter to find the necessary funds, the worthy tanner readily agreed. Therefore, one fine morning young Louis set off for Paris thrilled and excited at this new venture. We can imagine his parents’ fond pride in the thought that their son was now embarked on the first step towards a professional career. What then must have been their dismay to hear from the head of the students’ hostel that he considered it advisable that Louis should return home!

Was it a wild young student’s prank? Not a bit of it. Louis was so unhappy that he could not work. He was homesick!

INTENSE LOVE

Such homesickness might appear to be strange, incredible, and even contemptible to an English boy accustomed from an early age to boarding school. However, as subsequent events were to prove, Louis (who was to become renowned as a

benefactor of mankind) was no cold-blooded scientist actuated solely by pride and ambition. His warm-hearted, affectionate nature (that manifested itself in his boyhood in an intense love of his father, mother, and sisters; and later for his wife, children, and friends) was to develop into a love of humanity that can be summed up in the word "service"—a service to which he devoted his life and a love that—as will be seen—had its roots in the love of God.

A SECOND START

Nevertheless, the joy that young Louis felt in finding himself back in his home was mingled with shame. The sacrifice his parents had made for him had been in vain. That must not be. It was a question of "If you don't at first succeed. . . ." So a second start was made at the Royal College of Besancon, which was only thirty miles from home. This time all went well. Determined to persevere, he applied himself with such zeal to his studies that soon he was helping his comrades while imparting some of his knowledge through correspondence to his father.

He revealed his inmost thoughts in these affectionate letters to his family. Remembering his previous failure, he wrote to his sisters, saying, "It is the will which opens the door to brilliant careers . . ." He goes on to stress that whatever may be the task, the will to work, coupled with the helping hand of God, ensures success.

Although, then as now, there were scoffers, atheists, and unbelievers at the college, this clever reflective student found no difficulty in reconciling religion and science. He felt convinced that his love of beauty, his regard for morality and nobility of character, and his sense of duty all came from one source —God. Although he was not an instructed or practicing Catholic, nevertheless it was at this time that he determined to try and practice in his daily life the precept of Jesus Christ—"Love one another." He fulfilled that precept both as a student and as the most outstanding scientist of his day.

FURTHER STUDIES

At the age of eighteen, Louis took his Bachelor of Letters degree. This was the height of his father's ambition. He hoped that his son would settle down as a teacher at the college, but Louis' old master and friend, M. Romanet, urged that he should take a special course in mathematics and chemistry to qualify for the entrance to the Ecole Normale of Paris, which was his former goal. Two years later, he passed the entrance examinations, fifteenth out of twenty-two. It was not good enough. He was refused admission and settled down to another year of study, supporting himself by early morning coaching.

In a letter home, he wrote, “Don’t worry about my health. I need not get up till 5:45. That is not too early.”

Elsewhere we read that, with a growing enthusiasm for chemistry and the laboratory, he worked from four in the morning until nine at night. In addition to his studies, he sometimes went with other students to hear a famous preacher, Pere Lacordaire, in the cathedral of Notre Dame.

A CLEVER YOUNG SCIENTIST

At his second attempt in the examinations, Louis came out fourth with distinction in physics and chemistry. Already he was attracting attention as a clever young scientist. On the advice of his colleagues, he refused a position as Professor of Physics so he could work instead towards a final degree of Doctor of Science. For this, as a result of extensive research on crystallography, he submitted a treatise that gave the world its first glimpse of molecular architecture.

The incredulous examiners submitted it to Biot, the greatest living authority on the subject. Biot’s investigation convinced him that his own years of labor had been thrown into the shade by this young man of twenty-five. Nevertheless, grasping the newcomer warmly by the hand, he exclaimed, “My dear fellow, I have so loved science all my life that your discovery fills me with joy.”

This was the beginning of a great friendship. Indeed, Louis was to refer to Biot as his “spiritual father,” one who ever urged on him “the need for the highest moral discipline and rigorous scientific integrity.”

A CHARMING WIFE

One can well imagine the joy it must have been both to himself and his family to hear that he had received his Doctor of Science degree—a joy, alas, cut short by the death of his mother. Shortly afterwards Louis was appointed as Professor of Chemistry at Strasbourg University, where he pictured himself settling down quietly as lecturer with one of his sisters to keep house for him. However, things turned out differently. M. Laurent, the president of the college, had a charming daughter. Louis fell in love with Marie and she with him, so on May 29th, 1849, they were married in the little Catholic church of Saint Madeleine, at Strasbourg.

Humanly speaking, it was an ideal marriage, for not only was it based on a deep and enduring love, but also, as the daughter of a scholar, Marie encouraged and helped Louis in his work. As the years passed, although he loved his home and the company

of his gentle wife and children, he spent more and more time in the laboratory. His wife made no complaint for she was convinced that such research would in the end be of great service to mankind.

Therefore, each day he would leave home early for the laboratory while she made her way to church. Marie was an ardent Catholic, loving the Mass and all that her faith stood for. Few men were practicing Catholics in France in those days so perhaps she was not unduly distressed that her husband, such a good kind self-sacrificing man, never accompanied her to church. However, we may be sure that she never ceased to pray that his simple sincere faith in God and the immortality of the soul would lead him to the Truth, the Way, and the Life found in its entirety in His Holy Catholic Church.

Quietly the years slipped by. How pleased she must have been at his advancement when he gave her the news saying, "My dear, I've been appointed as Director of Scientific Studies at the Ecole Normale!"

MANY SCIENTIFIC DISCOVERIES

How great her pride as from that time onwards one scientific discovery after another brought him recognition and honor even though they brought violent opposition and mocking hostility as well.

Before giving a brief description of these discoveries, which were to have such far-reaching results, it is as well to consider the ignorance that prevailed with regard to medicine and surgery a hundred years ago. Liebig, the greatest German scientist, had affirmed that both decomposition and fermentation were purely physico-chemical in character. No one suspected that disease was due to living microbes, bacteria, and germs, or that cleanliness played a vital part as a preventive and in the successful treatment of the sick. Operations were performed by surgeons wearing their everyday frock coats with dirty and even rusty instruments, so it was little wonder that the result was so often blood poisoning, gangrene, and death. In addition to these evils, small pox, tuberculosis, cholera, typhoid, and other contagious diseases were rampant and preventive treatment by vaccination and inoculation was unknown.

LIGHT INTO DARKNESS

Into this prevailing ignorance, a brilliant scientist was to bring light into darkness.

From experiments with the fermentation of beer, Louis Pasteur discovered living "animalcules" which he declared played an important part in fermentation and putrefaction.

"Those who attempt to explain putrefaction of animal substances by the presence of animalcules argue like a child . . .," retorted Liebig and his followers.

Since the time of Aristotle, naturalists and philosophers had believed in "spontaneous generation." Virgil describes how a swarm of bees can be made to originate from the rotting carcass of a young bull!

Van Belmont, a Belgian physician, contributes the following: "Squeeze soiled linen into the mouth of a vessel containing grains of wheat. After 21 days the wheat will be found to have been transformed into mice."

Even in Pasteur's time, it was held that microscopic forms of life arose spontaneously without pre-existing germs.

Pasteur entered the fray. He wrote to a friend saying, "It is the will of God that by the utmost perseverance I add something to the little that is known of the mysteries of life and death."

THE SCIENCE OF BACTERIOLOGY

After extensive experiments, some of which were conducted in the pure air of the Alps, he proved that fermentation and putrefaction were not due to the presence of air as was believed but to living microbes in the air, microbes that greatly increased amid dust and dirt. Thus, in refuting the theory of spontaneous generation, this great man laid the foundation to the then unknown science of bacteriology. His claims met with ridicule and mockery in the press and everywhere.

"The world to which you pretend to lead us, M. Pasteur, is too fantastic," sneered his opponents. "The man is preposterous—a charlatan!" others declared.

Nevertheless, his discovery aroused the greatest interest among his supporters in the world of science and elsewhere. Not only was he awarded the prize by the Academy of Sciences for the best experiment on spontaneous generation but also the whole of Paris flocked to his lectures. One thing was lacking. Biot, whose nobility of character and love of science had been a source of inspiration to Pasteur, was not there to witness his success. He was dead.

THE FIRST CAUSE

It was at one of these public lectures that Pasteur said of himself, "In the laboratory it is not religion, philosophy, atheism, materialism, nor spiritualism that counts. It is a question of facts, which I approach without any preconceived ideas." He went on to add, "Research on the first cause is outside the scope of science."

MAN OF FAITH

This brought forth attacks from the materialists who, knowing Louis Pasteur to be a man of faith, declared scoffingly, “The man is no scholar. He is merely a chemist who denies facts in defense of his creed.”

He had need of that faith for, in that sphere of his affections, where he was most vulnerable, he was to be struck again and again. He had already lost Jeanne, his three-year-old daughter, to typhoid fever. Overwhelmed with grief he had written to his father, saying, “Yet she is happy, that must suffice. May God’s will be done.”

PASTEURIZATION

In 1862, not only was Pasteur to lose that dearly loved father for whom he felt an undying gratitude but also his two-year-old daughter, Camille, who died from tuberculosis, and her twelve-year-old sister, Cecile, who died from typhoid. Despite his love for his wife, his son, and his only remaining daughter, Marie-Louise, what heartache must have overshadowed his new triumphs! The first of these was the discovery that harmful elements could be destroyed by heat. This vital fact was to lead to the pasteurization of milk (a common practice in modern dairy work) and the sterilization of instruments, surfaces, and participants that is now practiced in all hospitals.

IMPAIRED HEALTH

Despite continuous attack and opposition, gradually Pasteur’s ideas won the day; and then a tragedy occurred. In 1868, he was struck down with paralysis. He believed this to be the end.

“I had hoped to render further service to my country,” he murmured once. Referencing his studies on contagious disease, he said, “There is so much for me to do. A whole world to be revealed.”

But he was not to die. Slowly he regained health and strength and, although his left leg was never the same as before, fortunately his mental faculties remained unimpaired. He had just started work again when, in July of 1870, a French declaration of war resulted in the over-running of the country by the Germans and the surrender of Paris. This in its turn brought about a revolution in which many priests were executed and deported (although Paris was reconquered from the enemy, street by street).

All this came as a great shock to the peace-loving scientist who had believed war to be a thing of the past. At times, he felt greatly depressed although he was convinced

that science and the love of peace would eventually triumph over ignorance and war. With all his knowledge, Pasteur did not realize that science and the love of peace could never prevent war or civil strife that is caused by injustice, cruelty, greed, love of riches, and power; that is, by sin, which can only be overcome through the establishment in this world of true Christianity, through the reign of Christ the King.

ANTISEPTICS

Meanwhile, with his shattered health, unable to join forces with his son who was fighting the enemy, the scientist worked to alleviate the suffering of the wounded. Three years earlier, Dr. Lister, a brilliant young surgeon working in Glasgow, had introduced with marked success new methods of treatment by antiseptics, which he ascribed to the discoveries of Pasteur. However, in France, as these had not yet been put into practice, 70 percent of the wounded were dying from blood poisoning and gangrene. Pasteur, having been elected a member of the Academy of Medicine, when visiting hospitals begged that instruments should be passed through a flame and dressings heated to a high temperature to destroy germs. With the aid of his microscope, he showed the surgeons that the pus from infected wounds was swarming with microorganisms. Many of them resented his interference and ridiculed his ideas.

"Why," they scoffed, "what does he know about it! He's not a surgeon, not even a medical man. Just a laboratory chemist. All this talk about bacteria is just rubbish!"

Nevertheless, little by little the new methods gained ground while new honors and awards gave proof of ever-increasing fame. All this time, remembering the death of his three little daughters, his mind was continuously preoccupied with the causes of such terrible contagious diseases as cholera, smallpox, tuberculosis, and typhoid. During an epidemic in Paris, Pasteur had at once started experiments using infectious cholera matter. When a friend begged him to give up such dangerous work, he had replied quietly, "And what about one's duty?"

Duty and service to mankind—that was his purpose in life, a purpose warmly upheld by his unselfish wife.

A HARMLESS VACCINE

With the belief that all disease was caused by microbes he now, at the age of fifty-five, began to consider a preventive for these terrible diseases. After four years of experiment on rabbits and other small animals he was convinced that he had found

it. This was his discovery: a virulent germ could be modified and converted into a harmless vaccine, which, when inoculated into an animal, prevented it from acquiring the disease later.

This revolutionary and, it must be admitted, highly dangerous idea was given to the world, in February of1881, with the publication of his famous paper on the Anthrax Vaccine. It caused universal and intense excitement; admiration, and enthusiasm on the one hand and indignation and ridicule on the other.

“He has destroyed many animals and saved very few human beings,” declared his enemies scornfully. Many of them, forming themselves into an anti-microbe campaign, went about poking fun at him, saying, “The microbe alone is true and Pasteur is its prophet!”

THE TEST

It was decided to put the matter to the test. So, fifty sheep were injected with anthrax, twenty-five having first been vaccinated.

“The twenty-five unvaccinated will perish, the twenty-five vaccinated will survive,” Pasteur affirmed.

Nevertheless, during the next few days, his wife, his friends, and his followers experienced the greatest anxiety. Should the test fail much of his life work would be brought to nought. However, on the final day, twenty-four of the unvaccinated sheep lay dead and all the vaccinated sheep were in perfect health!

FAME

Pasteur was the most famous man in France. He was awarded an annuity by a grateful government and the Grand Cordon of the Legion of Honor. At this supreme moment at a ceremony given in his honor, he seized the opportunity to pay public homage to his parents with the words:

“Oh my father and mother, my dear departed, who lived so humbly in your little dwelling—I owe everything to you. . . .”

Invited to occupy the place of honor in an international medical congress in London, he was greeted with such applause that in bewilderment he looked about him, saying, “It must be the Prince of Wales arriving?”

“Why no,” replied the president of the congress beaming at him, “it is you the whole world is acclaiming.”

SURGERY WITHOUT TERROR

He received a tribute from the famous surgeon, Lord Lister. Lister said, “Truly there does not exist in the world any individual to whom the medical sciences owe more than they do to you. . . . Thanks to you, surgery has undergone a complete revolution, which has deprived it of its terrors and has extended almost without limit its efficacious power.”

Yet Louis Pasteur was to achieve yet another outstanding success. It was in 1880, at the age of fifty-eight, that he began his work on that terrible disease, hydrophobia. The result, the first preventive immunization of that little Alsatian boy through inoculation, has already been described. Of the following 350 patients brought to him only one, who arrived too late, died.

The Pasteur Institute for the research of infectious disease and microbic work was erected by a proud nation, in 1888. Louis Pasteur entered it as director, an ageing man, dragging his left leg, ill and worn out with his arduous work. He was to make one further discovery, perhaps in the eyes of God his greatest. Throughout his life, he had remained a virtuous man of simple faith respecting but not accepting the Catholic faith of his forefathers. Yet, from his knowledge of the past, he knew full well that Catholicism was no bar to scientific research. For, in every field of science, be it chemistry, physics, geology, astronomy, ethnology, anthropology, or the biological sciences, eminent Catholic scientists—many of them priests—had been renowned for their discoveries. Among them stood forth such names as Linacre (a priest), founder of the Royal College of Physicians; Muller, the physiologist; Mendel (an abbot); Latrielle, the entomologist (a priest); Ampere, Coulomb, and Volta, pioneers in electricity; Sensen (a bishop), founder of geology; Copernicus (a canon), a noted astronomer; and so on.

Gradually, however, Louis Pasteur was being brought towards the goal. Meeting, as he must have done, men who were both scientists and practicing Catholics, talking and listening to a certain Dominican priest, Pere Didon, who had united his daughter, Marie-Louise—an ardent Catholic—in marriage to Rene Vallery-Radot, in 1879, and having ever before his eyes the faith as practiced by his beloved wife, he finally agreed to her wish that he should discuss the matter with his daughter’s Dominican director, Pere Boulanger.

THE RELIGIOUS IDEAL

In the past, Louis Pasteur had summed up his appreciation of the grandeur of the religious ideal by words that were later to be inscribed on his tomb. He said, “Happy

is he who carries within himself a deity, an ideal of beauty, and who obeys its commands; the ideal of art, the ideal of science, the ideal of patriotism, the ideal of the virtues of the Gospel."

Now the ageing man became aware not of a deity, a vague idea of God as a spirit, but of Jesus Christ; very God of very God; the Way, the Truth, and the Life.

Having made this great discovery Louis Pasteur made his submission to the Holy Catholic Apostolic Church into which he had been baptized, receiving from the hands of Pere Boulanger the Body of his Lord. God had revealed to this great scientist the wonderful secrets of His creation, now He had given him Himself. It was Easter, April 15th in 1895.

FINALE

Six months later, in his seventy-fourth year, having received the Last Sacraments, Louis Pasteur passed away. He was laid to rest in a beautiful monument—which lies in the crypt of the Pasteur Institute—adorned with the inscription of his words on "the ideal" and the figures of Faith, Hope, Charity, and Science with the Holy Spirit represented as a dove descending from above. Each year to mark his anniversary, a Mass is offered up in the crypt.

So we have Louis Pasteur, a simple country boy from a humble home who loved his family and who was not—so it would seem—particularly clever, fulfilling the destiny ordained for him, that of one of the great benefactors of mankind.

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Bernard O'Connor,
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