Zola's Study of Heredity. By J. BARFIELD ADAMS, L.R.C.P., L.R.C.S., M.P.C.

IN studying a case of insanity, the family history of the patient is a matter of considerable interest. But it is often difficult to obtain reliable information on the subject. In such researches one has to contend with ignorance and prejudice. Many people know very little about their ancestors or collateral relations. And further, the idea that insanity is a disgrace so pervades all classes of society, that a man is shy of speaking about the mental condition of his relatives, if it should chance to be, or have been, diseased.

For a good many years I have made careful inquiries into the family history of the cases of insanity or eccentricity which have come under my observation. It has been necessary to pursue these inquiries with patience, for often months and sometimes years have elapsed before I have been able to supply myself with certain missing details. Frequently I have been put on the right scent by mere accident, or by a bit of ill-natured gossip, for, although people don't like talking about their own insane relatives, they have no objection to discuss the psychical failings of their friends. But I cannot congratulate myself upon the result of my researches. Even now I have only three mental genealogical trees that I can look upon as in any way complete.

In the absence of the cadaver, well-drawn plates are of some assistance in studying anatomy. One can at least refresh the memory from them. All depends upon the faithfulness and skill of the artist. In like manner, seeing the difficulty there is in collecting data of family history, the fiction of a realistic novelist, who writes upon the subject, is not an unprofitable study.

In his Rougon-Macquart series of novels Émile Zola unrolls before us a genealogical tree, and he proceeds to demonstrate with great clearness and considerable detail the mental and physical characteristics of the individual members of the family. His object is to show the result of the fusion of a neurotic and degenerate race with, first, a stolid and healthy one, and second, with another which, though comparatively healthy, has become vitiated by alcoholic and other excesses. The various branches springing from such stocks are grafted on others more or less

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healthy and are subjected to the stress of circumstance and environment, and the results noted.

No one ever painted from nature so honestly as Émile Zola did, and his pictures of disease, both mental and physical, have something of the accuracy of cases recorded in a physician's note-book. But, realistic as he is, Zola is an artist, not a photographer. Whatever be the medium in which he works, and sometimes it is horribly filthy, one can always see the strokes of the brush. In literature he is as great a master of chiaroscuro as Rembrandt is in art, although it must be confessed that in his work, as in that of the Dutch artist, the shadow not unfrequently overbalances the light. The composition of his pictures is admirable, though this is not always evident to the superficial observer, for in several of the novels of the series the minor characters appear to be over-elaborated, and to be placed in too prominent a position. But each story is not complete in itself, it is but a shred of a vast canvas, and when the work is viewed as a whole it is seen that every figure falls into its proper place, and that all the requirements of proportion are complied with.

But it is Zola's very excellence as an artist that mars for us his studies in disease. To increase the value of his high lights, necessary no doubt from a dramatic point of view, he lays stress on details, which, from a scientific standpoint, are of small importance, while others of greater interest to the physician he suppresses or passes over with brief notice. Perhaps, however, one may say that in doing so he is unconsciously true to nature. In the college lecture hall and in the pathological museum we can classify our patients, and label our specimens. In practice it is otherwise. Disease is rarely true to sample. It is the exception rather than the rule to meet with a case in which there is no symptom missing, no lacuna which we have not to bridge over with a plausible tag of theory.

Let us then study these novels of Zola as one does a series of anatomical plates, only remembering that the pictures are drawn by a man who, though firmly resolved to delineate every detail with scientific truth, could not divest himself of his artistic individuality.

It may be added that when one regards these books as biological studies, their *grossièreté* fades away, as does that of the writings of the Elizabethan age when looked upon simply as literature, and one has no longer to concern one's self with

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the question whether such physiological descriptions as are found therein are advisable or even permissible in works of fiction.

The scene where the story of the Rougon-Macquart family opens is placed in Plassans, a little city which is supposed to be situated somewhere in the region where the last spurs of the Alps lose themselves in the lowlands of Provence. Those of us who have spent our summer holidays loitering among the out-of-the-way parts of France will remember several sleepy towns which would answer to the description that the novelist gives of Plassans. We recollect the belt of ruinous ramparts; here converted into pleasant boulevards, and shaded with trees; there encroached upon by neighbouring gardens. One or two of the ancient city gates are still standing, with their crenellated battlements fringed with grasses and wild-flowers.

In the very oldest part of the town rises the cathedral, an ancient structure dating back to the period when the arch *en plein cintre* still struggled with the *ogive*. Push open the padded doors, which swing back so silently behind you, and enter the church. When your eyes have become accustomed to the gloom, you see that the architecture of the interior is very plain. But the glass in the windows is wonderful. The sunlight as it filters in is stained with hues of purple and gold, of sapphire and emerald.

The other public buildings of the city are not numerous. There is the *Sous-Préfecture*—for the town, in spite of its episcopal dignity, holds only a second-rate position in the *département*—an ugly, modern building standing on the *Place*, and in a side street one comes upon the *Mairie*, which is only distinguished from the neighbouring houses by the flag of the Republic floating above the main entrance.

The early morning is the best time to explore the city, for there is some life in it then. There is a daily market in the open space behind the cathedral, where peasants bring fruit and eggs and *salades* and other country produce for sale. One rambles on through the narrow streets, and suddenly one comes upon a little square, a veritable blaze of colour, where the stalls of those who sell flowers are grouped about a wonderful fifteenth century fountain.

In the afternoon the whole city goes to sleep, and in the evening it turns out to enjoy the cool of the day on the ramparts, or under the trees of the *Place de la Sous-Préfecture*.

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Imagine all this, and you have some idea of the city of Plassans and the life of its inhabitants.

In the latter part of the eighteenth century a peasant, named Fouque, lived just outside the walls of Plassans. He cultivated his own land, and was one of the richest market-gardeners in the neighbourhood. This man was the last male of his race, which had become so degenerate that Nature seemed about to end it. He died mad in 1786, and we are given no further particulars of his case.

Fouque left one child, a girl named Adélaïde, born in 1768. In her childhood she had the manners of a little savage, and as she grew up her behaviour became still more strange, so that the neighbours said that she had the cracked brain (*cerveau fêlé*) of her father. Physically she was strong. She was tall and slender, had a pale complexion, and was undeniably handsome. The women of Provence have the reputation of being the most beautiful in France. Many of the Arlésiennes, for example, are endowed with the regular beauty of an ancient Greek statue.

In spite of the feebleness of her mind, this beautiful heiress had several opportunities of marrying well. But she rejected all the young and wealthy suitors, and six months after she was left an orphan, when she was about the age of eighteen, she married her servant, a man named Rougon, who came from the *département* of Basses Alpes. He was a rough, uneducated peasant, strongly built and healthy, slow witted, but, like most of his class, thoroughly alive to material advantages.

Of this union one child was born, a boy named Pierre. Three months after his son's birth Rougon died of a sunstroke, which he received one afternoon when he was weeding a carrot-bed.

After the death of her husband Adélaïde lived for some years in illicit union with a man named Macquart, who was a smuggler and a poacher. This man was physically strong and healthy, but he was lazy, had the instincts of a vagabond, was very dissipated, and drank heavily. He was killed in an affair with Custom House officers on the Swiss frontier.

Adélaïde had two children by Macquart, a son, Antoine, born in 1789, and a daughter, Ursule, born in 1791.

Before her marriage with Rougon, Adélaïde may be regarded as merely a feeble-minded woman, but one in whom the possi-

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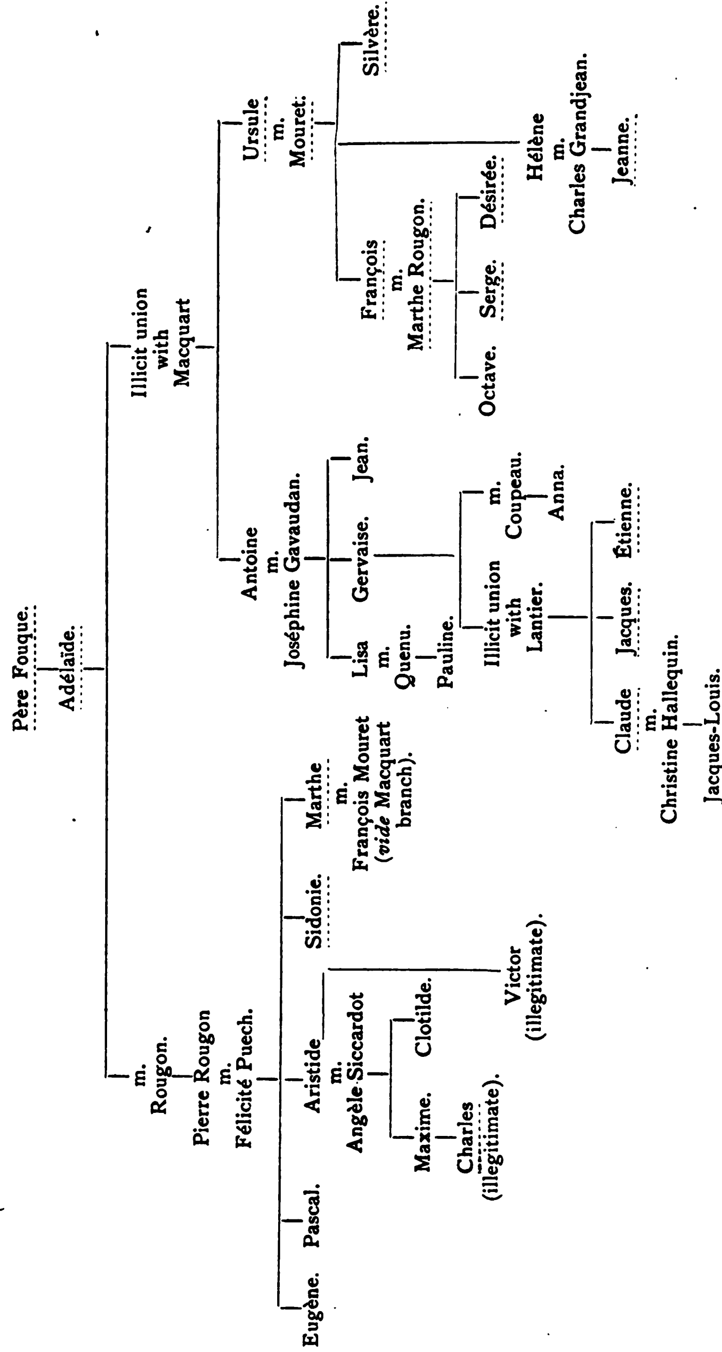
Genealogical Tree of the Rougon-Macquart Family.



[The broken line indicates the insane, epileptic, or otherwise degenerate members of the family.]

bilities of profound mental trouble lay dormant. Soon after her first confinement she appears to have had an epileptic fit, and subsequently these attacks occurred regularly every two or three months. During the years that she cohabited with Macquart she gave herself up to drink and other excesses. After the death of her paramour she became subject to long periods of depression, marked by delusions, hallucinations, and thoughts of suicide. Finally, after one brief gleam of affection for her grandson, Silvère, she sank into dementia, and was shut up in 1851 in the asylum at Tulettes, near Plassans, where she died in extreme old age.

Pierre Rougon, the eldest and only legitimate child of this woman, had a robust father, and was born when his mother was young, and at her best in mental and bodily health. There is no sign of insanity in his case. He resembled his father in body and mind, though possibly he was a shade more intelligent. One can easily recognise the man who, as Zola relates, swindled his mother out of her property, as the son of the rough peasant who married a feeble-minded and unprotected girl for her wealth.

In 1810 Pierre Rougon married Félicité Puech, the daughter of a rich oil merchant of Plassans; olive oil was the staple commerce of the city. At the time of her marriage Félicité was nineteen years old. Socially her husband's superior, she was a small, dark-complexioned woman, such as one often sees in the South-East of France. She was of a different type altogether to the handsome Provençale, represented by Adélaïde. She was clever and ambitious, and loved intrigue for the sake of intrigue. Her chief mental characteristics were envy of those who were better off than herself, and an invincible determination to obtain her own ends. There was no trace of insanity in her or in any of her ancestors.

This couple had five children, three sons and two daughters: Eugène, born in 1811; Pascal, in 1813; Aristide, in 1815; Sidonie, in 1818; and Marthe, in 1820.

Pierre Rougon, with the money of which he had swindled his mother, bought a share in his father-in-law's business, of which later on he became sole proprietor. In spite of his own cunning and his wife's cleverness, Rougon's affairs did not prosper, and he only succeeded in paying his way. Despairing of her husband as a social success, Félicité transferred her

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ambition to her sons, and she struggled bravely with financial difficulties in order to give them a good education. She sent them first to the college at Plassans, and afterwards to Paris, where Eugène and Aristide studied law, and Pascal medicine.

Zola remarks at this point that "the race of Rougon was refined by the women. Adélaïde had made Pierre a man of average ability, fit for low ambitions; Félicité had endowed her sons with greater intelligence, capable of great vices and of great virtues."

Eugène Rougon resembled his father physically. He had the same massive, powerful body, with a square head and large features. But he presented "the curious case of certain of his mother's moral and intellectual qualities buried in the thick flesh of his father. . . . He had high ambitions, the instincts of authority, and a singular contempt for little methods and little fortunes." As an advocate at the bar of a provincial city such as Plassans he was a failure; but at the first breath of the political disturbances, which culminated in the *coup d'état* of 1852, he went to Paris, and succeeded in making himself so useful to Napoleon III that he rose to the highest offices of state.

Zola has been criticised as being untrue to nature in making a statesman out of this brutal grandson of a peasant. But such criticism is unjust. Eugène Rougon was not intended to be the portrait of a statesman. Statesmen are very rare, and were particularly so in France at that period. Even if we include Charles de Morny, it may be doubted whether among all the men who surrounded Napoleon III there was one who was worthy of the title. But if statesmen are very rare, bullies are very common, and in Eugène Rougon Zola has painted the portrait of a successful bully. For it must be remembered that between the village bully, the hector of a Municipal Council, and the strong man of a Cabinet the difference is only one of social veneer, and sometimes not that. Bullies love power for its own sake; statesmen as a means to an end.

Pascal Rougon, the second son, was intended by Zola to represent a member of a family who bore no resemblance to either ancestors or collaterals. "Pascal," says the novelist, "did not appear to belong to the family." His was "a case which gave the lie to the laws of heredity."

He was a physician, and devoted to science. Physically,

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we are told, he was unlike the Rougons, and, mentally, he had none of the intense love of wealth and power which characterised his father and mother and brothers. But, it may be asked, was not this intense devotion to science only another form of the love of wealth and power—intellectual wealth and intellectual power? Pascal was undoubtedly the most amiable and unselfish of the family; but in the development of his character Zola has been more true to nature than he intended, and has allowed traits to reveal themselves which show that the physician sprang from the Rougon stock.

Pascal died of angina pectoris in 1874.

Aristide Rougon, the third son, resembled his mother physically, and he possessed also her mental characteristics of avarice, envy, and love of intrigue. But he had the sensual instincts of his father, and he loved wealth, not only for its own sake, but also for the enjoyment that it brought.

After wasting his time for years at Plassans he followed his brother Eugène to Paris, where, with some little help from the latter, he succeeded in making a fortune as a speculative builder on an immense scale. Losing this fortune, he turned to the Bourse. He established a wonderful joint-stock bank, with which were connected certain other mad schemes, such as the exploitation of a silver mine on Mount Carmel. The affair caused a furore. It was a veritable South Sea Bubble. Then came the inevitable crash, followed by a panic and harrowing tales of misery and suicide. But Aristide rose again from the ashes of the catastrophe, and when we last hear of him he is the all-powerful director of one of the leading newspapers of Paris under the Third Republic.

In 1836, while he was still at Plassans, Aristide married Angèle Sicardot, the daughter of a retired captain, who occupied his leisure with politics. This soldier, Zola says, was not a man of genius, but he was honest and energetic. Angèle was a frail, placid woman, chiefly remarkable for her love of dress and good living. She bore her husband two children: a boy, named Maxime, born in 1840, and a girl, named Clotilde, in 1847.

Angèle died of pneumonia in Paris before her husband made his first fortune. After her death Aristide Rougon changed his name to that of Saccard, and married a second wife, by whom he had no children. But he had an illegitimate child, named Victor, by a poor dressmaker.

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Maxime Rougon or Saccard, the eldest child of Aristide, is the most villainous figure that Zola has drawn. In his character, compounded of vice and selfishness, there is not a redeeming feature. Physically he resembled his mother, mentally his father. He was educated at a miserable school at Plassans, where he early acquired immoral habits. When little more than a child he was plunged into the Sodom and Gomorrah of Parisian high life, as it was during the palmy days of the Second Empire, to which his father's wealth gave him the *entrée*. At the age of seventeen he had an illegitimate child, named Charles, by a maid-servant. He married an extremely wealthy girl, who was suffering from phthisis, from which disease she died a few months later. After his wife's death Maxime lived a life of egoism and luxury, and died of locomotor ataxia when he was little more than thirty years of age.

Charles Rougon or Saccard, the illegitimate child of Maxime, was an imbecile. At the age of fifteen he had the mind of a child of five. But he was extremely beautiful, and bore an extraordinary resemblance to his ancestor Adélaïde. He suffered from hæmophilia, and died in his fifteenth year of profuse epistaxis.

Clotilde, the second child of Aristide, was brought up at Plassans by her uncle, Dr. Pascal Rougon. Physically she resembled her mother, from whom she inherited a certain love of dress and a tendency to day-dreaming. But she was also endowed with the uprightness and energy of her grandfather, Captain Sicardot. She was healthy in body and well balanced in mind, and Zola more than suggests that what was evil in her heredity was eradicated, and what was good was cultivated, by the happy life she led in her uncle's house, and by the care which the physician exercised over her education.

Victor, the illegitimate son of Aristide, is said to have borne a remarkable physical likeness to his father. Thrown as an infant on the streets of Paris, and living, or rather herding with the lowest of humanity, he early developed the vicious precocity of the street arab.

When he was twelve years old he was rescued and placed in an orphan asylum. But it was too late to reform him. He sulked and thieved, and after having committed an unspeakable crime, he made his escape from the institution. He returned to

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the life of an *apache*, and Zola leaves us in pleasing uncertainty as to whether he ended his days in penal servitude or under the knife of the guillotine.

We now return to the other members of Pierre Rougon's family.

Sidonie, the elder of his two daughters, resembled her mother, Félicité, both physically and mentally. She married a lawyer's clerk at Plassans, and the pair went to Paris to endeavour to establish a trade in olive oil and the fruits of Provence. The affair was a failure, and Sidonie was deserted by her husband, who died soon afterwards. This did not appear to distress the woman very much. She set up for herself in a mysterious sort of business, which was probably not very reputable. She devilled, in the fullest sense of the word, for her brothers, Eugène and Aristide, who were now influential men, and indeed for anyone else who chose to employ her.

Clever as Sidonie was, she revealed some signs of degeneracy. She was lacking in sexual instincts—the woman appearing to be lost or absorbed in the man of business to an unnatural extent. Such unsexed females are by no means uncommon at the present day, and may be the product of unnatural civilisation. Further, she had once been entrusted with the affairs of a ruined noble family, who believed that they had an interest in a debt, supposed to have been contracted by the Government of England with that of France in the days of the Stuarts. Sidonie, by the obscure process of reasoning common to superior degenerates, came at last to identify herself with the claimants of this debt. She exaggerated it to the sum of three milliards. It became a fixed idea. She bored everybody with the details, and even spent a good deal of money in investigating the matter.

At this point occurs what one cannot help regarding as a flaw in Zola's scheme of heredity. In *Le Rêve* we are told that fifteen months after her husband's death Sidonie had a child by an unknown father. This is clearly an afterthought, for no such event is hinted at by the novelist in *La Curée*, the story in which Sidonie originally figures. This child is Angélique, the heroine of *Le Rêve*. After having been abandoned by her mother, and reared by *L'Administration des Enfants Assistés*, she finds herself, when she is nine years old, in picturesque destitution in the little city of Beaumont in Picardy. The rest of her life is pure

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romance. The very names of the good man and his wife, Hubert and Hubertine who rescue her from death in the snow are redolent of the lays of the Trouvères. We see Angélique, now a beautiful girl, seated at her loom embroidering priestly vestments. She reads *Les Vies des Saints*, and *La Légende Doreé* of Jacques de Voragine. She talks to her princely lover from the balcony of her bed-chamber as Juliet talks to Romeo, while the moonlight floods the garden beneath. She visits the poor and suffering like an angel of mercy, and she dies, clinging to her husband's neck, as among the plaudits of the people she comes out of the cathedral after her marriage. It is a fascinating story, but Angélique and her lover, Hubert and Hubertine, priests and princes are all as unreal and fantastic as the shadowy characters that flit across the pages of a mediæval romance. Imagine such a *conte de fée* thrust into the midst of the horrors and tragedies of Zola's realistic novels! It is like finding a page of the *Golden Legend* bound up by mistake in some sordid *History of Crime*. *Humanum est errare*, and Zola, great artist as he is, has erred. No, one cannot accept the pure-minded, saintly Angélique as the daughter of the miserable old female pander, Sidonie Rougon.

Marthe, the youngest child of Pierre and Félicité Rougon, did not resemble either her father or mother, but she was remarkably like her grandmother, Adélaïde, or "*Tante Tide*," as the old woman was called at Plassans. Speaking of this resemblance, the neighbours would say of Marthe, "*Voici Tante Tide qui crache*." This likeness appeared to have jumped over one generation, for Pierre Rougon in no way resembled his mother.

In her youth Marthe suffered from severe headaches and attacks of giddiness. From some of the symptoms, which she herself relates, one comes to the conclusion that about her twentieth year she passed through a mild attack of melancholia, with the delusion that her skull had been opened and the brain removed.

She married her first cousin, François Mouret, of whom more anon. The pair lived at Marseilles for fifteen years, during which time they had three children. Having amassed a small fortune, Mouret and his wife returned to Plassans, where they settled down to a life of retirement and ease.

When Marthe was about forty years of age she began to

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show signs of mental disorder. A certain school of psychiatry would, no doubt, consider that many of her symptoms were the manifestations of a repressed complex. She was in love with a priest, and her passion, concealed at first not only from its object, but even from herself, found expression in a mystical form of religion. Later on in the course of the disease she suffered from convulsions, and from hallucinations of sight, hearing, and touch, and finally she died of phthisis.

Let us now turn to the Macquart branch of the family.

Antoine, the elder of Adélaïde's illegitimate children, grew up a strong man, in whom the faults of both his parents early showed themselves. From his father he derived a love of vagabondage and drink, and a tendency to outbursts of brutal passion. These vices, which in the case of the father had been relieved by a sort of good-natured frankness, were made worse in that of the son by a cunning full of hypocrisy and cowardice. This modification of character was due, according to Zola, to the influence of the mother's diseased nervous system on her offspring. From Adélaïde, Antoine also inherited "the selfishness of a voluptuous woman, who will accept any bed of infamy, providing that she can lie at ease and sleep warmly."

The leading trait of the man's character was laziness. "His continual dream was to invent a fashion of living well without doing anything."

Drawn as a conscript in 1807, he served in the army until 1815, and ten years later, when he was thirty-six years of age, he married Joséphine Gavaudan, a hard-working woman of Plassans. Joséphine, who was six years younger than her husband, was strong and healthy, but unfortunately she was fond of drink. She worked hard all the week, and she drank so hard on Sunday that she was dead drunk by the evening. She loved work by instinct, and she seemed to love drink by instinct also.

At first Antoine and his wife got on fairly well together. The man even worked a little. Soon, however, quarrels began, and when they were both drunk Antoine beat his wife brutally, and she, being a strong woman, retaliated. It was not long before the man resumed his lazy habits. He spent his days loafing in public-houses, and allowed his wife to work for him and the family.

There were three children of this marriage: Lisa, born in 1827; Gervaise, in 1828; and Jean, in 1832.

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Joséphine died of pneumonia in 1850, and in consequence of her death the home was broken up. After experiencing many vicissitudes of fortune, Antoine Macquart compelled his half-brother, Pierre Rougon, over whom his knowledge of certain shady antecedents of the family allowed him to exercise the power of blackmail, to buy him a small estate close to the asylum of Tulettes. He lived on his property for many years in comparative luxury, employing his leisure in a steady course of drinking. He died at the age of eighty-four years of spontaneous combustion. The sad event bore a great resemblance to the death of the late Mr. Krook of Chancery Lane, as related by Dickens in *Bleak House*, but Zola describes the tragedy with more detail.

Lisa, the eldest child of Antoine and Joséphine Macquart, was born about a year after the marriage of her parents, when they were living together in comparative peace and sobriety. She was a fine, healthy girl, and physically she resembled her mother, from whom she inherited something of her love of work. To her father she owed a desire for comfort and *bien-être*. As a child she would work all day long, if she knew that at the end she would be rewarded with a cake. In short, she was endowed with that appreciation of future pleasure and pain which we call prudence. When she was about seven years of age the postmistress of Plassans took a fancy to her, employed her first as a little servant, and afterwards adopted her. When the postmaster died, his widow went to live in Paris, taking Lisa with her. This life of comfort, which she was well able to appreciate, and the protection which it afforded from gross temptations, naturally affected the development of the girl's mind and body. It suppressed the vices, and strengthened the virtues, which she inherited from her ancestors.

In 1852 Lisa married a pork butcher, named Quenu, who had a large business near the Halles in Paris, and whose father was a peasant from Yvetot, in Normandy. Quenu took more after his father than his mother, who was a native of the *département* of Gard. Under the appearance of stupidity he concealed the astuteness of a Norman peasant, and was exceedingly fond of comfort and good living. Physically and mentally he was quite normal.

Lisa bore her husband one child, a girl named Pauline, born in 1852, who was strong and healthy in mind and body.

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Pauline Quenu is the finest female character that Zola has placed upon his mimic stage.

Gervaise, Antoine Macquart's second child, was lame from birth. She was born after her parents had resumed their drunken habits. "*Conçue dans l'ivresse, sans doute pendant une de ces nuits honteuses où les époux s'assommaient, elle avait la cuisse droite déviée et amaigrie, étrange reproduction héréditaire des brutalités que sa mère avait eu à endurer dans une heure de lutte et de soulerie furieuse.*"

She was a puny child, and her mother gave her spirits with the idea of strengthening her. She grew up tall and slight, and, in spite of her delicacy, she was not without her share of good looks. Her father treated her brutally.

The girl took to bad habits. When she was not quite fourteen years old she became pregnant by a working tanner, named Lantier, who was only four years her senior. The next year she had another child, and three years later a third, all three children being by the same father.

Lantier was a typical Provençal, small, dark-complexioned, and good-looking. He was intelligent, but idle, and did not care who suffered so long as he was comfortable. He had a cynical disregard for the rights of others, and a marked ability in making them work for him.

After her mother's death Gervaise went to Paris with Lantier and two of her children, leaving the second child, Jacques, behind at Plassans. Soon after their arrival in the French capital Lantier deserted Gervaise. Want brought out the best in the woman's character. She inherited a love of hard work from her mother, and she had her own ideas of cleanliness and order. She found work in a laundry. Later she married a man named Coupeau, a plumber by trade, and who was steady and respectable. By this man Gervaise had one child, a girl named Anna.

A year or two after the child was born Coupeau fell from a roof, on which he was working, and broke his thigh. After the accident his character changed. He became lazy and took to drink. He may have inherited a tendency to alcoholism, for we are told that his father died from the result of an accident which happened to him when he was drunk.

Gradually Coupeau and his wife fell in the social scale. Gervaise returned to the drinking habits that she had abandoned

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for years. Their home was broken up, and finally the man succumbed to an attack of *delirium tremens*, and a few years later the woman died in the greatest destitution.

Of Gervaise we may say that she inherited a love of drink from both her parents. From her mother, in addition, she inherited a love of industry and a pride in its results. This latter trait revealed itself especially when she had a happy home and a steady husband. Afterwards, misery and ill-treatment drove her back to drink.

She had four children. By Lantier she had three boys: Claude, born in 1842; Jacques, in 1844: and Étienne, in 1846. By Coupeau she had one girl, Anna, born in 1852, when she was living a sober, hard-working life, and when she loved her husband, who at that time was also steady and respectable.

Claude Lantier, Gervaise's eldest son, showed signs of being an artist while he was quite a child. An old gentleman, who saw some of his early daubs, adopted him, and took him home to Plassans, where he had him educated at his own expense. When the old man died he left Claude a sum of money, the interest of which was enough for him to live upon. The young man returned to Paris to pursue his study of Art. He was recognised as a genius by his fellow students and others, but there was something lacking in his mental make-up. He never achieved success. One might almost say that his hands could not execute what his brain conceived. He married a handsome girl, Christine Hallequin, socially his superior, who was devoted to him, but who was not strong enough to help him conquer his defects. Claude Lantier's want of success as an artist preyed upon his unstable nervous system, and in the end he committed suicide.

In this case Zola touches upon a point of some interest. The old adage, *nullum ingenium sine misturâ dementiæ*, is utter nonsense. One might as well say that every healthy man is diseased, every strong man feeble. Real genius is normal; it is lopsided genius which is abnormal. The lopsided genius, be he artist, musician, or writer, is the man who is only too likely to become insane. He is lacking in equilibrium. Unable or unwilling to recognise his defects, he attributes his want of success to the malevolence of others, and easily becomes the subject of a fixed delusion. Absolutely devoid of modesty,

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which is an essential attribute of true genius, he is obsessed with his own vanity, and dies its victim.

Claude and Christine Lantier had one child, a boy, named Jacques-Louis, born in 1860, and who was said to have physically resembled his father. He was feeble in mind and body, and died of hydrocephalus in 1869.

Jacques Lantier, Gervaise's second son, had been left behind at Plassans in the care of his godmother when his father and mother went to Paris. He was intelligent, and, having followed the course of the *École des Arts et Métiers*, he became an engine-driver of the first class. Physically he resembled his mother. He was healthy, good-looking, and had remarkably small hands and feet.

Intelligent and healthy as Jacques Lantier was, he suffered from what Zola calls the *fêlure héréditaire*, which, in his case, took the form of sadism in its most hideous manifestation. The horrible impulse appears to have been periodic. When the desire seized him, "*il ne s'appartenait plus, il obéissait à ses muscles, à la bête enragée.*"

The novelist paints vividly the torture that the man suffered during his periods of mental health, dreading the moment when the terrible impulse would return and master him. One has been told by victims of epilepsy and dipsomania how they also dread the approach of their attacks. Once Jacques Lantier remained free from the disease for so long a time that he believed himself cured, and it is pathetic to read of the misery with which he recognised that after all his enemy had only left him for a season. The struggle of an otherwise healthy man with such a perversion, the depression which occurs if he be victorious, and the temporary peace which follows the yielding to the temptation and the accomplishment of the crime, are graphically depicted by the novelist.

Jacques Lantier always seemed more liable to an attack of his affliction after a drinking bout, and Zola is probably correct when he attributes the disease to the habits of chronic alcoholism, to which the patient's ancestors had been addicted for generations.

Étienne Lantier, Gervaise's third son, was brought up in comparative comfort by his mother during the first years of her married life with Coupeau. At first Étienne served an apprenticeship in some iron works in Paris. Then he became a mechanic in certain engine works at Lille, and afterwards he

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found employment as a miner in the coal mines of French Flanders. He was physically strong and mentally intelligent, and resembled his mother rather more than his father.

In this character it appears to have been Zola's intention to present us with the study of a dipsomaniac. But in this he has failed. He tells us, indeed, that Étienne, having given way to drink, was dismissed from his situation at Lille for striking his employer in a fit of drunken fury. He also describes Étienne's fear of tasting alcohol on account of the effect it had upon him. But on several occasions the man drinks gin freely, and does not appear to have been very much the worse for it, and there is no evidence that he suffered from a periodic craving for drink. It is true that he committed murder, but he did so almost in self-defence, and was certainly not under the influence of alcohol at the time. Apparently Zola was so carried away by the contemplation of the moral debasement and physical misery of the miners' lives, which he paints so vividly in *Germinal*, the strongest of his novels, that he forgot to develop the character of the hero as he intended to do.

Anna, the youngest child of Gervaise, and the only one she had by Coupeau, was " Nana," the heroine of the notorious novel of that name. She was born when her mother was living a healthy life, and before her father had taken to drinking. As the result of the moral and material degradation into which her parents gradually fell, she was thrown early on the street. Her beauty, which she probably inherited from her great-grandmother, Adélaïde, was remarkable, and she became for a time the recognised queen of the *demi-monde*.

In the genealogical tree, which he has drawn up of the Rougon-Macquart family, Zola indicates that Anna was tainted with the alcoholism of her parents. But he has not worked this out in the novel. Indeed, until the woman was damaged by her vicious life, she appears to have been mentally and physically sound. Even in the midst of her debauchery she evinced traits of a better nature, and one may look upon her faults as due in a great measure to education—for there is an education of the street as well as of the schoolroom—and to environment.

Anna died of confluent smallpox in 1870. She had one child, Louis, or Louiset, by an unknown father. The boy was scrofulous, and died in infancy.

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Jean Macquart, the youngest child of Antoine and Joséphine, was strong and healthy. He resembled his mother more than his father, but it was the peasant ancestry of the family which principally revealed itself in his character. He was not very intelligent, but he was well endowed with useful, though obstinate, common-sense.

He was at first a carpenter by trade. Having been called to the colours, he served through the Italian war, and fought at Solferino. Afterwards he became a farm labourer on the Beauce, where he married. After losing his wife under tragic circumstances, he rejoined the army at the outbreak of the Franco-Prussian War. He was present at the battle and the capitulation of Sedan, and he fought during the days of the Commune on the side of the Versaillais. After the war was over Jean Macquart returned to the neighbourhood of Plassans, where he married Mélanie Vial, a healthy, intelligent girl, who was the only daughter of a peasant in easy circumstances.

In Jean Macquart, Zola has drawn one of the best of the human race—an honest countryman, brave, patient, and resourceful. When we last hear of him, he and his wife are leading a hard-working, comfortable life, with a large family of healthy children growing up around them.

We have now to go back almost to the root of the Rougon-Macquart family tree, and to consider the case of Ursule Macquart, the younger of Adélaïde's two illegitimate children.

Ursule resembled her mother mentally and physically. "Born the second" of this branch of the family, " at the hour when the tenderness of Adélaïde dominated the love, already calm, of Macquart, Ursule seemed to have received with her sex the more profound imprint of the temperament of her mother." As a girl she was fanciful, passionate, and much given to day-dreaming. Sometimes she suffered from prolonged periods of sadness, at other times she was unreasonably gay, and surprised the neighbours with outbursts of nervous laughter. She inherited her mother's beauty, but not her bodily strength. At the age of nineteen years she married a journeyman hatter named Mouret. The pair went to live at Marseilles, where they had three children—François, born in 1817, Hélène, in 1824, and Silvère, in 1834.

Ursule died of phthisis in 1839. Her husband, Mouret, was

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broken-hearted at her death. He brooded over his bereavement for a year, spending all the money he had saved, and neglecting his work and family. One day he hung himself in the wardrobe where his late wife's clothes were still preserved. He seems to have been one of those amiable, uxorious men, in whom the emotions dominate the other faculties of the mind. They are not of much use in the world. If they are subjected to mental strain, they frequently break down, and become the victims of melancholia. Should they commit suicide, they are extremely likely to murder their loved ones before taking their own lives.

François Mouret, the eldest child of Ursule, not only physically resembled his mother, but also his grandmother to a remarkable degree. After his father's death he went to Plassans, and was employed as a clerk by his uncle, Pierre Rougon. He married, as has been said above, his first cousin, Marthe, whose extraordinary likeness to their grandmother, Adélaïde, has also been previously pointed out.

After his marriage, François Mouret went back to Marseilles, where in fifteen years he amassed a small fortune in the olive oil trade. He and Marthe had three children: Octave, born in 1840; Serge, in 1841; and Désirée, in 1844.

Satisfied with the money he had saved, François Mouret sold his business and returned to Plassans, where he bought a house and garden and settled down to the life of a *petit rentier*.

Until he arrived at middle age this man appears to have been sane enough. But the hereditary weak brain was there, and it gave way to the stress of jealousy caused by his wife falling under the influence of Abbé Faujas. He became more and more irritable, the carefulness of the middle-class householder developed into avarice, and later he became too weak-minded even to be avaricious. He, who had been very fond of his fellows, gave up society and sat moping alone. His love for his wife and children, for he had inherited the affectionate disposition of his father, showed itself only by fits and starts, except in the case of his imbecile daughter, Désirée, whom he loved to the last.

Finally, he was sent to the asylum at Tulettes, though it is questionable whether he was certifiable at the time of his internment. But he undoubtedly became insane afterwards. Some time later, by the connivance of one of the attendants, he

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escaped from the asylum, and returned by night to his own house in Plassans. There he was seized with a sudden impulse of vengeance. He set fire to the building and perished in the flames together with the man of whom he was jealous.

Octave Mouret, the eldest child of François and Marthe, was born in the first year of his parents' married life, when they, and especially his father, were at their best physically and mentally. He was healthy in mind and body. He inherited his father's business capacity, and a great deal also of his maternal grandmother's cleverness. After sowing his wild oats at Marseilles, Octave went to Paris, where he succeeded in developing a small drapery business into a colossal emporium. He married a strong and healthy girl, Denise Baudu, who came from Valognes in Normandy, and who was as intelligent and chaste as she was beautiful. She is Zola's most charming heroine.

Octave Mouret was exposed, and exposed himself, to almost every kind of stress, but he showed no sign of the family mental taint. When we last hear of him he is living the life of a successful tradesman. His wife has borne him two children, one of whom died in infancy, but the other is strong and well.

Serge Mouret, the second child of François and Marthe, resembled his mother mentally and physically. In his boyhood he was amiable and studious, and when he became a man he entered the priesthood. At puberty a passionate enthusiasm for religion awoke in him, which increased during the period of adolescence, and culminated, when he was about twenty-four years of age, in an attack of brain fever accompanied by delirium and hallucinations.

Serge Mouret's case bears considerable resemblance to that of his mother. In both the mental crisis occurred at periods of life recognised as being those of exceptional stress; in the son's case at puberty, in the mother's at the climacteric. In both, religion appeared to be the outward expression of an inward eroticism.

From the symptoms described by Zola—though it is somewhat difficult to follow him at this point, for he himself becomes delirious, the delirium taking the form of the most marvellous passages of colour writing that ever flowed from a writer's pen

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—one concludes that the brain fever from which the young man suffered was the condition described by French alienists as "*Confusion mentale pseudo-meningitique.*"

Désirée, the youngest child of François and Marthe Mouret, was an imbecile.

Hélène, the second child of Ursule Mouret, *née* Macquart, showed no sign of insanity. She grew up a fine, strong woman. In 1841 she married Charles Grandjean, a clerk in a business house at Marseilles. This marriage with a poor working hatter's daughter was disapproved of by Grandjean's family, so that the first years of the married life of the young couple were passed in comparative poverty. Afterwards Charles inherited a fortune, and he and his wife removed to Paris to enjoy it. Soon after their arrival in the French capital the husband died of acute bronchitis. He was passionately fond of his wife, but on her part the marriage was one of convenience.

They had only one child, Jeanne, born in 1841. She was afflicted with epilepsy, and died of tuberculosis at the age of fourteen. She was a frail but beautiful child, and was said to bear a remarkable likeness to her great-grandmother, Adélaïde.

Silvère, the youngest child of Ursule Mouret, was very delicate as an infant. But after his mother's death he went to live a wild, outdoor life with his grandmother, Adélaïde, in the country around Plassans, and he grew up a strong youth. He was exceedingly intelligent, and spent much of his time reading. But unfortunately his education was too poor for him to understand all that he read, and many of the ideas that he thus acquired were warped and distorted.

In his case, as in that of Serge Mouret's, the enthusiasm of adolescence passed beyond the border line of sanity. In the case of Serge it took the form of mystic religion; in that of Silvère of an idealised republicanism.

"*Ah! que tu es bien le petit-fils de ta grandmère! hysterie ou enthousiasme, folie honteuse ou folie sublime. Toujours ces diables de nerfs!*" exclaimed his uncle, Dr. Pascal Rougon, as he listened to one of Silvère's outbursts of fervent but visionary republicanism.

After having been the hero of one of Zola's most charming idylls, the poor lad died a martyr for his beloved republic.

Such is the family history which Zola lays before us, and,

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allowing for social, historic, and local differences, and, of course, for the exaggerations, the high colouring, if you will, required by a novelist's art, it is not very different from one which might be compiled from the note-book of a practitioner of medicine of the present day.

Ethnological considerations creep into every study of mankind, and although they did not probably enter into the original conception of Zola's scheme, yet they reveal themselves everywhere in his history of the Rougon-Macquart family. Something of this is due to the region in which he has placed the cradle of the race, a region where even now, after centuries of fusion, the types of widely different peoples can be recognised. And, in its turn, this choice of locality was the result of accident. Although he was born in Paris, the novelist spent the greater part of his youth in the South of France, where his father, an Italian engineer, was employed in professional work. Zola knew Provence thoroughly. He was acquainted with all the ruined monuments and all the old-fashioned streets of its ancient cities, and he had studied its people in every rank of society. It was quite natural, therefore, that he should make use of this local knowledge in his series of novels.

When we think of Provence we think of troubadours and Courts of Love, of Laura and Petrarch, and of the fountain of Vaucluse; or, if we are more modern in our ideas, of Frédéric Mistral and his great poems *Miréio* and *Calendal*. But it is not all poetry and passion in this beautiful corner of France. There is another side to the Provençal character, and that is the commercial.

From earliest historic times the trade of the Mediterranean peoples penetrated the uncivilised regions of western Europe by the Rhône valley. The ubiquitous Phœnicians came and went, but the Greeks from Phocea left more permanent traces on the land. They founded the great trading city of Massilia (Marseilles). And, later on, fresh colonists from Greece built Antipolis (Antibes), Nicea (Nice), Agatha (Agde), and other towns on the southern coast of France. The infusion of Greek blood into the native Ligurian and Celtic races must have been considerable, and may be recognised even at the present day. The Arlésiennes are said to owe their beauty to their Greek ancestors.

In the days of the Romans, Provence (Nostra Provincia)

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was still the trading centre of the west. Cæsar tells us: "*Fortissimi sunt Belgæ, propterea quod a cultu atque humanitate Provinciæ longissime absunt, minimeque ad eos mercatores sæpe commeant, atque ea, quæ ad effeminandos pertinent, important.*"

Lastly, the Visigoths and Saracens passed by, leaving, no doubt, traces of their passage, but doing little to modify the trading instincts handed down to the Provençals from the days of the early colonists from Greece.

In Félicité Puech, the scheming wife of Pierre Rougon, Zola has, consciously or unconsciously, painted the representative of a race deeply imbued for centuries with commercial instincts; for intrigue, for which alone the woman seemed to live, is the soul of trade. The influence of her character reveals itself in several of her descendants, particularly in her sons, Eugène and Aristide, and her daughter, Sidonie, and in her grandson, Octave Mouret, modifying, and to a certain extent dominating, the characteristics of the other stems grafted on this family tree.

In Rougon, the husband of Adélaïde and the father of Pierre Rougon, the novelist has drawn the representative of a widely different race. He was a short, stout, square-headed boor, and he came from the valleys of the lower Alps, where to-day we find the descendants of the short, brachycephalic Ligurians. Eugène Rougon, the statesman, is a skilfully drawn portrait of a man resulting from the cross-breeding of the brutal Ligurian with the wily Provençal.

It would be possible, if space allowed, to point out the influence exercised by the Norman peasants and certain of the mixed peoples of Paris, with whom members of the Rougon-Macquart family become allied, on its mental and physical development.

In studying heredity as a cause of insanity, the question arises whether the paternal or the maternal influence is most potent in transmitting mental disease to the offspring. Authorities differ. Esquirol considered that the father's condition was the most important, and Baillarger agrees with him, but Orchansky and others hold the opposite view. The family histories of mental cases which I have been able to investigate are, of course, too few to be of much value, but, as far as they go, they point distinctly to the conclusion that insanity is generally handed down from the maternal side of the house,

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and also—and this is an important point—that the mother is more likely to transmit the taint to the child that she nurses than to the one for whom she does not perform this duty, even when the disease has not revealed itself in her, the mother's, generation.

There is an analogous series of facts which supports the view of the potency of the maternal factor. If a man of genius has children, it is rare for them to be talented. But such a man has generally had a mother who has been distinguished for her sound common-sense, and sometimes has been remarkable for her intelligence. Even when it is not a question of genius, but only of ordinary success in life, it is a matter of common knowledge that men, who have attained high positions in the professions or in commercial pursuits, have very second-rate sons in the majority of cases. It is, however, rare to find a man, who has been able to rise in the world by his own efforts, who has not had a level-headed mother.

If, then, the sound brain be generally handed down by the mother to the offspring, may not the unsound brain be so also? Or to put it in another and more forcible way, is it not the individuality of the nervous system of the mother rather than that of the father which is impressed upon the offspring?

Zola, in the Rougon-Macquart family history, illustrates this theory, both with reference to the transmission of mental superiority and of insanity. As to the former, I have already pointed out the influence of the clever mind of Félicité on the characters of her descendants, while it will be remembered that Pierre Rougon was of very average intelligence. Joséphine Gavaudan is a further illustration, for she transmits her love of hard work to her three children, while their father, Antoine Macquart, was an exceedingly lazy man. With regard to insanity, the evil influence of Adélaïde's mental disease is shown throughout the whole family history, although her husband, Rougon, was of sound mind. Marthe Mouret hands down her unstable brain to two of her children, though in her case the mischief is doubled by her marriage with her first cousin. So that here the potency of the paternal and maternal factor appears to be equal. Though it may be observed that the type of mental disease from which one of the children, Serge, suffered, was the same as his mother's. The case of Gervaise is still more disastrous, for her three children by

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Lantier were more or less insane. Whereas Lantier himself showed no sign of mental aberration.

There is another point, upon which Zola lays considerable stress, and that is the position of the child in the sequence of the family. The healthier the parents are at the time of the procreation of the child, the more likely is it to be healthy, *cela va sans dire*. The younger the parents are, after they have arrived at maturity, the more likely they are to have healthy offspring, because they have not yet been exposed to the prolonged strain and fatigue of life. And consequently the older children of a family are more likely to be healthy in mind and body than the younger. In the fictitious pedigree before us we see that Pierre Rougon is healthier than his half-brother, Antoine, and that Antoine is decidedly healthier than his sister, Ursule. In Pierre Rougon's own family this is still clearer. Even in the case of François and Marthe Mouret, Octave, the eldest child, is normal, while the two younger ones are mentally diseased. This is, I think, in accordance with general experience. In only one instance have I met with the case of a family in which the eldest child was insane and all the younger children mentally sound. And this case is explained by the fact that the birth of the eldest child was a difficult instrumental one, and that consequently the congenital imbecility from which it suffered may have been due to violence.

But when the parents are too young things are different, and the older children are likely to be more feeble both in mind and body than those who come after. In the case of Gervaise, we are told that she had three children by Lantier, who was only four years her senior, before she was eighteen years old. Even allowing for the early development of a southern race, this is very young. In a northern race the matter would be still more serious. And it may be observed that Gervaise's two older children, Claude and Jacques, were mentally more unstable than he youngest, Étienne.

The part played by alcohol in the development of mental disease, and the tendency of alcoholism to become hereditary, is fully worked out in this series of stories. We see that Adélaïde, at the time of her marriage with Rougon, who appears to have been a temperate man, was not addicted to drinking to excess. And consequently there is no evidence of alcoholism in the Rougon branch of the family. But after-

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wards, when Adélaïde cohabited with the drunkard, Macquart, she gave way to drink, and the result is evident throughout the Macquart branch of the family. Antoine, the elder of Adélaïde's illegitimate children, was a drunkard, and although Ursule, the younger child, does not appear to have developed any great love for drink, yet she was feeble in body, and exhibited in her own case and transmitted to her offspring the diseased mentality which she inherited from her mother and grandfather. For alcoholism in the parent, even when it is not handed down as such, seems to facilitate the transmission to the offspring of taints which might otherwise have lain dormant, or have been suppressed altogether.

Antoine Macquart, unfortunately, married a woman who was addicted to drinking to excess. Their daughter, Gervaise, was a drunkard when a child and a young woman, and though in middle life, and under favourable circumstances, she gave up her evil habit, yet she returned to it under the strain of misery, and at last it killed her. Three of her children were insane. In Étienne the insanity took an alcoholic form. In the case of Jacques it took that of criminal impulse. In this latter case Zola has indicated what one so frequently observes in studying the history of a morbid family, namely, how closely alcoholism is linked with troubles of the will.

The influence of environment in the development of character reveals itself constantly throughout this long series of novels. But Zola is true to Nature. He recognises that environment can only modify; it cannot change the natural temperament or constitution of the mind of the individual. Cultivation of flowers increases their beauty; cultivation of weeds adds to the rankness of their growth. In like manner, favourable circumstances bring out all that is best in some people, and all that is worst in others. Lisa, the daughter of the scoundrel Antoine Macquart, is taken from miserable surroundings at the age of seven years, and placed in a good home, and is well fed. She grows up a strong woman, marries a normal individual, and gives birth to a healthy child. Even her sister, Gervaise, when she lives in comfort, finds the best of her nature assert itself. But in the cases of Aristide Rougon and his son Maxime, success and affluence lead to the development of all that is bad in their characters.

The effect of stress on an unstable mind is illustrated by the

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cases of François Mouret and his wife Marthe. In the case of the latter, it appears probable that even had she not fallen under the influence of Abbé Faujas, she would have developed some form of erotic eccentricity at the oncome of the climacteric. But in that of François himself, it is possible that had he not been exposed to the strain of jealousy he would not have become insane. No doubt senility would have come on early, and, had he lived long enough, he might have sunk into dementia, but he would have been spared the attack of mania.

In spite of beautiful descriptions of scenery, of a realism which clothes with flesh the phantoms of romance, and a keen penetration into the motives of men and women, Émile Zola's books would be but sorry reading if it were not for the hope of the ultimate regeneration of the race, which vibrates through every story. The novelist shows how self-destruction, alcoholism, and disease, especially phthisis, weed out the unfit from a family, but he also points out that in those that survive there is always the possibility of improvement. The germs of good are even more tenacious of life than those of evil, and when they are favoured by circumstance, such as the temporary health of a parent, or the infusion of healthier blood, they are ready to struggle on towards that which is better.

Zola was not a pessimist. Could anything be more hopeless than the future of a family sprung from such a degenerate as Adélaïde? Yet among the crowd of murderers, suicides, visionaries, sexual perverts, and people rotten with consumption, the novelist shows us gentle scientists like Dr. Pascal Rougon, unselfish, level-headed women like Pauline Quenu, and honest citizens like Jean Macquart.

Catatonia as a Type of Mental Reaction.(1) By DAVID K. HENDERSON, M.D., Resident Physician, Royal Mental Hospital, Gartnavel, Glasgow.

IN 1896 Kraepelin first introduced and defined his conception of the manic-depressive psychoses and dementia præcox. It has been fairly generally admitted that his was a brilliant piece of work, but since that time he has been led, in certain more or less minor respects, to modify his views. Briefly put, Kraepelin described in a very thorough and detailed way the

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