

PHARMACEUTICAL AND MEDICAL KNOWLEDGE OF BALZAC.*

BY L. E. WARREN.

About a decade ago the late Professor Linton presented before this Section a series of interesting papers concerning the pharmaceutical and medical knowledge of several celebrated writers of fiction¹ as displayed in their works. Prof. Linton's plan consisted in reviewing the novels of an author and discussing those passages which showed that the writer had some knowledge of pharmacy and medicine as known in his day and age. From correspondence and conversations with Prof. Linton I learned that it was his intention to continue the series until most of the novelists who had shown any marked insight into pharmacy or medicine had been studied. Unfortunately this plan was interrupted by Professor Linton's death and until recently, so far as I know, no one else has entered this particular field. Professor and Mrs. LaWall have given an interesting account of the knowledge of pharmacy and science possessed by Dickens.² Also Professor Kremers has published a delightful study of Balzac's "Druggist Perfumer," Caesar Biroutteau.³ These appeared after the greater portion of my own studies of Balzac had been made.

For a number of years I have been an enthusiastic reader of Balzac and it has seemed to me worth while to try to bring before you some of the characters and passages in his writings which show that Balzac had considerable knowledge of pharmacy, chemistry and medicine as these were understood a hundred years ago, and that he was interested in pharmacists, chemists and drugs. He had been a lawyer's clerk and had never served in the shop of an apothecary nor had he studied medicine. He made use of such knowledge of chemistry and medicine as was possessed by the most intelligent French citizens of his time.

Balzac arranged most of his important writings in what is known as "La Comedie Humaine" (The Comedy of Human Life). Perhaps it might better have been named "The Tragedy of Human Life." His design in writing The Human Comedy, he tells us, was to prepare a "Natural History of Man." He says:⁴

The vastness of the plan, which includes both a history and a criticism of society, an analysis of its evils and a discussion of its principles, authorizes me, I think, in giving my work the title under which it now appears, "The Human Comedy."

In "The Human Comedy" Balzac attempted to portray every human emotion in all the varying degrees exhibited by man. Love and hate, altruism and avarice, generosity and greed, magnanimity and anger, hope and despondency, grief, pleasure, pain, approbation and scorn, follow each other like the ever-changing colors in a kaleidoscope. He attempted to paint every type of character, to depict every phase of human activity, to describe every profession, occupation and trade. Naturally one lifetime was too short to complete such a vast project; yet there are more than two thousand individual characters in "The Human Comedy," many of whom appear again and again. Princes and paupers, nobles and peasants, politicians and

* Section on Historical Pharmacy, Rapid City meeting, 1929.

¹ A. W. Linton: "Pharmacy and Medicine of Sir Walter Scott," *Jour. A. Ph. A.*, 6 (1917), 158. "Pharmacy and Medicine of George Eliot," *Ibid.*, 8 (1919), 1042. "Pharmacy and Medicine of Charles Kingsley," *Ibid.*, 10 (1921), 46.

² Charles H. and Millicent LaWall, *Am. J. Pharm.*, 101 (1929), 6.

³ E. Kremers, *Ibid.*, 101 (1929), 278.

⁴ Preface to "The Human Comedy."

authors, apothecaries and chemists, lawyers and notaries, doctors and priests, printers and painters, sages and idiots, lovers and mistresses, sailors and soldiers, angels and courtesans are brought across his pages in bewildering procession. Even horses, dogs, chickens and toads have names and individualities and play their parts as the plots require. "The Human Comedy" is a picture of French society of a century ago. It is far more than a picture—it is a mirror of Human Nature.

References to medicines and their sources, to disease and to methods for treating the sick are constantly made throughout *The Human Comedy*, so that it would be manifestly impossible to mention them all in a study of reasonable length. I have, therefore, selected a few stories which are richer in pharmaceutical and medical lore than others and I have tried to retell the chief incidents in such a manner that the chemical, pharmaceutical and medical allusions will be understood by those who are not familiar with the stories as a whole. In addition I have indicated the drugs and diseases most often mentioned by Balzac and have noted his leanings toward clairvoyance, mesmerism, phrenology, and other occult subjects.

Unlike Molière and Dickens, neither of whom ever lost an opportunity to ridicule the medical profession, Balzac had a general affection for physicians, and some of his doctors are among the finest characters in French literature. In fact there is probably no delineation in any literature of a more saint-like physician than Benassis, "The Country Doctor." Among Balzac's favorites are two which are worthy of mention—Daniel D'Arthez, the novelist, and Horace Bianchon, the physician—"the great writer" and "the great doctor" as he loved to call them. We may believe that D'Arthez was the noble, magnanimous and successful writer that Balzac himself dreamed to become. We may be sure that Bianchon represents the charitable, patient and altruistic doctor which Balzac would like every physician to be. D'Arthez need not concern us further, but Bianchon will appear often, for it is through him that we get much of our insight into Balzac's knowledge of physiology and medicine. Bianchon was a disciple of Desplein, a celebrated surgeon of Paris. The early garret life of these three—D'Arthez, Bianchon and Desplein—gives us many a glimpse of Balzac's own terrific, lifelong struggles against poverty and lack of appreciation.

One of Bianchon's first patients was Old Goriot.¹ This man had been a vermicelli manufacturer and had become wealthy. His two daughters, whom he worshipped and who had married rich but penurious men, had wheedled money out of their father on one pretext or another until he had become reduced to poverty. Their pitiless and avaricious demands on their father bring on him an attack of apoplexy. Bianchon, who is still a medical student, Goriot and Rastignac, a law student, board and lodge at the Vauquer boarding house. The poverty-cramped students spend their last sous and Rastignac pawns his watch to buy fuel and bed clothing for the sick man, while Bianchon obtains credit for medicines at the apothecary's. Bianchon cares for the dying man with the tenderness of a nurse, but at the same time studies his patient with the cold calculation of an expert diagnostician. The students apply mustard plasters and leeches, give foot-baths, and dose the patient with tisanes. Bianchon's teachers are called in. They apply moxas to the spine and order opium to be applied to the diaphragm, but it is of no avail. Goriot dies and is buried by the students, the daughters and their husbands contributing not a centime.

In 1828, Dr. Bianchon was called to Provins from Paris by Dr. Martener in consultation over Pierrette Lorrain² who was suffering from an abscess in the ear caused by a fall. She had been neglected for a long time by her cruel relatives before any doctor was consulted. Martener and Bianchon did everything known to science for the lovely child. Desplein came from Paris and trephined Pierrette's skull but she died from caries of the bone, toxemia and exhaustion.

Bianchon treated an abscess in the head of Claudine, La Palferine's mistress.³ She had wonderful hair and Bianchon wished to cut it in order to operate. Claudine would not consent unless La Palferine were willing. The doctor sought the lover. "Cut off Claudine's hair!" he cried in peremptory tones, "No, I would rather lose her." The mistress thought that a proof of love. Bianchon had to operate without removing the hair but he saved his patient.

Sometimes Bianchon gives more than professional care and medicines to his patients. He attends Caroline Crochard,⁴ a former mistress of Count de Granville. Late one night as he is leaving his patient's rooms he meets the Count and, without knowing of their former relationship, tells him of the wretched woman's condition. She had left the Count, who sincerely loved

¹ Old Goriot. ² Pierrette. ³ The Prince of Bohemia. ⁴ A Second Home.

her and who was the father of her children, for a worthless gambler who had dissipated her small fortune. She was obliged to work early and late to keep her children from starving and her lover would often rob her of her earnings so that her children were without food. Said Bianchon:

Only three days ago she sold her hair, the finest hair I ever saw; she came in, she could not hide the gold piece quickly enough and he asked her for it. For a smile, for a kiss she gave up the price of a fortnight's life and peace. Is it not dreadful, and yet sublime? But work is wearing her cheeks hollow. Her children's crying has broken her heart; she is ill and this moment moaning on her wretched bed. This evening they had nothing to eat; the children have not strength to cry, they were silent when I went up.

The Count said: "I can guess, my young friend, how it is that she is yet alive if you attend her."

The doctor: "Oh, poor Soul! Who could refuse to help her? I only wish I were richer, for I hope to cure her of her passion."

In another instance¹ Bianchon is called to Montégnaç by Dr. Roubaud in consultation over Mme. Veronique Graslin. Because of a secret sin in earlier life through which her lover had been brought to the scaffold with sealed lips, this woman for fifteen years had "condemned herself to frightful austerities and the most implacable mortifications of her flesh" with the result that she was brought to her deathbed. Bianchon told her:

You are preserving your faculties in the last stage of a disease in which the Emperor's brilliant intellect sank* * * You must think of nothing but your salvation.

Balzac was familiar with the arrogant, bombastic, braggadocian species of doctor. This is shown in "Wild Ass' Skin,"² an allegorical romance. Raphael Valentin, a poet and scientist, decides on suicide because of poverty, hopeless love for a heartless flirt, and lack of influential friends. Awaiting the night to jump into the Seine, he looks into a curiosity shop to pass the time. The centenarian owner divines his intention and offers him a magic skin with which to end his life. The skin has a Sanskrit inscription indelibly written on it, which announces that the shagreen is capable of granting its master's every wish (except prolongation of life) but that with every demand made of the skin it will shrink and when it has diminished to nothing, the owner will cease to live. Raphael takes the skin. Wealth, a beautiful love, triumph over his insulters, every desire that the human heart longs for (except long life) becomes his. He is then possessed with a maniacal desire to keep the skin from shrinking. He consults Planchette, the noted physicist, and the mechanic, Spieghalter. They subject the leather to enormous hydraulic pressure in the effort to increase its surface. The press breaks and wrecks the foundry, but the skin does not expand. Raphael consults the celebrated chemist, Japhet, in the hope of discovering the secret of the skin. Japhet's analysis included treatment with fluoric acid, red potash, electric shock and chloride of nitrogen but the dreadful talisman was not changed.

As the skin continues to shrink, Raphael's health fails. In consultation with Bianchon he calls three of the great doctors of Paris, Brisset, the head of the Organic School, Caméristus, the head of the Vitalists and Maugredie, the Pyrrhonist and a scoffer, with the scalpel for his one article of faith. Raphael can discover no trace of feeling for his troubles in any of the three doctors. They take five pages to give their pitiless opinions, no two being in agreement. A few lines from one are quoted as an example:

It is easy, gentlemen, to recognize in the symptoms of the face and body generally intense irritation of the stomach, an affection of the great sympathetic nerve, acute sensibility of the epigastric region, and contraction of the right and left hypochondriac. You have noticed, too, the large size and prominence of the liver. M. Bianchon has, besides, constantly watched the patient, and he tells us that digestion is troublesome and difficult. Strictly speaking, there is no stomach left, and so the man has disappeared. The brain is atrophied because the man digests no longer. The progressive deterioration wrought in the epigastric region, the seat of vitality, has vitiated the whole system. Thence, by continuous fevered vibrations, the disorder has reached the brain by means of the nervous plexus, hence the excessive irritation in that organ.

¹ The Country Parson. ² The Wild Ass' Skin.

Bianchon, however, was different. There was deep, unconcealed distress and grave compassion on his face. "He had been a doctor for too short a time to be untouched by suffering and unmoved by a deathbed." "Believe me, Raphael," he said, "we effect no cures, we only assist them. Another system—the use of mild remedies while Nature exerts her powers—lies between the extremes of Brisset and Caméristus, but one ought to have known the patient for some ten years or so to obtain a good result on these lines." This is an illustration of Balzac's leanings toward the Eclectic school of medicine just then coming into notice. Bianchon orders leeches to be applied to the stomach, a trip to Savoy for the waters and careful diet but the skin shrinks to nothing and Raphael dies.

Of all the 97 stories to which Balzac attached his name the three which he most wished to leave as a monument to his memory are "Seraphita," "Louis Lambert" and "The Country Doctor." Into these he put "the breath of his soul." Balzac himself wrote of "The Country Doctor" when finished:

I have done a great thing for my country. The book is, to my mind, worth more than laws or battles won. It is the Gospel in action.

Contrary to what might be expected, "The Country Doctor" contains relatively little that concerns pharmacy or medicine. The name of the Country Doctor is Benassis. Broken by great sorrows and loss of fortune Benassis is hesitating between suicide and the Church when his attention is called to a miserable, cretinous village in the south of France. He settles there, studies medicine and devotes his life to the welfare of the inhabitants. He builds comfortable houses in the sun and, in spite of great oppositions and at the risk of his life, he moves the cretins from their damp, shaded huts into the light, where their drinking water was no longer melted snow from the mountain torrent. He introduces improvements in agriculture, better stock and industries, and in a few years the village and surrounding country become a flourishing, happy community. Although Dr. Benassis knows nothing of the influence of iodine on thyroidism he recognizes the value of hygienic surroundings in the prevention and treatment of cretinism. He knows also about the propagation of the disease through heredity. Benassis believes in simple remedies. In one instance he prescribes tisane of couch grass as sole diet and medicine.

The creator of *The Human Comedy* was a firm believer in physiognomy. He was familiar¹ with the great work² of the Swiss naturalist, Lavater, published in 1797 and I have reason to believe that some of the minute descriptions of his characters are based on Lavater's theories. One of his best portraits, that of the Jewish doctor, Halpersohn,³ is quoted:

* * * Halpersohn was a man of fifty-six, with short bow legs and a broad, powerful frame. There was an Oriental stamp about the man, and his face much in youth have been singularly handsome; the remains showed a marked Jewish nose, as long and curved as a Damascus scimitar. His forehead was truly Polish, broad and lofty, wrinkled all over like crumpled paper, and recalling that of a Saint-Joseph by some old Italian master. His eyes were sea-green, set like a parrot's in puckered grey lids, and expressive of cunning and avarice in the highest degree. His mouth, thin and straight, like a cut in his face, lent his sinister countenance a crowning touch of suspiciousness.

The pale, lean features—for Halpersohn was extraordinarily thin—were crowned by ill-kept grey hair and graced by a very thick, long beard, black streaked with white, that half hid his face, so that only the forehead and eyes, the cheek bones, nose and lips were visible.

That Balzac was not unaware of the mercenary side of medicine is revealed by this description of the Jewish doctor. This man who was called a charlatan by many and was praised to the skies by others whom he had cured, undertook the cure of an apparently hopeless invalid, Vanda de Mergi. This lady was afflicted with one of the strangest diseases mentioned in *The Human Comedy* (if not in all literature). Her symptoms had been so many and so variable over a period of 17 years that several pages are required to describe them. Desplein, Bianchon and Haudry when they first saw her thought she was malingering. They were utterly baffled and left her in charge of the charity doctor of the district, Dr. Berton. She was nursed by her

¹ Ursule Mirouet.

² Lavater, Jean Gaspard: *L'Art de Connaître les Hommes par la Physionomie*.

³ *The Seamy Side of History*.

father and young son, her mother and husband having died from over-work and anxiety in caring for her. When discovered by an agent of the Brotherhood of Consolation the family was in extreme poverty.

Halpersohn charged 200 francs for examination and a thousand crowns for the cure (both paid in advance) as well as for board at his hospital. Without the aid of the Brotherhood he would never have seen the patient as he took no charity patients and collected in advance. Halpersohn diagnosed the malady as *Plica polonica* and in a few months Vanda was completely cured. Pharmacists would like to know what drugs were used but Balzac gives only a hint.

It is very little known in Western Europe that the Slav nations possess a store of medical secrets. They have a number of sovereign remedies derived from their intercourse with the Chinese, the Persians, the Cossacks, the Turks and the Tartars. Some peasant women, regarded as witches, have been known to cure hydrophobia completely in Poland with the juice of certain plants. There is among those nations a great mass of uncodified information as to the effects of certain plants and the powdered bark of trees, which is handed down from family to family, and miraculous cures are effected there.

Halpersohn had the innate instinct of a great healer. Not only was he learned; he had observed with great care, and had travelled all over Germany, Russia, Persia and Turkey, where he had picked up much traditional lore; and as he was learned in chemistry, he became a living encyclopedia of the secrets preserved by the "good women," as they were called, the midwives and "wise women" of every country whither he had followed his father, a wandering trader.

TOXICOLOGY.

Had Balzac been a critical student of chemistry as it was known during the last two decades of his life it is possible that he would have elaborated some intricate problems in toxicology. He deals with poisons for the most part in a melodramatic rather than in a scientific way. Maulincour,¹ Pigeron² and Peyrede³ were mysteriously poisoned, the latter, according to Desplein who made the autopsy, by an extract from a species of *Strychnos* from the Malay Archipelago. Esther van Gobseck killed herself⁴ by a Javinese poison which she had obtained in a roundabout way from Jacqueline Collin. She first tried the poison on her dog to make sure of its effectiveness.

Esther called Romeo: Romeo ran up on legs so supple and thin, so strong and sinewy, that they seemed like steel springs, and looked up at his mistress. Esther, to attract his attention, pretended to throw one of the pills.

"He is doomed by his name to die thus," said she, as she threw the pill which Romeo crushed between his teeth.

The dog made no sound; he rolled over and was stark dead.

Only once in *The Human Comedy* does Balzac give details of murder by poisoning. This is in *Cousin Pons*.⁵ Remonencq is a greedy and unscrupulous dealer in old metals. Pons is a musician by profession and an art collector by avocation. Old, poor, lonely and eccentric he has always spent his meager savings for pictures and has lived in poverty. Although having no more than the bare necessities of life and sponging on his friends for his dinners, he had collected priceless treasures in paintings, statuary and miniatures. None of his acquaintances suspects the great value of his collections and he is careful that no one shall have that knowledge. Pons is afflicted with a landlady, Madame Cibot, a tailor's wife, who is as greedy and unscrupulous as Remonencq but more intelligent than the metal dealer. She conspires with Remonencq and one of Pons' rival collectors, Elie Magus, a Jew, to steal and sell some of Pons' treasures. When Pons falls ill, under a pretext of raising money to pay for nursing, and medical attendance, she sells Magus four of the finest paintings at a fraction of their value but pockets most of the proceeds. Remonencq realizes that this is a fine stroke of business on the part of Madame Cibot. He sees himself as a welcome suitor if only M. Cibot, who is already ill, were out of the way.

...his eyes fell upon a copper disc, about the size of a five-franc piece, covered thickly with verdigris. The economical idea of using Cibot's medicine to clean the disc immediately occurred to him. He fastened the thing to a bit of twine, and came over every morning to inquire for tidings of his friend, timing his

¹ *The Thirteen* (Ferragus). ² *The Peasantry*. ³ *The Harlot's Progress*. ⁴ *Ibid*.

⁵ *Cousin Pons*.

visit during La Cibot's visit to her roomers upstairs. He dropped the disc into the tumbler, allowed it to steep there while he talked, and drew it out again by the string when he went away.

The trace of tarnished copper, commonly called verdigris, poisoned the wholesome draught; a minute dose administered by stealth did incalculable mischief. Behold the results of this criminal homeopathy! On the third day poor Cibot's hair came out, his teeth were loosened in their sockets, his whole system was deranged by a scarcely perceptible trace of poison.

Dr. Poulain, Cibot's physician, could not understand his patient's symptoms. He analyzed his medicine but found nothing, for it happened that on that day Remonencq had become a little frightened and had omitted to dip the disc in the tumbler. The doctor then concluded that the sedentary life of the tailor, coupled with the unsanitary atmosphere which he breathed, had brought on an "incurable vitiation of the blood" which was "evident from the general anæmic condition."

Cibot dies and Remonencq marries the widow. After a time he leaves a verdigris potion where his wife may drink of it but, having been warned by a clairvoyant, Madame Fontaine, she cleverly changes the glasses and he falls into his own trap.

POISONING OF MADAME MARNEFFE.

Madame Valerie Marneffe¹ is one of Balzac's most unscrupulous women. Some critics maintain that she is the wickedest woman in fiction. Wife of Marneffe, she is at the same time mistress of Hulot, Baron under the Empire, Montez, the Brazilian slave-owner, Count Steinbock, the Polish sculptor, and Crevel, Mayor of an arrondissement of Paris, whom she afterward marries when widowed. Montez becomes convinced of Valerie's perfidy. One of his negroes has a mysterious animal poison which gives a disease more fatal than any vegetable poison and incurable anywhere but in Brazil. Montez contrives to give the disease to Valerie and her new husband and before he leaves France writes her of his vengeance. Bianchon and seven of his colleagues are called to treat the patients. Bianchon recognizes the malady as one known in Europe in the middle ages but which had become extinct there. Bianchon supposes the disease to be peculiar to negroes and the American races whose cuticle differs from the white races but he can discover no connection between his patients and the blacks or the copper-colored or half-breed races. Bianchon is about to try a powerful remedy but Valerie begs him to leave her to the Church. Valerie repents and, by willing her property to those she had wronged, tries to undo some of the mischief she had wrought.

CHEMISTS.

Balzac's chemists for the most part are rather mysterious persons who do not give out much information. More attention is given to Claes² and Vauquelin³ (an historical character) than to the others. Duval,⁴ Duvignon,⁵ Japhet⁶ and Rouelle⁷ are of minor importance. At one time Duvignon (better known at a later date as Lanty) had Jaqueline Collin as a mistress. From him she is supposed to have acquired her knowledge of mysterious poisons.

The Quest of the Absolute is an account of a half-mad chemist who is in search of the Absolute—one element common to all substances but modified by a Unique Force. Balthazar Claes, a wealthy noble,⁸ a pupil of Lavoisier, spends his time and his money experimenting in his laboratory, utterly neglecting his wife, family and finances. He dissipates his fortune and his family comes to want. Madam Claes, who is completely wrapped up in her husband, goes into decline (tuberculosis) because of sorrow and neglect but Claes is absolutely indifferent to her illness. He combines chlorine and nitrogen, discovers new metals and decomposes nitrogen as well as several other substances previously believed to be elements. Unexpectedly he obtains the diamond by the long continued action of the electric current through carbon-containing ma-

¹ Cousin Betty.

² The Quest of the Absolute.

³ The Rise and Fall of Caesar Biroutteau.

⁴ Cousin Betty. ⁵ The Deputy from Arcis. ⁶ The Wild Ass' Skin. ⁷ Ursule Mirouet.

⁸ The Quest of the Absolute.

terials. After the death of his wife he continues his experiments and finally dies in the insane belief that he has discovered the Absolute.

APOTHECARIES.

There are but few apothecaries in *The Human Comedy*. Vermut is the best known.¹ "He was a little man with a headfull of scientific problems who used to come to the house with his cravat untied, his waistcoat unfastened and wearing a green jacket, usually stained." He lived in Soulanges, a small town in the provinces. Although better educated than his neighbors he was the butt of all the jokesters of his acquaintance. This was due in part, no doubt, to the gaddy of a wife who abused him at home and derided him in public; also in part to the dislike of Dr. Goudron, a physician who posed as a man of learning but who was in reality not much more than a taxidermist. Vermut was a clever chemist. He found traces of poison in the body of Pigeron which caused the widow of that worthy much uneasiness at her trial. Vermut was an innocent accomplice of Rigou in keeping Nicholas Tonsard out of the conscription. Rigou asked the apothecary for the name of a drug which had corrosive properties. Rigou presumably applied the substance to young Tonsard's finger, which then had to be amputated. Matifat^{2, 3, 4, 5} is a rich, wholesale druggist who appears several times in the *Comedy*. He was a good-natured libertine who knew little of pharmaceutical science. Caesar Biroutteau⁶ is a perfumer who had worked over into the manufacture of several toilet specialties. Bianchon gave him a formula for making a hair restorer containing hazel-nut oil. Biroutteau called the product "Cephalic oil." Vauquelin told him that it would not make the hair grow. Nevertheless his assistant went into the manufacture of the preparation and made a fortune.

SURGERY.

A hundred years ago surgery had already been called to the relief of the sightless. Madame Mignon⁶ gradually lost her sight through excessive weeping over the death of a favorite daughter. The family had been wealthy but was now in straightened circumstances. Several years elapsed before an unexpected good fortune enabled Mme. Mignon to have Desplein come from Paris to Le Havre to make an examination.

The illustrious member of the Academy of Science asked the blind woman ten short questions, while examining her eyes in the bright light by the window. Modeste, amazed at the value of time to this famous man, noticed that his traveling chaise was full of books, which he intended to read on the way back to Paris, * * *.

After the examination the Surgeon said that Madame Mignon would certainly recover her sight and fixed the date for the operation. A month later the operation was performed and in due time the patient could see.

A case of double amputation of the legs is mentioned.⁹ Desire Minoret was in a coach accident and his legs were crushed. They were amputated but the young man did not survive.

CLAIRVOYANCE.

Balzac was a believer in clairvoyance but he associated mesmerism and somnambulism with it. Dr. Minoret⁷ had no faith in the occult sciences. However, he consulted a clairvoyant on the advice of Bouvard, a friend of earlier years but with whom he had quarreled over the subject of Mesmerism. The clairvoyant pictured Dr. Minoret's house and garden many leagues away and told him exactly what was happening around his home: For example, what his ward, Ursule, was doing, thinking and praying; in just what volume in his library he kept his money for current expenses, and he learned for the first time that Ursule was falling in love with his neighbor's son, Savinien.

Madame Fontaine is Balzac's most noted clairvoyant. She appears on numerous occasions in the *Comedy*.^{8, 9, 10} Her charges were 5 francs or 10 francs for reading the past and 100

¹ The Peasantry. ² Caesar Biroutteau. ³ A Bachelor's Establishment. ⁴ A Distinguished Provincial at Paris. ⁵ The Firm of Nucingen.

⁶ Modeste Mignon.

⁷ Ursule Mirouet.

⁸ The Unconscious Comedians. ⁹ Cousin Pons. ¹⁰ The Deputy from Arcis.

francs for the future (*grand jeu*). According to Bixiou, "one-third the lorettes, one-quarter the politicians and half the artists" consulted her. She was assisted in her divinations by an enormous toad, Astoroth, with "eyes of topaz as large as 50 centime pieces" and an ebony-black hen, Bilouche. Gazonal⁶ was greatly impressed by her, although he paid but 5 francs for a seance.

Gazonal's bones were freezing; he seemed not to know where he was; but his amazement grew greater and greater when this hideous old woman in a green bonnet, stout and squat, whose false front was frizzled into points of interrogation proceeded, in a thick voice, to relate to him all the particular circumstances, even the most secret, of his past life; she told him his tastes, his habits, his character; the thoughts of his childhood; everything that had influenced his life; a marriage broken off, why, with whom, the exact description of the woman he had loved; and finally the place where he came from, his lawsuit, etc.

Somnambulism is occasionally mentioned by Balzac. A good example of this curious phenomenon is described in Maitre Cornelius.¹ In the later years of the fifteenth century this miser was treasurer to Louis XI. Enormous sums were stolen from the strong room and several of Cornelius' assistants were hanged, one after another, each protesting his innocence. Finally the King strewed flour over the floor of the strong room and set watchers at the door. They saw Cornelius go in the strong room late at night and the tracks in the flour corresponded to his shoes. The King's doctor explained that Cornelius was a sleep walker.

PHRENOLOGY.

Phrenology flourished in Balzac's time. Although we cannot be sure that he believed all the claims made by Gall and Spurzheim for their pseudo-science he makes frequent reference to it in his stories^{2, 3, 4} and certainly gives it some credence.

HOMEOPATHY.

Concerning Homeopathy Balzac says little. The few allusions which I have found^{5, 6, 7} are given more as illustrations of some theory which he is expounding than as proof that he believed in that system of medicine.

Balzac had some peculiar beliefs concerning the laws of heredity. One of these I believe to be untenable, although it is probably incapable of disproof. A century ago most marriages in France were arranged by the relatives of the contracting parties and the inclinations of the young people most concerned had little or no weight. Undoubtedly this system was responsible for the vast number of illicit love affairs in French society of that day. However, Balzac believed that this custom was better for society in the long run than the marriage-for-love system, such as is the general American rule to-day. Now it was Balzac's theory that the children of "love-marriages" had a much greater chance of being beautiful and clever⁸ than those of parents whose marriages had been bargained for like the sale of property.

INSANITY.

Balzac describes insanity on several occasions by recording the actions and conversation of those afflicted. He knew that the disease might be brought on by excessive mental and physical strain, as in the case of the beautiful and unfortunate Stéphanie⁹ at the crossing of the Beresina and the subsequent misfortunes of the Grand Army; also the laborer who went mad after a sunstroke.¹⁰ In like manner Zélie Minoret, crafty and greedy, an accomplice of her husband in the theft of securities and destruction of a will, was made hopelessly insane¹¹ by the discovery of her crime and the sudden death of her only son, the result of an accident. By the same token others who undergo equal stress remain mentally sound. Count de Mortsauf, the husband of "The Lily of the Valley," is a pronounced hypochondriac.¹² He causes his wife much unhappiness because of his constant complaining.

Gaudissart¹³ has a droll adventure with a lunatic at Vouvray in 1831. As a practical

¹ Maitre Cornelius. ² Old Goriat. ³ Ursule Mirouet. ⁴ Massimilla Doni. ⁵ Ursule Mirouet. ⁶ The Seamy Side of History. ⁷ Cousin Pons.

⁸ The Two Young Brides.

⁹ Farewell. ¹⁰ A Bachelor's Establishment. ¹¹ Ursule Mirouet. ¹² The Lily of the Valley.

¹³ The Illustrious Gaudissart.

joke Viernier sends the illustrious drummer to a madman. As a result Gaudissart challenges Viernier. Neither knows how to shoot but one of the seconds suggests horse pistols loaded to the muzzle so that the kick would vitiate the aim. Viernier nearly kills a cow and the adversaries rush into each other's arms.

Consumption is a frequent cause of death in *The Human Comedy*,^{1,2,3} probably because it was more prevalent a century ago than now. I have found no evidence to indicate that Balzac believed in its infectious properties, although he speaks of the "germ of disease" in one instance.

In "The Country Doctor"⁴ there is a curious account concerning the effect which in rare instances tuberculosis may produce on the voice. Jacque, a peasant lad, is dying of consumption. The disease has altered the boy's singing voice and Benassis, knowing the value of rest in the treatment of that malady, has forbidden the patient to sing. On approaching the house the doctor and Genestas hear the lad singing in peculiar flute-like tones. "It is the Swan's Song," said Benassis. "That voice does not sound twice in a century to human ears. Let us hurry; we must put a stop to the singing. The child is killing himself." The doctor finds the boy exhausted and gives him a sedative to compel rest. After they had left the house Genestas made inquiries about the patient. Benassis replied: "Science cannot save him, unless Nature works a miracle. Our professors at the *École de Médecine* in Paris often used to speak to us of the phenomenon which you have just witnessed. Some maladies of this kind bring about changes in the voice-producing organs that give the sufferer a short-lived power of song that no trained voice can surpass."

Balzac knew that deficiency in diets caused disease. One day Bianchon spoke to Desplein⁵ of a poor water carrier who had a horrible disease caused by fatigue and want. This wretched Auvergnat had had nothing but potatoes to eat during the dreadful winter of 1821. Desplein left all his rich patients and at the risk of killing his horse rushed off to the poor man's dwelling and had him removed to a hospital where he was cared for until cured.

Bleeding was a favorite treatment in the generation just preceding Balzac's time and was still relied on to some extent in his day. Balzac believed in its efficacy. Count de Mortsauf⁶ was very ill with a fever. Dr. Deslandes bled him and saved his life. His condition remained desperate and for 52 days he was spared only by the faithful nursing of his wife and a friend of the family. Numerous other instances might be cited.

The use of leeches^{6,7} is frequently mentioned in *The Human Comedy*.

Fever is a common symptom of the sick in *The Human Comedy*, but, since this is an accompaniment of so many diseases, it is usually not possible to diagnose the complaint from the records.

A number of the characters in the *Comedy* are pitted from the smallpox. One of these had been disfigured in childhood. Owing to her advancing years and her saint-like character the pitting almost disappeared.⁸

OBSERVATIONS ON DRUGS.

Opium.—Balzac frequently mentions opium, laudanum and "sleeping draughts" for the control of pain and induction of sleep, but I have found no mention of morphine. In many instances the opium is applied as an external application, sometimes the whole trunk being wrapped in the drug.⁹ Vendramin is an opium smoker and the description of his sensations and dreams¹⁰ while under the influence of the drug remind one of the "Confessions" of De Quincey. A victim of the enchanting drug, Vendramin died early.

Hashisch.¹¹—"In these days the mysteries of the Witches' Sabbath so fully pictured by the great masters of the sixteenth century are mysteries no longer; the Egyptian sorcerers, male and female, progenitors of that strange race, the Gypsies of Bohemia, coming originally from India, simply made their victims eat hashisch. The phenomena produced by that drug amply explain the broomsticks of the witches; their flight up the chimneys; the *real visions* of old women

¹ Another Study of Woman (Charlotte). ² Cousin Betty (Elizabeth). ³ The Wild Ass' Skin (Gaudin; Valentine). ⁴ The Country Doctor.

⁵ The Atheist's Mass. ⁶ The Lily of the Valley. ⁷ The Wild Ass' Skin. ⁸ The Village Rector.

⁹ The Lily of the Valley. ¹⁰ Massimilla Doni. ¹¹ Cousin Pons.

changed to young ones; the frenzied dancer and the entrancing music which filled the phantasmagoric dreams of those pretended worshipers of the Devil."

Coffee.—Balzac knew the sleep-dispelling properties of coffee. He prepared it himself and drank it excessively in order to lengthen his hours of toil. Desplein¹ relates that Bourgeat, his benefactor, ate bread smeared with garlic in order that his ward might have coffee to keep him awake while preparing for his examinations.

HYGIENE.

Hygiene, as we know it, had made no great advances in Balzac's time and he has left but few epigrams on health. A few are quoted:

A man can resist a violent grief which kills a youth, less because his feelings are not so strong than because his organs are stronger.²

The fashionable world expels every suffering creature from its midst, just as the body of a man in robust health rejects any germ of disease.³

A man's health seldom suffers from the work he loves and does for its own sake.⁴

I am aware that there are some who will not read Balzac because they think him a salacious writer. They believe that he glories in describing the unbelievable depravity into which human beings may be sunk by their avarice and greed; that he delights in exploring the social quagmire of Parisian life and bringing to the surface the hidden, squirming reptiles of infamy and debauchery which it hides. I think these are misconceptions. Balzac portrayed French manners as he saw them. If society were decadent, immoral, remorseless, scheming and tottering on credit from the usurers, that was no fault of his. Such critics do not see behind Balzac's writings the great moral philosopher who pictures evils that he may warn the innocent and unwary; they fail to note the great preacher who points the way to forgiveness for sinners through sublime acts of sacrifice and self-abnegation; they do not appreciate the titanic intellect which ranged over every field of thought, garnering epigrams of wisdom from every science as a heritage to future ages.

ACKNOWLEDGMENTS.

In preparing this paper I have consulted various editions of Balzac's works, the translations of which had been made by one or another of the following:

Katherine Prescott Wormeley, Ellen Marriage, The Lady Mary Lloyd, Mrs. Fred M. Dey, Clara Bell, James Waring, Lionel Strachey and John Gilmer.

I am also indebted to numerous other works, such as biographies, essays, compendiums, etc. So far as practicable these are acknowledged herewith:

A. Cerfberr, and J. Christophe, "Compendium H. De Balzac's Comedie Humaine with an Introduction by Paul Bourget." Translated by Jno. Rudd, 1899.

Henry James, "Honore de Balzac" (Essay).

Harry Rickel, "Wisdom of Balzac," 1923.

Katherine Prescott Wormeley, "Balzac, A. Memoir," 1896. *Ibid.*, "Personal Opinion of Honore de Balzac," 1899.

Especial thanks are due to Mr. A. S. Mitchell and Miss Helen McKay for helpful suggestions in editing.

¹ Atheist's Mass. ² Béatrix. ³ The Wild Ass' Skin. ⁴ The Quest of the Absolute.