

Protectorate, was a weak creature; Henry, the second son, who became Lord Deputy of Ireland, stated in a letter to his father that he seldom enjoyed good health for twenty-four hours together. He died at forty-seven of stone, a complaint associated with gouty and rheumatic tendencies.<sup>1</sup> Four of Cromwell's children predeceased him, including a grown-up daughter, Elizabeth, otherwise Mrs. Claypole, who appears to have died in a state of religious hypochondria, if not downright insanity. Mrs. Claypole had some internal complaint which none of her doctors understood. General Fleetwood, in a letter to Henry Cromwell, says it gave rise to 'great pains in the bowels and vapours in the head.' Mrs. Claypole on her death-bed reviled her father bitterly, and the scene, which occurred not long before his own death, is said to have impressed him greatly. Dr. Bates says: 'In her hysterical fits she much disquieted him by upbraiding him sometimes with one of his crimes, sometimes with another according to the furious distractions of her disease.' This daughter died at twenty-seven; she had several children, none of whom, however, left issue.

The general 'unfitness' of Cromwell's offspring is not a little remarkable, and may be taken to prove the existence, among them, of an acute degree of nerve disorder. Of the many children born to the Protector's sons and daughters, all but one either died young or were barren. Richard's eldest son, Oliver, was very weakly, and died at forty-nine, unmarried. At the age of twenty-one he made a will, showing that he was not then in good health. Three of Richard's daughters died in infancy, and one at the age of twenty. Another daughter remained unmarried, probably from ill-health or deformity; and another, though married, was childless. Henry, the Protector's second son, had seven sons and daughters, all with one exception childless. This exception was Henry, among whose ten children only one, again, left issue. The survivor in this case was Richard. He had seven sons and daughters, of whom again but one, Thomas, had offspring—a phenomenon occurring for the third time in three successive generations. A daughter of Thomas's marrying an apothecary had a large and prolific

<sup>1</sup> Dejerine.

family; and to this obscure but worthy couple is due whatever of the Cromwell blood may survive in England at the present day. On the female side of the House of Cromwell matters were still worse. We have seen that the Protector's daughter Elizabeth had a barren family; another, Bridget, who became Lady Fleetwood, was in similar case; and yet another daughter Mary, Lady Fauconberg, who 'greatly resembled her father in person,' and who in the decline of life is said to have been 'pale and sickly,' was herself childless. Such a record of sterility and physical worthlessness as the Cromwell blood presents is only to be found in connection with insanity or genius.

In statesmanship no greater names are to be found than those of the Pitts, father and son. Of the parentage of the CHATHAM elder Pitt, better known as the Earl of Chatham, the biographers have little to say, but contemporary records enable us to class him among the most afflicted of great men. From boyhood he was cruelly tormented with gout, and in his later life the fluctuations of this disease became a matter of state importance. Gout appears to have alternated in his case with true mental aberration. While he was in one of his strange moods, Lady Chatham wrote that 'no improvement could be expected in his lordship's health until he could have a fit of the gout.' On one occasion, according to Lord Mahon, Chatham suffered 'a dismal and complete eclipse of his powers for upwards of a year.' There was 'no morbid illusion of the fancy, but an utter prostration of the intellect.'<sup>1</sup> Junius, in one of his early letters, refers to Chatham as a lunatic brandishing a crutch. For a time Chatham's political opponents thought his malady was feigned, but Horace Walpole afterwards admitted that his great adversary's nerves were in a shattered condition. 'Added to the frenzy of his conduct,' writes Walpole,<sup>2</sup> 'a new circumstance raised again suspicion of there being more of madness in his case than mere caprice and impracticable haughtiness; he had himself put into the hands of Dr. Addington, a regular physician it is true, but originally

<sup>1</sup> Mahon: *History of England*.

<sup>2</sup> Walpole: *Memoirs of the Reign of George III*.

a mad doctor, who was selected as proper to the disease. . . . So long did Lord Chatham remain without a fit of the gout, and so childish and agitated was his whole frame, that if a word of business was mentioned to him tears and trembling immediately succeeded.' At this time the great minister not only did not see his subordinates, but did not even receive letters. Walpole was persuaded of the reality of his madness by his eccentric proceedings on the estate left him by Pynsent, trees being planted by torchlight 'because his peremptory and impatient temper could brook no delay.' Chatham's sickly and uncertain appetite was never regular. 'Hence a succession of chickens was boiling and roasting at every hour, to be ready whenever he should call.' Even in active Parliamentary life the disordered state of his intellect occasionally betrayed itself. In arranging to have the subject of the East India Company brought before the House of Commons, he passed over all his ministers, with whom he assumed a sullen and mysterious attitude, and fixed his choice upon a noisy, purse-proud, illiterate demagogue named Beckford, who was a general laughing-stock. The whole political world was thrown into a ferment by this proceeding. In the midst of the confusion Chatham proclaimed himself gouty and retired to the country. On returning after some time he shut himself up in the Castle Inn at Marlborough, and remained there some weeks. 'Everybody who travelled that road,' says Macaulay, 'was amazed by the number of his attendants. Footmen and grooms dressed in his family livery filled the whole inn, and swarmed in the streets of the little town. The truth was, that the invalid had insisted that during his stay all the waiters and stable-boys of the Castle should wear his livery.' Walpole records that after executing a letter of attorney giving full power to his wife, Chatham 'began singing.' Again, having sold an estate to Thomas Walpole, he wanted it back, and his discourse, it is said, 'grew very ferocious' on the subject. Many other incidents in Chatham's career suggestive of a disordered intellect could be quoted. His fatal nervous attack came as he was attempting to address the House of Lords. 'He fell down in a fit of apoplexy,

says Walpole, 'with strong convulsions and slobbering at the mouth,' and never recovered.

With his father's gout William Pitt inherited his father's genius for administration and debate, excelling his elder brother at all points. Probably there was a double PITT heredity of nerve disorder in this case, inasmuch as Lady Chatham suffered in her later years from a 'painful disorder.' Pitt was active and studious, and his abilities displayed themselves early. At fourteen he wrote a tragedy. In this there was no love: the whole plot was political, one of the principal personages being a faithful servant of the Crown, the other an unprincipled conspirator. Already his health was very weak. His progress in learning, however, was extraordinarily rapid; he had so peculiar a discrimination in seizing the meaning of an author that, as his tutor observed, he never seemed to learn, but only to recollect. At the age of twenty-five Pitt had not only made a great name in Parliament but was Prime Minister. 'He was then,' says Macaulay, 'the greatest subject that England had seen during many generations. His father had never been so powerful, nor Walpole, nor Marlborough.' Youth as he was, he had brought into order the finances of the country, and he had decided and settled for seventy years the most anxious and perplexing of all questions—the principle of English government in India. Yet he was not dazzled by his success, but continued to be a great worker. In the prime of manhood his health caused anxiety; he had severe headaches and drank a great deal of port wine. Ultimately his malady took the form of 'flying gout,' of which he died at forty-seven, unmarried. Nerve-disorder betrayed itself in other members of Lord Chatham's family. Pitt's elder brother married, but left no issue, the title becoming extinct on his death. A sister, Lady Mahon, died at twenty-five, leaving three daughters, of whom one was the notorious Lady Hester Stanhope; another, though married, died childless, and the third left a family. Another sister of Pitt's died in childbed of puerperal fever, a malady of a nervous character.

Lady Hester Stanhope, grand-daughter of the great Lord Chatham, was eccentric, but is said to have had an 'inborn

quickness of discernment, as well as a satirical tongue.' At the age of thirty-four she left England for the East, and established herself among the semi-savage tribes on Mount Lebanon. She adopted the garb of a Mahomedan chieftain, and by force of character obtained a great ascendancy over the rude races around her, by whom she was revered as a prophetess. Among these people she died, with no European near her.

The greatest of Indian administrators, Warren Hastings, was of delicate constitution and stunted growth.<sup>1</sup> His father, Pynaston Hastings, the son of a clergyman, WARREN was a ne'er-do-well, very improvident and volatile. HASTINGS This unpromising youth married a butcher's daughter named Warren, whom he reduced to the greatest destitution. She, herself, was probably not too soundly constituted, for soon after giving birth to her eminent son she died. On the subject of his parentage Warren Hastings was always reticent, there being nothing in it, as he thought, to be proud of. No life, indeed, could have begun more inauspiciously than that of the first Governor-General of Bengal. Warren Hastings was sent to a charity school, where he first displayed the great industry, and the vivid and active imagination, which carried him to the pinnacle of fame. All his life he was subject to frequent attacks of illness. Despite his ailments he lived to a great age, but in his latter years, paralysis declared itself in his right side; he had also staggering fits, and hallucinations of hearing, his ears, as he records in his diary, being filled sometimes with slow music, sometimes with 'confused sounds of a distant multitude.' In the end his mental powers failed him to some extent, and at his death the organs of deglutition were paralysed. Twice married, he left only two children, both by his first wife; one died in childhood, the other in early youth. In his paralytic period Warren Hastings developed a taste for the composition of poetry which Macaulay ignorantly ridicules.

In Lord Brougham great accomplishments were combined with eccentricities that bordered upon insanity.<sup>2</sup> He

<sup>1</sup> Gleig: *Memoirs of the Life of Warren Hastings*.

<sup>2</sup> 'An Apology for Lord Brougham on Physical Grounds.' By D. D. Tuke, M.D. *Journal of Mental Science*, 1869.

was irritable, restless, and insatiably vain. These characteristics he probably derived from both parents, for while his father was noted for his 'originality,' his mother was a woman of 'remarkable intellect.'

BROUGHAM As a young barrister of twenty-two, Brougham's conduct was thought to show a tendency to madness, and his friends were uneasy about him. Afterwards, his career, until he became Lord Chancellor, was brilliant indeed, though marked by many fantastical acts, explicable only on the ground of mental derangement. The 'Edinburgh Review' complained of 'the outrages he was in the habit of perpetrating, not only on dignity but decency; his wearisome self-laudation, his grotesque extravagances, his capriciously malevolent and eccentric selection of the objects of his antipathies. . . . From the end of the session, 1834,' said this organ, 'through his wild visit to Scotland, and for many months afterwards, his mind was clearly off its balance; his temper became for a time uncontrollable, his perception of facts and of reasoning gradually disordered.' 'The Times' charged him with drunkenness, and another newspaper ascribed his eccentricities to opium-eating. Lord Campbell considers that Brougham's mind was 'very seriously affected.' During the latter half of his long life, 'this impetuous and formidable adventurer,' as 'The Times' called him, was not entrusted with office. Before his death his mind gave way altogether. He had a gaunt, ungainly figure, and the basis of his manifold attainments seemed to be a strong memory, and an extraordinary power of application.

Washington exhibited an extreme development of the osseous system, and lost his teeth early—signs of a rickety constitution. He left no issue.—Richelieu had a sister insane, and a brother who was extremely pious.—Edmund Burke had 'an imperious and uncontrollable temper;' he fell into general debility accompanied by loss of muscular energy and weakness of sight, and his one son died of consumption.—Széchenyi, the Hungarian patriot, founder of the Magyar Academy, leader of the Revolution of 1848, promoter of the navigation of the Danube, and of other public works of great utility, died in a lunatic asylum.—The great Condé

family were dwarfish, and ravaged by nerve-disorder in various forms.—Charles James Fox, a lad of extraordinary promise, became a man of mark in the House of Commons at twenty-five, and was notorious for his drinking bouts, his gambling, and his amours. He was poetic, and had a violent temper. By his wife he had no issue, but he left an illegitimate son who was an idiot, deaf and dumb, and who died at fifteen. —Horace Walpole, son of Sir Robert Walpole, suffered from gout.—Sir S. Romilly, eminent as a law reformer, committed suicide.—The Canning family were distinguished for their sensitive and irritable temperaments.—Palmerston died childless, as did also his brother, the title becoming extinct.—Cavour, after a series of apoplectic seizures producing an unwonted irritability of manner, died of congestion of the brain.—Beaconsfield's paternal grandmother lived to be eighty 'without indulging in a tender expression.' As the result of her 'insane temperament,' her son Isaac d'Israeli, besides being 'dreamy, eccentric, and poetic,' suffered from weakness of sight. The same strain manifested itself in Isaac d'Israeli's son Benjamin, afterwards Lord Beaconsfield. In early manhood he had fits of giddiness, which he described as like a consciousness of the earth's rotation. Once he fell into a trance, from which he did not recover for a 'week.'<sup>1</sup> Gout was his chief ailment.

<sup>1</sup> Froude: *Life of Lord Beaconsfield*.

If we may trust the autobiographical details given in his novel, *Contarini Fleming*, Beaconsfield was well acquainted with the insanity of genius. 'I have sometimes,' he writes, 'half believed, although the suspicion is mortifying, that there is only a step between his state who deeply indulges in imaginative meditation and insanity; for I well remember when I indulged in meditation to an extreme degree, that my senses appeared sometimes to be wandering. I cannot describe the peculiar feeling I then experienced, for I have failed in so doing to eminent surgeons and men of science with whom I have conversed respecting it, and who were curious to become acquainted with its nature. But I think it was that I was not always assured of my identity or even existence, for I have found it necessary to shout aloud to be sure that I lived; and I was in the habit very often at night of taking down a volume, and looking into it for my name, to be convinced that I had not been dreaming of myself. At these times there was an incredible acuteness, an intenseness in my sensations. Every object seemed animate, and, as it were, acting upon me. The only way that I can devise to express my general feeling is, that I seemed to be conscious of the rapid whirl of the globe.'

## CHAPTER IX

PHILOSOPHICAL AND SCIENTIFIC GENIUS—THE ECCENTRICITIES OF SOCRATES—INSANITY OF BACON'S MOTHER—HIS BROTHER ANTHONY DEFORMED—INSANITY OF SWEDENBORG AND AUGUSTE COMTE—CARLYLE AND HIS ANCESTRY—NERVE DISORDER OF COPERNICUS, GALILEO, AND KEPLER—ISAAC NEWTON'S INSANITY—THE HERSCHELLS—JAMES WATT—HUMPHRY DAVY—FARADAY—THEIR CHARACTERISTICS AND AILMENTS—MISCELLANEOUS EXAMPLES OF NERVE DISORDER AMONG MEN OF SCIENCE—THE ARITHMETICAL AND CHESS-PLAYING FACULTIES—THE DARWIN FAMILY—ERASMUS DARWIN'S ECCENTRICITIES—INSANITY OF ONE OF HIS SONS—THE WEDGWOODS—CHARLES DARWIN'S DESCENT—THE PHYSICAL BASIS OF COMMERCIAL GENIUS, PHILANTHROPY, PIETY, AND CRIMINALITY—NEUROPATHIC ASPECTS OF PIETY IN LUTHER, BUNYAN, GEORGE FOX, AND CARDINAL NEWMAN—NE'ER-DO-WELLISM AND GENIUS

THERE remains to be considered the important class of men of genius whose labours are philosophical and scientific.

SOCRATES Some fifty years ago the French physiologist Lélut wrote a treatise to prove that on the showing of his disciples Socrates suffered, if not from insanity, at all events from sensorial hallucinations;<sup>1</sup> and an examination of the facts of the case in the light of modern science goes to establish the truth of Lélut's contention. Socrates believed himself to be attended by a familiar spirit whose voice he heard. There is hardly in Plato a single dialogue where the 'demon' is not spoken of. By literary students this has been accepted as a figurative expression, but the philosopher's habits of life, as recorded, are in perfect harmony with the hallucination theory. Among the singularities of Socrates, Lélut enumerates his wearing the same mantle in all seasons, walking barefooted on ice, and dancing and jumping alone without apparent reason, leading in the eyes of the vulgar the oddest kind of life, having no occupation but that of perorating in public places, pursuing everybody with his irony, and

<sup>1</sup> Lélut: *Du Démon de Socrate*.



accepting nothing from his disciples or friends, but asking without hesitation for a coat when he needed one. Socrates had long reveries or ecstatic fits; and it often happened to him to stop suddenly in the midst of a walk or a conversation, saying that he heard the voice of his familiar. Clearly the father of philosophy was an eccentric, though his insanity may have been for the most part of a purely sensorial character.

The mother of Lord Bacon is believed for some years before her death to have been insane.<sup>1</sup> When Bacon was about thirty-eight, her health was said to be 'worn.' No letters of hers appear to have been written after this date, and only an occasional reference to her existence in Bacon's correspondence shows her to be alive. BACON  
Spedding says: 'The supposition which seems to me most probable is that she lost the command of her faculties some years before her death, and that the management of her affairs was taken out of her hands.' In Bishop Goodman's 'Court of King James,' it is stated that Bacon's mother became 'frantic in her age.' In connection with this rumoured insanity it is important to find that Bacon's elder brother Anthony was lame throughout life, that at fourteen his eyesight was in danger, that he was always in a 'sickly state of body,' and that he died at forty-three.<sup>2</sup> Other collateral evidence as to Bacon's neuropathic condition exists. His mother's sister marrying William Cecil gave birth to Robert Cecil, first Earl of Salisbury, who was of weakly constitution, cold-hearted, selfish and deformed, but the ablest minister of his time. The philosopher's only brother Anthony was a man of some distinction, and it may be noted that of six children whom Bacon's father had by a first and presumably sound wife none attained eminence. The maternal heritage of nerve-disorder manifested itself unmistakably in Bacon's life. His health was always troublesome. He was so frequently absent from the Council in the Star Chamber that people began to doubt whether he would prove equal to his work. A contemporary writer says of him:—'His infirmity is given out to be gout. . . . But

<sup>1</sup> Spedding: *Life of Francis Bacon*.

<sup>2</sup> *Dictionary of National Biography*.

N. in truth the general opinion is that he hath so tender a constitution both of body and mind that he will hardly be able to undergo the burden of so much as his place requires.<sup>1</sup> Gout may very well have been the complaint from which Bacon suffered, and which he so often alludes to as his 'sickness.' He died of an accidental chill, and left no offspring.

M. The character of Swedenborg is a specially interesting study from the neurotic point of view. Swedenborg was not SWEDEN-  
BORG only an epileptic but at times an irresponsible maniac who, nevertheless, in his writings exhibits much subtle philosophical insight. Emerson calls him one of the mastodons of literature. Swedenborg's father was a 'bustling, energetic turbulently self-conscious man,' pious but keen in money matters, and possessing 'great energy of character.' That such qualities betray the presence of nerve-disorder we have frequently seen. Whether the evil influence was contributed to by the sage's mother there is no saying. Women of her class were accustomed to wear a top-knot, and it is related of her that a calf being born with something like a top-knot on its head, she 'took her own and her girl's hoods and threw them into the fire.' This was not, perhaps, a very sane proceeding, but she appears to have been for the most part a gentle and unassuming woman. As a boy Swedenborg was able to suspend his breathing, and his disciples supposed this to imply a power of entering the spirit world while still in the flesh. Until his forty-sixth year he studied and speculated largely about astronomy, anatomy, magnetism, and kindred subjects. The manner of his becoming a prophet was this: One night in London after he had dined heartily, a kind of mist spread before his eyes, and the floor of the room seemed to become covered with toads and other hideous reptiles. 'I was astonished,' he relates, 'having all my wits about me, and being perfectly conscious. The darkness gradually passed away. I now saw a man sitting in a corner of the chamber. As I had thought myself alone I was greatly frightened, when he said to me "Eat not so much." My sight again became dim, and when I recovered I found

<sup>1</sup> Spedding.

myself alone in the room.' The following night the same thing occurred, except that the man said to him, 'I am God the Lord, the Creator and redeemer of the world, and I have chosen thee to unfold to men the spiritual sense of the Holy Scriptures. I will myself dictate to thee what thou shalt write.'

Thenceforward Swedenborg abandoned all worldly learning, and laboured only in spiritual things. Previous to this, as shown by his diary, he had wonderful ecstatic dreams, distressing visions of temptations, persecutions, and sufferings. Some of these dreams were of a sensual character, and sensuality appears to have been his strongest passion. A break in Swedenborg's diary occurs when he had an attack of acute mania. This occurred while he was lodging in Fetter Lane, London, about his fifty-sixth year. Brockner, his landlord, found him foaming at the mouth and declaring that he was the Messiah in person. In the street he pulled off his clothes and rolled in the gutter. The outbreak occurred in connection with an epileptic seizure, and from this period onward Swedenborg's delusions were all of an insane character. He believed that the second coming of the Messiah had taken place in his own person, and that his existence was largely passed in the spiritual world. With a profound belief in himself he, nevertheless, showed considerable artfulness in evading attempts on the part of believers to put his miraculous powers to the test, alleging that the requests made to him were not sufficiently important to justify him in troubling the Almighty. His death was due to paralysis and apoplexy.

One of the most vigorous thinkers of modern times, Auguste Comte, founder of Positivism, fell into a state of insanity, and for nearly a year was confined in AUGUSTE Esquirol's asylum. This occurred in 1826. Two COMTE years later Comte published his 'Cours de Philosophie Positive,' the 'fruit of fourteen years' labour.'

Kant in his declining years became imbecile.—Descartes had hallucinations of hearing, thinking himself followed about by an invisible person, who entreated him to continue his researches.—Hegel's sister was insane.—Leibnitz was gouty,

and subject to fits of giddiness.—Schopenhauer's father committed suicide in a fit of melancholia; an uncle was demented, and the philosopher himself was subject to strange manias and impulses.—James Mill was consumptive.—John Stuart Mill, a prodigy of learning in his youth, died childless, although his wife had issue by her first husband.

As to Thomas Carlyle's parentage we have copious information in his 'Reminiscences.'<sup>1</sup> The astonishing force and originality of his character had a distinctly neuro-pathic origin. On the paternal side, his ancestry and connections were marked by the insane temperament, and also suffered from some of the allied forms of nerve-disorder. The grandfather was a 'fiery, irascible, indomitable man, full of irregularities and unreason.' With his brother he maintained a bitter feud for many years—a very characteristic outcome of insane tendencies. Carlyle's father was a man of the same stamp, possessing 'great vehemence of insight, and a piercing emphasis of wisdom.' He was uneducated, had no appreciation of poetry, but was a man of action. 'We had all to complain,' says Carlyle, 'that we durst not freely love him. His heart seemed as if walled in. My mother has owned to me that she could never understand him.' That sturdy, angular figure of whom Carlyle writes with a curious awe-struck, wondering reverence, is however to be understood by the physiologist through the medium of his brothers and sisters. John the eldest brother had asthma, and was a 'sickly pallid man,' who died at forty-seven, leaving two sons and a daughter, 'none of whom came to anything but insignificance.' Francis, whom Carlyle remembered as having a tremulous palsied voice, was of cheerful demeanour, a quaint sociable man, and left two sons who prospered. Tom, the youngest brother, was 'fiery, passionate, and self-secluded,' dying at forty. All these uncles of the sage of Chelsea, small farmers or artisans, were evidently men of a peculiar endowment. Carlyle's aunt Fanny was likewise a woman of 'singular vehemence, inflexibility and energy—all uncultivated and ill-directed;' while another aunt, Margaret, died of consumption at twenty-seven. From

<sup>1</sup> Carlyle: *Reminiscences*.

boyhood, Carlyle himself was a martyr to dyspepsia and general ill-health. His irritability appears to have been excessive, and he suffered terribly from sleeplessness. In his diary he speaks of himself thus: 'Nerves all inflamed and torn up, body and mind in a hag-ridden condition.' He possessed, however, that great basis of knowledge a most retentive memory. For many years before his death, his right hand was palsied.<sup>1</sup> Carlyle's marriage was a barren one, and its painful discords may have been due to the fact that his wife was, equally with himself, a sufferer from nerve-disorder, which took the form of a keen and sarcastic wit, a turn for poetry and great self-will, as well as paralysis and sudden death.

In science, the lives of the greatest men, from Copernicus to Darwin, yield strong evidence of the existence of nerve disorder as an element of genius. The astronomers EARLY ASTRONOMERS have been signal sufferers. Copernicus died of apoplexy, and before his death was 'paralysed both in body and mind.' He never married. Tycho Brahe in his latter days—he died at fifty-four—became weak-minded. He was of a sanguine temperament, but irritable and obstinate. He was one of a family of ten, none of whom became eminent, but his youngest sister, Sophia, is said to have been an accomplished mathematician. Galileo, the son of a musician and philosopher, had, from his youth, a 'chronic disorder accompanied with acute pains in his body, and loss of sleep and appetite.' As this attacked him at intervals during his life, it was probably gout. He fell into a state of melancholia, during which he felt 'as if he were being incessantly called by his daughter.' This daughter died suddenly. Galileo himself finally became blind, and also completely deaf. Kepler was the son of a man of good family, who ruined himself by his own misconduct, 'and died of apoplexy, while his mother had peculiarities of temper.' The astronomer was sickly as a child, and died at sixty of a 'violent fever accompanied by a brain disease, which baffled the skill of his physicians, but which was thought to have been produced by over-study.' By a first wife, Kepler left a son and a

<sup>1</sup> Tyndall: *Fortnightly Review* for January 1890.

daughter whose fate is unknown; by a second wife he had three sons and two daughters who all died young.<sup>1</sup>

Isaac Newton, an only child, was so diminutive at birth that it is said 'he might have been put into a quart mug.'

NEWTON Very little is known of his parents. His father, a farmer, died at thirty-seven, from some unknown cause; his mother afterwards married a clergyman named Barrett, and had several children, none of whom became eminent. From this circumstance, and his father's early death, it may be concluded that the neuropathic influence in Newton's case was on the paternal side. No reasonable doubt can be entertained that Newton's mind gave way, and that temporarily at least he had some of the delusions of insanity. Sir David Brewster, his biographer,<sup>2</sup> is very angry at the suggestion, but the facts are too strong for him. In the MSS. left by Huygens there occurs the following note:—

'On May 29, 1694, Mr. Colin, a Scotchman, informed me that eighteen months ago, the illustrious geometrician Isaac Newton had become insane, either in consequence of his intense application to his studies, or from excessive grief at having lost by fire his chemical laboratory, and several manuscripts. When he came from the Archbishop of Cambridge, he made some observation which indicated an alienation of mind. He was immediately taken care of by his friends, who confined him to his house and applied remedies by means of which he has now so far recovered his health, as to begin to understand his "Principia."'

Huygens also mentioned the matter in a letter to Leibnitz under date June 8, 1694, in the following terms: 'I do not know if you are acquainted with the accident which has happened to Mr. Newton, namely that he has had an attack of phrenitis, which lasted eighteen months, and of which they say that his friends have cured him by means of remedies, and keeping him shut up.'

As the burning of Newton's laboratory and papers happened before 1684, it could have had no immediate connection with his illness, and in any case would be a very far-

<sup>1</sup> Brewster: *The Martyrs of Science*.

<sup>2</sup> Brewster: *Life of Sir Isaac Newton*.

fetched explanation of his state of mind. Concerning this, we have direct evidence in Newton's own correspondence. On September 13, 1693, when fifty-one years of age, he wrote the following strange letter to Pepys:—

‘Some time after Mr. Millington had delivered your message, he pressed me to see you the next time I went to London. I was averse, but he was pressing, and I consented before I considered what I did. For I am extremely troubled at the embroilment I am in, and have neither ate nor slept well this twelvemonth, nor have I my former consistency of mind. I never designed to get anything by your interest nor by King James's favour, but I am now sensible that I must withdraw from your acquaintance, and see neither you nor any of my friends any more, if I may but leave them quietly. I beg your pardon for saying I would see you again, and rest

‘Your most humble and most obedient servant,  
‘IS. NEWTON.’

This letter threw Pepys into consternation. He wrote to Millington, to ask what it meant, saying: ‘The letter has put me into great disorder, lest it should arise from that which of all mankind I should least dread from him, and most lament for—I mean a discomposure in head or mind, or both.’ To Pepys, Millington replied in the following terms:—

‘I was, I must confess, very much surprised at the inquiry you were pleased to make about the message that Mr. Newton made the ground of his letter to you. For I was very sure I never received from you, or delivered to him, any such.’

Millington saw Newton on the subject. ‘Upon his own accord, and before I had time to ask him any question,’ continues Millington in his letter to Pepys, ‘he told me that he had written to you a very odd letter at which he “was much concerned,” and that he had done it under the influence of a “distemper that seized his head, and kept him awake for five nights together.” Further, he desired that I would reply to you on the subject, and beg your pardon, he being very much ashamed he should be so rude to a

person for whom he hath so great an honour. He is now very well,' says Millington in conclusion, 'though I fear he is under some small degree of melancholy.'

While under his 'distemper,' Newton, on September 16, 1693, also wrote the following to Locke:—

'Sir,—Being of opinion that you endeavoured to embroil me with women and by other means, I was so much affected with it as that when one told me you were sickly and would not live, I answered, "'Twere better if you were dead." I desire you to forgive me this uncharitableness, for I am now satisfied that what you have done is just, and I beg your pardon for having had hard thoughts of you for it, and for replying that you struck at the root of morality in the principles you expounded in your book, and designed to pursue in another book, and that I took you for a Hobbist. I beg your pardon also for saying that there was a design to sell me an office or to embroil me.—I am your most obedient and unfortunate servant,  
 'IS. NEWTON.'

Locke wrote Newton a magnanimous reply which called forth the following:—

'Sir,—The last winter by sleeping too often by my fire I got an ill habit of sleeping, and the distemper, which this summer has been epidemical, put me further out of order. So that when I wrote to you I had not slept an hour a night for a fortnight together, and for five days together not a wink. I remember I wrote to you, but what I said of your book I remember not. If you please, send me a transcription of that passage. I will give you an account of it if I can.—I am your most humble servant,  
 'IS. NEWTON.'

That these letters should never have been suspected by such a man as Sir David Brewster to contain indications of mental aberration on the part of the writer, shows how deeply rooted is the prejudice that genius is a strong and well-balanced condition of mind. After this period Newton was never himself again. His letters to Flamsteed on the lunar theory, written two years subsequently, exhibit a strange incoherence, and Professor de Morgan thinks that from the time of Newton's settling in London (he was appointed



Master of the Mint in 1696) 'his judgment underwent a gradual deterioration.'<sup>1</sup> While his distemper was incubating, that is to say about his forty-ninth year, he began to concern himself with the prophecies of Daniel and other theological questions, and to these he latterly gave himself up altogether. The part which piety plays in cases of mental aberration has elsewhere been dealt with. Newton lived to extreme old age, and died of stone—a disease belonging to the gouty diathesis. He never married, and was popularly believed to have a positive aversion to female society. As further evidence of neuropathic conditions on his father's side, one may point to the lamentable unfitness of the offspring of Newton's paternal uncle Robert. Sir Isaac's full cousin John was a carpenter, afterwards a gamekeeper, and this man's son, who became Sir Isaac's heir, was a youth of the most dissolute habits. One day while drunk, this scion of the house of Newton fell down with a tobacco pipe in his mouth, and the stem of the pipe sticking in his throat caused his death at the age of thirty. Ten years before this event a clergyman named Mason alluded to Newton's heir as a 'poor representative of a great man;' adding very wisely, 'but this is a case that often happens.' Of course we know nothing of the influence which female heredity may have exercised in this case.

The native aptitude of the elder Herschell for astronomical research appears to have been a variation upon the musical tastes of his family—a species of metamorphosis familiar enough to the student of heredity, and HERSHELLS having its basis in some inequality of nerve or brain function. The father of William Herschell was a musician, and everyone of the family, except the eldest daughter, possessed marked musical ability. Of the astronomer's brothers, three were professional musicians; he himself in boyhood was an excellent performer on the oboe and the violin. The father had a paralytic seizure, and also developed an asthmatical affection. Caroline Herschell shared her brother William's scientific tastes, and assisted him in his astronomical pursuits. From her diary<sup>2</sup> we gather some in-

<sup>1</sup> De Morgan: *Newton, his Friend and his Niece*.

<sup>2</sup> *Memoirs of Caroline Herschell*. By Mrs. John Herschell.

teresting facts in the family history. The sister who was unmusical was of a peculiar disposition. She married a man named Griesbach, but afterwards returned to her father's house. 'My sister,' says Caroline, 'was not of a very patient temper, and could not be reconciled to have children about her.' Dietrich, one of the musical brothers, appears to have caused his family some anxiety by his ne'er-do-well habits. About the age of fifty he was broken both in health and fortune, and his family appear to have been a sore disappointment to Caroline, who in her later years took up her abode with them in Germany. Caroline describes Dietrich as suffering from peevishness and weak nerves. Some painful details as to the Griesbach family, which might have been instructive from the heredity point of view, appear to have been suppressed in Caroline's published correspondence—a dis-service of a kind which the biographer of a great man too frequently renders to his readers. Caroline was at one time in danger of losing her sight, and she and her brother William, during their long residence in England, suffered from frequent illnesses. The nature of these is not always specified, but in her diary Caroline, nearly forty years before her death—she lived to be ninety-two—says she feels as if she would be an invalid for life, and speaks of her brother as suffering from constant fits of giddiness and low spirits. William's death occurred at eighty-two, 'after twenty years of nervous suffering.' The exact cause is not recorded, but Caroline's end was due to 'cramps and rheumatic complaints.' William Herschell married a woman who suffered from gout.

This alliance, unfortunate from the physical point of view, resulted in the birth of one son, a genius also. Herschell the younger continued his father's astronomical studies, in which he achieved similar distinction. He was also a highly accomplished chemist, and to his other gifts he added a deep poetic feeling. Curious sensorial hallucinations accompanied the younger Herschell's genius, as we gather from a lecture on ocular spectra delivered by him on one occasion before a scientific institute.<sup>1</sup> He often saw faces in the dark, some-

<sup>1</sup> Sir John Herschell: *Familiar Lectures on Scientific Subjects*.

times ten or a dozen appearing in succession, for the most part unpleasing though not hideous, and always having some general resemblance to each other. Landscapes also presented themselves to his inner vision, much more rarely than the faces, but much more distinctly. 'I was sitting one morning very quietly at my breakfast table,' he says, 'doing nothing and thinking of nothing, when I was startled by a singularly shadowy appearance at the outside corner of the field of vision of the left eye. It gradually advanced into the field of view, and then appeared to be a pattern in straight angular forms, very much in general aspect like the drawing of a fortification, with some suspicion of faint lines of colour between the dark lines. It appeared to advance slowly from out of the corner until it spread all over the visual area, and passed across to the right side, where it disappeared. I cannot say how long it lasted, but it must have been a minute or two.'

Several years afterwards the same geometrical spectrum presented itself to Sir John Herschell again. He adds: 'I have mentioned this experience to several persons, but have only met one to whom it has occurred. This was a lady of my acquaintance, who assured me that she had often experienced a similar affection, and that it was always followed by a violent headache, which was not the case with me.' Another waking vision of Sir John Herschell's was a 'round, deep purple, feebly luminous, spot, dying gradually away into darkness at the borders.' Various circular and geometrical forms often presented themselves to him. Once in the evening, while passing the site of a building that had been demolished, he was amazed to see the structure still standing projected against a dull sky. 'Being perfectly aware,' he adds, 'that it was a mere nerve impression, I walked on, keeping my eyes directed to it, and the perspective of the building appeared to change with the change in the point of view as it would have done if real.' Such impressions are to the visual centre of the brain what voices or other sounds would be to the auditory centre; they are, in fact, a true hallucination. Sir John Herschell was fortunate enough to marry a lady who gave him a numerous, and apparently

(healthy, family, in whom, however, his genius was not continued.

In the family of James Watt, genius was foreshadowed in the inventor's grandfather, Thomas Watt, who was a teacher of mathematics and 'an oddity,' and who had a weakly offspring. Three of Thomas Watt's children died in infancy, and a daughter at eighteen. Two sons survived, of these one died at fifty unmarried; the other, by his marriage with a woman named Agnes Muirhead, was the father of the inventor of the steam engine. In the absence of precise information as to the physical character of James Watt's parents, I can only note again the great mortality occurring in their offspring, three of the inventor's brothers and sisters dying in childhood, another brother at twenty-three, James Watt himself being the sole survivor in manhood of a family of five. The man who was destined to revolutionise the mechanical world was a born mathematician. Almost before he could read he was occupied with mechanical problems; he was of an abstracted and contemplative nature, and physically an invalid. In his youth the 'agony he suffered from continued and violent headaches,' says Mrs. Campbell, 'often affected his nervous system, and left him for days, even weeks, languid, depressed, and fanciful; at those times there was a roughness and asperity in his manner that softened with returning health. . . . He was alternately very active or apparently very indolent, and was subject to continual fits of absence.'<sup>1</sup> Again, as a young man he suffered from 'violent rheumatism and gnawing pain in his back, and weariness all over his body.' He had a good ear for music, and before occupying himself with the steam engine acquired some notoriety as a constructor of musical instruments. His health was always troublesome. In addition to his headaches he complained, about the age of thirty-four, of having fits of 'laziness, stupefaction, and confusion of ideas,' while his memory was accustomed to fail him in an alarming fashion. At forty-nine he wrote to a friend: 'My health is so bad that I do not think I can hold out much longer . . . I cannot help being dispirited, because I find my

<sup>1</sup> Muirhead: *Life of James Watt*.

head fail me so much.' Despite his ailments Watt lived to the age of eighty-three. He married a Miss Miller, by whom he had several children. Among these, nerve-disorder manifested itself strongly. A son and a daughter died in early life of consumption, another son James never married, but was a recluse and peculiar in his habits, and with his death at seventy-nine the Watt family perished.

Like the younger Herschell, Humphry Davy combined with his scientific genius a strong poetic feeling.<sup>1</sup> The neurotic condition is traceable in his family HUMPHRY DAVY through one or two generations. Grandmother Davy was a woman of 'fervid and poetical mind;' her son, the great chemist's father, died of a 'decline,' while his wife was carried off by some nervous illness. In his youth Humphry Davy, who thus appears to have had an evil heritage from both parents, was healthy and active enough. He learnt only by fits and starts, but was blessed with a most retentive memory. His imaginativeness developed itself early. In his youthful diaries he speaks of being 'pursued at night by horrible images.' 'After reading a few books,' he says, 'I was seized with a desire to narrate, and I gradually began to invent and to form stories of my own.' As he became eminent his health declined; it was then that the hereditary weakness of his constitution revealed itself. He suffered from his eyes; he had rheumatism in his right hand and arm, and generally a 'wretched condition of body.' Attacks of paralysis and apoplexy supervened, causing his death at fifty-one. He married the 'most amiable and intellectual woman he had ever known,' but left no offspring.

Faraday, after a brilliant career which he began as an errand boy, also died childless, and, like Humphry Davy, was much shattered by nerve-disorder, although he FARADAY lived to the age of seventy-five.<sup>2</sup> He was of the humblest parentage; his father was a blacksmith, and to the last his poor old mother, who was illiterate, never understood anything of her son's achievements in science. On the father's side an hereditary transmission of nerve-disorder is

<sup>1</sup> *Life of Sir Humphry Davy.* By his brother John Davy, M.D.

<sup>2</sup> Bence Jones: *Life of Michael Faraday.*

apparent. The elder Faraday died at forty-nine, and a few years before his death he wrote:—‘I am sorry to say I have not had the pleasure of enjoying one day’s health for a long time. Although I am seldom off work for a whole day together, yet I am under the necessity through pain of being from work part of almost every day.’ An uncle of Faraday’s died at twenty-four. Giddiness and loss of memory attacked Faraday before his fiftieth year. A course of lectures which he delivered were afterwards so completely obliterated from his memory that he delivered them again the following year without a suspicion that they were not new. Ultimately he became paralysed.

Joule, who discovered the mechanical equivalent of heat, was deformed, and died of disease of the brain.—Ampère, mathematician, electrician, and philologist, was eccentric. He was self-taught, and had a most tenacious memory.—Volta’s skull was abnormal in shape, and he had a son insane.—Linné, impetuous in character, was gouty and apoplectic, and ultimately became weak-minded.—Cuvier died of a nervous affection, and his children of brain disease.—Augustin de Candolle, a botanist of distinction, had water on the brain in his youth and was poetic; while De Jussieu, the head of an eminent botanical family, became blind.—Albert von Haller, the father of modern physiology, was rickety and gouty, and belonged to an hereditarily pious family.—Harvey, who discovered the circulation of the blood, was gouty, hot-tempered, and occasionally eccentric.—Swammerdam fell into religious melancholy.—Zimmermann, the son of a nervous mother and an ailing father, was hypochondriacal in his youth, and became in his latter years completely demented; his son was also insane, and a daughter died of consumption.—Lamarck became blind.—Cardan had delusions of persecution, with hallucinations of hearing, smell, and taste. His father had been insane, and Cardan in turn transmitted insanity to his children.<sup>1</sup> This is indeed a remarkable case. Cardan was one of the most distinguished men of the sixteenth century, revealing throughout his works ‘an intellect of rare subtlety and force,’ and occasionally letting fall

<sup>1</sup> Lombroso.

‘hints of scientific principles so profound, looked at in the light of after years, that he himself cannot at all have even guessed at their significance.’<sup>1</sup> Voices told him to write his books. He is said to have been a stupid boy, and to have remained impotent till the age of thirty-four.—Of Charles Lyell, the eminent geologist, Charles Darwin wrote in 1875: ‘I cannot say that I felt his death much, for I fully expected it, and have looked for some little time at his career as finished. I dread nothing so much as his surviving with impaired mental powers.’—Sedgwick, to whom geology is also much indebted, was a sufferer from rheumatic gout and inflammation of the eyes.—In the family of Smeaton, civil engineer, brain disease was hereditary. He died of paralysis.—The same affection in the form of shaking palsy attacked George Stephenson, the railway engineer, whose mother was ‘a delicat boddie an varry flighty.’—Telford, whose genius for engineering manifested itself along with a taste for writing verses, lost his hearing.

The marvellous arithmetical faculty of the American calculating boy Zerah Colburn, who was exhibited in Europe in the early part of the present century, may be ZERAH comprised in the scientific category. This prodigy COLBURN was the son of a carpenter, and began his arithmetical feats in childhood. The first manifestation of his power is thus described:—‘When about one month under six years of age, his father being employed at his joiner’s bench, Zerah was on the floor playing with the chips of wood. Suddenly he began to say to himself 5 times 7 is 35, 6 times 8 is 48, and so on. His father’s attention becoming arrested by hearing this from a child who had only had six weeks’ attendance at the district school, he left his work and began to examine him in the multiplication table. He thought it possible that Zerah had learnt his sums from other boys, but finding him perfect in the table his attention was more deeply fixed and he asked the product of 13 multiplied by 97, to which 1261 was instantly given in answer.’<sup>2</sup> For the manipulation of numbers the boy, in short, was found to have

<sup>1</sup> *Chambers’ Encyclopædia*, Ed. 1888.

<sup>2</sup> *Zerah Colburn: Memoir*.

innate gifts of a most exceptional kind. The matter became noised abroad, and he was exhibited on tour. At the age of six, when asked the number of seconds in eleven years, he answered in four seconds 364,896,000. Being asked how many hours there were in 38 years two months and seven days, he answered in six seconds 334,488. At eight years of age he was brought to London, and tested by mathematicians who were surprised and disconcerted by the rapidity and correctness of the boy's solutions to the most difficult problems. He had the power of at once answering questions to which no known rules applied, and he discovered properties in numbers till then unsuspected.

Being questioned as to the principle upon which he proceeded, the boy declared that he did not know how the answers came into his mind. Strangely enough, his power, instead of improving with practice, gradually faded away, and before he was old enough to explain himself it had completely left him. Its neurotic character is indicated by the fact that the elder Colburn became insane, and died of consumption. There was also deformity in the family, the boy and some of his near relatives being six-fingered. After the disappearance of his arithmetical faculty, Zerah Colburn found great difficulty in earning a livelihood. He subsequently became a pious itinerant Methodist preacher, and died at the age of thirty-six of a 'decline.'

Paul Morphy, the most brilliant of chess-players, who invented combinations on the chess-board previously unknown,

PAUL MORPHY began his chess career in boyhood and attained the height of his fame as a very young man. About the age of thirty he became insane.

The genealogy of Charles Darwin, author of the 'Origin of Species,' illustrates many of the neuropathic aspects of ERASMUS DARWIN genius, from insanity downwards. It will bear relating in some detail, for, unlike many men of genius whose lives are obscure and imperfectly recorded, Darwin is intimately known to us through his own memoirs and the full biographical accounts which have been published of his family for three generations.<sup>1</sup> To take first the paternal side

<sup>1</sup> *Life of Erasmus Darwin*, by E. Krause, with a notice by Charles Darwin.

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genius



of Darwin's ancestry. Erasmus Darwin, grandfather of Charles, and himself a man of genius, philosopher, poet, and physician, was noted for the great size of his frame, his physical energy, and the vividness of his imagination. Of all his characteristics, says Charles Darwin, 'the incessant activity of his mind was perhaps the most remarkable.' He had a special taste for poetry and mechanics. According to his son Robert, he was apt to be 'violent in anger.' Miss Seward adds that he 'stammered greatly' in his speech. He was clumsy in his movements, and is also said to have suffered from lameness, but, as this is ascribed to a carriage accident, it need not be insisted upon, notwithstanding the well-known fondness of the biographer for explaining everything according to his lights.

Miss Seward tells us of a freak once indulged in by Erasmus Darwin, which savours a little of insanity. At a picnic party, after luncheon, he surprised his companions by suddenly stepping from the boat into the middle of the river Trent; he then swam ashore in his clothes, and walked coolly over the meadows towards the town of Nottingham, where he was afterwards discovered in the market-place, 'mounted upon a tub in his wet clothes haranguing the mob in an extremely sensible manner on sanitary arrangements, and without his usual stammer.' Charles Darwin is persuaded that this narrative is 'largely the work of Miss Seward's imagination,' and that probably his grandfather, who was a great advocate of teetotalism, drank at the lunch 'something as weak which was really strong,' and so become 'half tipsy.' This hypothesis is a difficult one to maintain in face of the fact that Erasmus Darwin was a medical man, who would not readily be deceived as to what he drank. Besides, Miss Seward does not write in a vindictive spirit, and there is nothing inherently improbable in her narrative. Quite the contrary, when we remember that another philosophical physician of Erasmus Darwin's own time, and one equally eminent with himself, namely, Zimmermann, lapsed into a state of complete insanity.

*Memoirs of the Life of Erasmus Darwin*, by Anna Seward. *Life and Letters of Charles Darwin*, by his son, F. Darwin. *Life of Josiah Wedgwood*, by E. Meteyard. *A Group of Englishmen*, by E. Meteyard, etc.

Charles Darwin admits, in fact, that the owner of the boat, having been appealed to on the subject, said 'something similar' to Miss Seward's account did happen.

In his latter years, according to Miss Seward, Erasmus Darwin displayed 'the irritability, the disingenuous arts, and the jealousy of other reputations,' so often found in great minds. This charge the Darwin family indignantly deny, but surely there is nothing to be surprised at if an ancestor, to whom they concede the qualities of genius, should be shown to have some of the defects of that condition. Erasmus Darwin died suddenly in his arm-chair, after a shivering fit, at seventy. The doctors differed as to the cause of his death, but his son Robert, a medical man, believed it to be an affection of the heart. Erasmus Darwin was twice married; it is from his first wife, a Miss Howard, that the author of the 'Origin of Species' was descended. This poor lady, for many years an invalid, died at the early age of thirty. She told Miss Seward: 'The maladies of my frame were peculiar; the pains in my head and stomach, which no medicine could eradicate, were spasmodic and violent, and required stronger measures to render them supportable while they lasted than my constitution could sustain without injury.'

Of such a union it was hardly possible that a soundly constituted family could be born. There were three sons. Erasmus the younger committed suicide at forty in a state of insanity; Charles, who stammered like his father, and who also had a strong taste for poetry and mechanics, died at twenty of accidental blood poisoning; the remaining son Robert, who lived to a great age, became a successful medical man, and by his marriage with Miss Wedgwood was the father of Charles Darwin. As to the insanity of Charles Darwin's uncle Erasmus the younger, who was a solicitor, there appears to be no doubt. He drowned himself in a stream at the bottom of the garden. 'It is known,' says Charles Darwin in commenting upon the event, 'that a change of disposition generally precedes insanity, and Erasmus, from being an excellent man of business, had become dilatory to an abnormal degree. He was evidently conscious himself of some mental change, for he purchased, six weeks before his

death, the small estate of the Priory near Derby, where he intended, though only forty years old, to retire from business, or, as his father expressed it, to sleep away the remainder of his life.' Miss Seward asserts that when the body was found, the father said in a low voice, 'Poor insane coward.' Charles Darwin doubted the truth of this, but the remark was surely not an unnatural one.

Robert Darwin was of enormous size, standing six feet two inches, and weighing twenty-four stone. This was not the only, though it was the most conspicuous, evidence in his case of an abnormality of the nervous system, by which, as we have seen, the nutrition or growth of the body is regulated. He suffered from gout. He was a good man of business, and contrived to amass a fortune in his medical practice. He also had 'curious intuitions,' which he could not explain, and an extraordinary memory. In marrying Miss Wedgwood, daughter of Josiah Wedgwood, he, like his father, formed an alliance which must have fostered rather than corrected the neuropathic tendencies of the Darwin blood. On its own account the genealogy of the mother of Charles Darwin merits attention. It has the additional advantage, however, of making us acquainted with a man whose achievements entitle him to an independent place in this book, namely, Josiah Wedgwood, the creator of British pottery as an art.

During the seventeenth and eighteenth centuries, the births, marriages, and deaths of the Wedgwoods fill half the parish registers of Burslem. The family was JOSIAH WEDGWOOD prolific, and apparently prosperous through WEDGWOOD several generations, but its history begins with Josiah. In this, the fourth generation of the Staffordshire potters, by a coincidence for which the reader will be prepared, genius and nerve disorder unmistakably manifested themselves side by side. The evil appears to have been slowly preparing. Already in the third generation there were neurotic symptoms in the family. Thomas Wedgwood, father of Josiah, made a deathbed will, in which, while providing for a younger daughter, he sternly prohibited his eldest daughter Ann from sharing in his estate. Unforgiveness on a death-bed, like those prolonged and bitter family feuds originating in a trifle, of which the world

occasionally hears, is a frequent sign of the insane temperament. Nor does the wife of Thomas appear to have been particularly sound. She is described as a 'small and delicately organised woman of unusual quickness and sensibility.' Of the children born to this couple Josiah was the youngest. (They exhibited forms of nerve-disorder, ranging from genius to idiocy. Thomas, brother of Josiah, left his affairs in a 'sadly unsettled state.' Miss Meteyard says he was an 'incompetent, careless man,' and one of his sons was weak-minded. Writing of this nephew of his, Josiah (who, like the typical biographer, is ready with a reason for the thing he describes) says: 'The shock he received from his father's death, and the foolish education and behaviour of his mother, made him for some time quite an idiot. . . . He will never be qualified to do any business, and what we shall do with him I do not know.' A second son, brother of the idiot, was 'as unwilling as he was incapable of being taught or managed to any good purpose.' Richard Wedgwood, another brother of Josiah's, died of 'a long course of drinking and irregular living.' A son of Richard's, as the result of a worn-out constitution, died early.

Two ne'er-do-well brothers, and three ne'er-do-well nephews in the family of a man of genius, is a large allowance. It is true that the genius of Josiah Wedgwood was of no common order. It was many-sided. Pottery, when he took it up, was a rude and barbarous manufacture; he raised it to the dignity of an art. He was a man of much general culture. He also accumulated a vast fortune, promoted public works, and exercised a princely liberality. For these achievements a heavy price of bodily suffering had to be paid. Josiah Wedgwood became lame in boyhood; some years afterwards his leg, being increasingly troublesome, had to be amputated. Before his fortieth year he began to have spectra in the eyes; he also suffered from constant headaches and sleeplessness. It is well known that pain can be felt in an amputated limb, the explanation being that the severed nerves continue to convey sensation to the brain, which has no knowledge, so to speak, of its habitual communications from the limb in question being interrupted. It is as if the

wire of the door-bell were cut midway, and the short end pulled as usual. For twenty years after the amputation Josiah Wedgwood felt severe pain in what he called his 'no-leg.' He died of mortification of the jaw at sixty-five.

Given a man of such feeble physique as Josiah Wedgwood, it is evidently important in the interests of the unborn generation, that if he marries at all, he should choose as his wife a woman normally constituted, or at least nervously sound. This Josiah Wedgwood did not do. He married a Miss Sarah Wedgwood, a distant cousin of his own, who appears to have had a share of the family disorder; and seeing that she became afflicted with a 'severe rheumatic affection,' together with what were called 'fever fits' and ague, the offspring of this union were necessarily born to a heritage of suffering. A daughter, Mary Ann, became paralysed and blind, but died in childhood. Less fortunate was a son Thomas Wedgwood, whose manhood, through disease, was rendered an indescribably weary burden to him. It was not until his thirty-fourth year that he was relieved from his pain. His mental powers were of a very high order; indeed, Thomas Wedgwood is himself entitled to rank as a man of genius, although his ill-health and his early death cut short the promising scientific researches in which he was engaged. Before his twentieth year he was prying into the secrets of nature, particularly in relation to the problems of light and heat, and he was the virtual discoverer of photography. For ten or twelve years before his death, however, he could do little but suffer, bodily and mentally. His brief life shows what terrible evils genius may bring in its train. Who can read without being moved to pity of the vain yearnings after health and strength of this poor young man, to whom his immense fortune was only a mockery? He travelled, he was always buying new estates, he tried opium, he thought of bhang, nothing procured him relief. Dr. Robert Darwin, who attended him, anticipated that his life would close in frenzy or paralysis, and paralysis it was which carried him off in the prime of manhood. He was remembered by one of his nieces as a 'tall, pale, sickly gentleman, moving feebly with the aid of a stick,' for with

his brain affection he combined an incurable disease of the stomach.

Another of Josiah Wedgwood's sons, John, had infirmity without the solace of genius. He was a hypochondriac, and a restless traveller. A daughter Catherine by her marriage with a Unitarian preacher, named Willett, became the grandmother of the eminent physician, Sir Henry Holland; it was the other daughter Sarah who married Dr. Robert Darwin. This lady died comparatively early 'after a long decline,' but not until she had given birth to Charles Darwin. Thus we see that the great biologist, whose discovery of the principle of Natural Selection has revolutionised modern thought, was sprung both on the paternal and the maternal side from an insane and paralytic stock, in whom the great neuroses alternated not only with genius but with the special maladies of the drunkard and the ne'er-do-well.

Charles Darwin, with his heavy heritage of nerve-disorder, lived an ailing life. 'For nearly forty years,' says his son, CHARLES DARWIN 'he never knew one day of the health of ordinary men. . . . His life was one long struggle against the weariness and strain of sickness.' He had his 'bad days,' when he suffered from 'swimming in the head.' He had a peculiar stammer on the first word of a sentence. 'I can only recall this,' says F. Darwin, 'with words beginning with W. Possibly he had a special difficulty with this letter, for I have heard him say that, as a boy, he could not pronounce W, and that if sixpence were offered him to pronounce "white wine" he would pronounce "rite rine."' 'Swimming in the head,' or giddiness, is most probably an affection of the cerebellum. 'The malady exhibits itself,' says Forbes Winslow, 'at all periods of the day, and in all possible positions of the body. . . . I have known clergymen attacked whilst preaching in the pulpit, merchants when engaged at the desk, or on the Stock Exchange, barristers whilst addressing Courts of Law.' Attacks of giddiness, as we have seen, were a premonitory symptom of Dean Swift's insanity. They may be experienced for years and 'frequently terminate,' says Clutterbuck, 'in apoplexy or palsy from the extension of the disease in the brain.' Difficulties of articulation are, also,

of course, indications of brain disorder. Severe fainting fits attacked Charles Darwin in his latter years. The chief affliction of his life was dyspepsia; his death was due to *angina pectoris*. He married a cousin, Miss Emma Wedgwood, daughter of one of the sons of the great Josiah.

In Charles Darwin's brother, Erasmus Alvey Darwin, we have the *contre-coup* of genius. 'His health from boyhood,' says Charles, 'had been weak, and as a consequence he *failed in energy*. His spirits were not high, sometimes low, more especially during early and middle manhood.' Carlyle refers to this Erasmus as a 'most diverse kind of mortal,' with 'health so poor,' that it 'quite doomed him to silence and patient idleness.'<sup>1</sup> Miss Julia Wedgwood thought his mind had the same kind of playfulness, the same lightness of touch, the same tenderness, perhaps the 'same limitations' as that of Charles Lamb.<sup>2</sup> A sad but suggestive comparison!

Several minor descriptions of genius remain to be mentioned. Men who amass wealth or who initiate and successfully carry out great commercial schemes are not usually accounted geniuses, but there is no doubt that the qualities of mind which bring them to the front are in many cases identical in their origin and nature with the literary or artistic gifts. That is to say, they are the result of an exaltation or depression of certain brain-areas and are associated with the various ailments incident to an instability of the cerebro-spinal system. It is necessary, however, to discriminate as to the means by which wealth is acquired. A lucky speculation is not necessarily a proof of mental capacity on the part of the speculator; and large fortunes are made by persons who accidentally obtain a monopoly of some commodity for which there is a general demand. In such cases no genius need be presumed. Skill, foresight, and industry, however, are native qualities of mind, for the absence of which no training can compensate; they are important constituents of the business faculty. Avarice, again, which frequently goes to the amassing of wealth, is a distinctly neuropathic characteristic.

<sup>1</sup> *Reminiscences*.

<sup>2</sup> *Spectator*, September 3, 1881.

Side by side with legal, poetic, musical, and literary gifts, the parsimonious spirit crops up with curious frequency in the biographies of the famous North family, who, dating from the reign of Queen Elizabeth, were illustrious through several generations. Francis North, the Lord Keeper of James II., was one of a family of five brothers and one sister. The father of these brothers wrote poems; he was also 'economical.' In the sons the latter characteristic appears in various forms. The Lord Keeper was crafty and designing. Macaulay accuses him of selfishness, cowardice, and meanness. There is no doubt, however, but that his abilities were very varied, and of a high order. Besides studying the law, he 'pursued his inquiries into all ingenious arts, history, humanity, and languages, whereby he became not only a good lawyer but a good historian, politician, mathematician, natural philosopher and musician in perfection.' He is said to have been always fanciful about his health. Roger North, brother of the Lord Keeper, wrote excellent biographies of the family and was musical.

Dudley North, another brother, contrived to make a large fortune in the Levant and, retiring to England, became a noted financier. The financial career of the latter began at school when he trafficked with other boys; he afterwards cheated sadly, and even his brother Roger allows that 'as to all the mercantile arts and stratagems of trade which could be used to get money from those he dealt with he was no niggard.' He was very energetic and a great swimmer. Macaulay admits that Dudley North was 'one of the ablest men of his time.' In another brother, John North, Master of Trinity College, Cambridge, we discover the neuropathic taint which produced these excessive abilities. As a boy John North was of a 'nice and tender constitution,' and affected with a 'non-natural gravity' for his years. He became penurious and hoarding, but was a thinker of great earnestness and a remarkable Greek and Hebrew scholar. (According to the jargon of the biographer who so persistently mistakes effects for causes, study ruined his health. 'His flesh became strangely flaccid and soft, he was weak and shuffling, often crossing his legs as if he were tipsy; his



sleep was seldom or never easy, but interrupted with unquiet and painful dreams, his active spirit had rarely any settlement or rest.' Finally, he had a stroke of paralysis, of which he died at thirty-eight. The sister, Mary North, afterwards Lady Spring, had a prodigious memory. According to her brother Roger, she used to recite 'by heart prolix romances with the substance of speeches and letters as well as passages, and this with little or no hesitation, but in a continual series of discourses—the very memory of which is to me at this day very wonderful.'<sup>1</sup> The Lord Keeper's eldest son and successor in the family title was a nonentity, but his daughter, Dudleya North, inheriting her uncle John's characteristics, 'emaciated herself with study, whereby she had made familiar to her not only the Greek and Latin, but the Oriental languages.' She died not long after the birth of her first child, and the child speedily followed her to the grave.

Through the alliance of heiresses with noble families, some indirect evidence is furnished of the neuropathic character of the money-making faculty. The heiresses who win a title are generally the daughters of men who have made large fortunes in trade, and, as books of the peerage show, there is a well-marked tendency on their part to sterility, about one-fifth having no male children at all, a third one child, and three-fifths two children only. For various reasons, however, one of which is the possible unsoundness of the husbands of these heiresses, trustworthy statistics on the subject are not obtainable.

It is more important to note that the money-making faculty alternates, as we should naturally expect it to do, with prodigality, and the usual functional disorders in families where a neuropathic taint exists. Men of genius are not necessarily thriftless. Perhaps the majority are so, but Reynolds and Turner were avaricious, Shakespeare contrived to retire early with a competence, Josiah Wedgwood built up one of the largest fortunes in the world, and the Darwins were excellent men of business. On the other hand, Byron, Coleridge, and Scott, were incapable of handling money, while Corneille, according to his nephew De Fontenelle, had an

<sup>1</sup> Roger North: *Lives of the Norths*.

incapacity for business, which was only equalled by his aversion to it. Frequently a father laboriously amasses a fortune, which his son as recklessly squanders. The phenomenon, a common one in social life, is explained by the variations of heredity. As between father and son, there is a shifting, so to speak, of the nervous centre of gravity with a consequent modification of faculty, such as we see in the families of men of genius. But just as among the accidents of variation a man of genius may have a son who is gifted also, so the successful man of business may likewise have a son of his own calibre.

Harvey, the discoverer of the circulation of the blood, a gouty and eccentric subject, had brothers in trade who amassed large fortunes. The Mendelssohn and Meyerbeer families comprised bankers of great ability. Heine's father was an improvident person, always struggling with misfortune. His uncle Solomon, on the other hand, starting in life with 'only a pair of leather breeches and sixteen groschen in the pocket of them,' rose to the highest place in the financial world, and died a millionaire. Anatole Demidoff, who married into the Napoleon family, and who was notorious under the Second Empire for his extravagance and debaucheries, belonged to a trading family in St. Petersburg, from whom he inherited an enormous fortune, and with it paralysis. His brother, Paul Demidoff, also a celebrity in Parisian society, was accounted half mad. Amid his eccentricities and cruelties, however, Paul Demidoff was singularly impressionable to the sufferings occasioned by infirmity and poverty, and spent thousands of pounds yearly in philanthropic acts.

As with avarice, so with philanthropy. It is a constitutional characteristic, and its connection with an unstable condition of the cerebro-spinal system is readily shown. HOWARD, the prison reformer, was a sickly child. The son of a pious upholsterer, he was himself strongly imbued with the religious spirit, but this did not prevent him from being excessively self-willed and tyrannical in his own household.<sup>1</sup> In his youth he was thought to be con-

<sup>1</sup> Stoughton: *Howard the Philanthropist*

sumptive, and he had attacks of what the biographer calls 'nervous fever;' but his death was due to some contagious disease contracted in his wanderings. The philanthropist left a son who was an inveterate drunkard, and who finally became insane and had to be placed under restraint. This young man, of whose mother nothing is known, except that she died in childbed, ended his days in a lunatic asylum at thirty-four. In his own person Howard exhibited eccentricities unaccountable to his friends. It is related that in Venice, during a hard winter, he took it into his head to 'go about the streets without boots or gaiters, with no great coat, and sometimes even no cravat on,' to the amazement of the natives. The cruelty exercised by the philanthropist in his domestic relations has always been a subject of perplexity to his admirers. But they have succeeded in explaining it away to their own satisfaction. 'He had a theory of family discipline,' observes Stoughton, 'which, however conscientiously formed, will be approved by only a few in the present day. His idea of obedience was not the submission of love, but a subjugation of will through the influence of fear, or through the force of authority. But,' adds this reverent apologist, 'we see in his case not parental unkindness, not insensibility, not a hard, severe, ungenerous mind,—only a *misjudgment*, an *unwise* opinion.' Quite so! But insensibility and misjudgment belong to the same order of mental phenomena as insanity itself. There can be no doubt that Howard's domestic tyranny was as much the outcome of a disordered brain or nervous system as his philanthropy.

Nield, a prison reformer who followed in Howard's footsteps, is also said to have been 'somewhat eccentric.' Another notable worker in the same field, Sarah Martin, was, in her latter days, 'greatly afflicted.' Similarly George Moore, 'merchant and philanthropist,' one of the worthies whose life has been written by Smiles, suffered at times from 'intense pains in the head,' and felt his nervous system to be 'much shattered.'—John Ellis, a working shoemaker of Norwich, who had a passion for establishing reformatory schools, presented a strange, uncouth, unkempt figure, shambling in gait, and with a style of speech that could

only be described as a half-inaudible mumble. He worked at his philanthropic projects night and day. He had also a turn for mechanical invention. At eighty years of age, in a fit of religious melancholy, he committed suicide by thrusting his head into a leather-cutting machine.

William Wilberforce, the great enemy of the slave trade, was all his life a valetudinarian. 'His frame from infancy was feeble, his stature small, his eyes weak—a failing which, with his many rich mental endowments, he inherited from his mother.'<sup>1</sup> An unusual thoughtfulness for others is said to have marked his earliest childhood. Piety descended upon his mother in her later life. Wilberforce exhibited some religious leanings in boyhood, but these gave place at college and at the opening of his Parliamentary career to a degree of worldliness, upon which, in after years, 'he could not look back without unfeigned remorse.' He was then intellectually clever, ready-witted, an accomplished singer, and a good mimic. At the age of twenty-six he became suddenly alive to his state of sin and corruption, and thereafter was a changed man, so much so, that he made a 'frank avowal of his altered views' to those with whom he had hitherto lived in levity and thoughtlessness. During his life, Wilberforce's nervous condition expressed itself in occasional 'seizures' of so alarming a character that, for hours, he was 'utterly insensible.' Like many neuropathics, however, he lived to a great age, leaving two sons, whose inherited piety carried them into the church.

The relation of fervid piety to certain states of the cerebro-spinal system has been referred to in a preceding chapter. Further examples of this are furnished by Luther, Bunyan, George Fox, and Cardinal Newman. Luther was a man of powerful imagination, subject to nerve-affections, which he put down to the devil. 'This toothache and earache  
LUTHER (neuralgia) that I am always suffering from,' he writes, 'are worse than the plague. When I was in Coburg I was tormented with noise and buzzing in my ears, just as though some wind were tearing through my head. The devil had something to do with it.' He also complained of giddiness.

<sup>1</sup> *Life of Wilberforce.* By his son.

He sometimes saw the devil, but more frequently heard him. In fact, the devil and he were upon the most familiar terms. 'Once in our monastery at Wittenberg,' says the great reformer, 'the devil, interrupting my studies, came into my cell and thrice made a noise behind the stove, just as though he were dragging some wooden measure along the floor. As I found he was going to begin again, I gathered my books together, and got into bed.' On another occasion he says: 'I heard the devil above my cell walking in the cloister, but as I knew it was the devil, I paid no attention to him and went to sleep.'

John Bunyan was a violent, passionate boy. He says of himself that for lying and swearing he had no equal; and the disorder of his brain is attested by the 'fearful BUNYAN dreams and visions' to which, at this period, he was subject. He saw evil spirits in monstrous shapes, orgies of devils, archangels, and what not. Apparently these visitations kept his evil nature in check, or he thought they did. They suddenly ceased when he was about seventeen. God then left him to himself as he puts it, and gave him over to his own wicked inclinations; whereupon he fell into all kinds of vice and ungodliness without further restraint. Among the young tinker's acquaintances there was an ale-house-keeper who had a half-witted son. For the amusement of his guests, this ale-house-keeper used to torment the lad so as to make him curse his father, and wish the devil had him. 'The devil did, at last, have the ale-house-keeper, and rent and tore him till he died.' 'I,' says Bunyan, who relates this incident as a miracle, 'was an eye and ear-witness of what I here say. . . . I saw the father himself possessed, his flesh being gathered up in a heap about the bigness of half an egg, to the unutterable torture and affliction of the old man.' They attempted to smoke the devil out, but he would not come, and he afterwards carried the sufferer out of the world.

In Bunyan's conversion this miracle appears to have played an important part. Yet we can now see that it was a simple case of epilepsy; the father of the half-witted son having a convulsive seizure which proved fatal. About the age of twenty Bunyan's visions returned, but they assumed

a beatific character. He heard spiritual voices and saw Christ Himself looking down upon him from the sky; and the exalted mental condition of which these hallucinations were the outcome, made him in due time not only a fervid preacher, but the author of the 'Pilgrim's Progress.' Of Bunyan's ailments nothing is known; but one of his children was blind.

It was in a vision that the founder of Quakerism, George Fox, like Francis d'Assisi, and other holy men, received the consecration of the Spirit. In the early days of his mission his visions were frequent; in these he nearly always *heard* the voice of the Lord, and on one occasion he records, 'the creation gave *another smell* to me than before beyond what words can utter.' Every crazy impulse that passed through his mind he regarded as an inspiration from on high.

In the family of John Henry Newman, the musical faculty and a strong strain of ne'er-do-wellism were associated with intense religious convictions. Newman's father NEWMAN was an enthusiastic musician, but thriftless and unsuccessful in business. The ne'er-do-wellism existed strongly in his youngest brother, Charles Newman, who was eccentric and apparently destitute of all moral principle. This person was accounted a disgrace to the family. While emerging from his teens he renounced all his relatives on the ground that they were too religious. He was sent to a German university, but left it without offering himself for examination, a step he explained by saying that the judges would not grant him a degree because of the offence he had given them by his treatment of faith and morals in an essay which they had styled *teterrima* ('most abominable'). Julius Hare, a clergyman, to whom he was known, used to make excuses for the religious and moral obliquities of this member of the Newman family on the ground of 'partial insanity.'<sup>1</sup>

Religious conversion presents some instructive features to the psychologist. One of the most rapturous cases of conversion on record is that of a young woman in her twentieth year, a disciple of Wesley's, whom she calls her 'dear and most honoured father in Christ.' The change in her condition

<sup>1</sup> *Contemporary Review*, September 1890; 'Cardinal Newman and his Contemporaries.' By Wilfred Meynell.

began with a *violent agony* of about four hours' duration. 'Then,' says the patient, 'I began to feel the Spirit of God bearing witness with my spirit that I was born of God. Oh, mighty, powerful, happy change! The love of God was shed abroad in my heart, and a flame kindled there with *pains so violent, yet so very ravishing*, that my body was almost torn asunder. I sweated; I trembled; I fainted; I sang. Oh, I thought my head was a fountain of water. I was dissolved in love. *My beloved is mine and I am his*. He has all charms; he has ravished my heart; he is my comforter, my friend, my all. He is now in his garden feeding among the lilies. Oh, I am sick of love. He is altogether lovely, the chiefest among ten thousand. Oh, how Jesus fills, Jesus extends, Jesus overwhelms the soul in which He dwells.'<sup>1</sup>

Experiment has shown that exaltation of this kind can be produced by hachisch.<sup>2</sup> Moreau of Tours, who experimented upon himself with that drug, has left his sensations on record. 'It is really happiness,' says this writer, 'which is produced by hachisch, and by this I imply an enjoyment entirely moral and by no means sensual as we might be induced to suppose. This is surely a very curious circumstance, and some remarkable inferences may be drawn from it—this, for instance, among others, that every feeling of joy and gladness even, when the cause of it is exclusively moral, may be nothing else than sensations purely physical developed in the interior of the system. For the hachisch-eater is happy, not like the gourmand, the famished man, or the voluptuary who has satisfied his appetite, but like him who hears tidings of great joy, the miser counting his money, the gambler successful in play, or the ambitious man whose hopes are realised.' In cases of religious conversion there would seem to be a profound disturbance of the different sensory and motor centres of the brain; and it is more than probable that this occurs only in organisations which are naturally excitable, and at the same time deficient in memories of a corrective kind, and therefore peculiarly open to the contagion of

<sup>1</sup> Southey: *Life of Wesley*.

<sup>2</sup> Moreau: *Du Hachisch et l'Aliénation Mentale*.

example. If so, the most vigorous proselytising is likely to be successful only in a certain proportion of cases, many persons being condemned by their organisations to remain insensible to the most rousing appeals from the pulpit or the platform.

The passages italicised in the statement of Wesley's convert, above quoted, testify to the existence of a purely physical process in the brain and nervous system, and it is curious to note how the sexual organisation is called into play without the sufferer's knowledge. The erotic influence is not so clear in this case, however, as in that of an ecstatic young woman observed by Moreau, who has left copious accounts of her experience where she evidently confounds her carnal appetites with the 'Divine Love.' One passage of Mdlle. X.'s confessions may be quoted: 'During my long hours of sleeplessness in the night,' she observes, 'my beloved Saviour began to make Himself manifest to me. Pondering over the meditations of St. François de Sales in the Song of Songs, I seemed to feel all my faculties suspended, and crossing my arms upon my chest, I awaited in a sort of dread what might be revealed to me. . . . I saw the Redeemer veritably in the flesh. . . . He extended Himself beside me, pressed me so closely that I could feel His crown of thorns and the nails in His feet and hands, while He pressed His lips over mine, giving me the most ravishing kiss of a divine Spouse, and sending a delicious thrill through my entire body.'<sup>1</sup>

A derangement of the sexual sense is common in insanity, especially in female patients. In the days of a belief in witchcraft many poor women, labouring under hallucinations, confessed to having commerce with the devil. Male converts are less subject than female to such erotic influences, though the excesses alleged to occur at the love feasts of certain sects may be assigned to this cause. All 'conversions,' however, appear to be essentially neurotic in their nature, exhibiting during their fervid period the same tendency to fluctuate as ordinary hallucinations.

John Wesley's younger brother Charles, a valetudinarian through the greater part of his long life, in consequence, it

<sup>1</sup> Moreau: *La Psychologie Morbide*.



was believed, of having 'injured his constitution by close application and excessive abstinence at Oxford,' had two sons who, by a familiar metamorphosis of heredity, were 'among the most distinguished musicians of their age.'<sup>1</sup> The musical performances of these young men were held by some of their pious friends to be 'dishonourable to God.' Their father was less bigoted. In a letter to his brother he said: 'I am clear without doubt that my son's concert is after the will and order of Providence.' When John Wesley printed this letter after his brother's death, he added in a note: 'I am clear of another mind.' It is almost pathetic to reflect that the piety which urged John Wesley to this uncharitable conclusion was, in a scientific sense, of the same genesis as the artistic accomplishment he censured. Among the early leaders of the Methodist revival movement nerve-disorder manifested itself strongly. John Oliver was seized with a spirit of fanaticism as a boy, and afterwards became a starrng preacher. He was afflicted with a scrofulous disorder, inherited from a father who had 'a most violent temper.' Grimshaw in his unconverted state, according to Southey, 'was certainly insane.' Afterwards he was always more or less eccentric. His change of mind, which was not till he had been ten years in Holy Orders, was 'preceded by what he supposed to be a miraculous impression upon his senses,' probably a neuropathic affection, and 'the only son of this singular man became a drunkard, notwithstanding that he had been favoured with a religious education,' says his father's biographer, 'and had been prayed for by some of the holiest men in the land.' One of Wesley's pupils was a young man named Hall. He was, for a time, very pious, and married one of Wesley's sisters. By-and-by, Hall fell into strange moods and fancies. 'He publicly and privately recommended polygamy as conformable to nature, preached in its defence, and practised as he preached. Soon he laid aside all pretension to religion, professed himself an infidel, and led the life of an adventurer and a profligate at home and abroad, acting sometimes as a physician, sometimes as a priest, and assuming any character according to the humour or the convenience of

<sup>1</sup> Southey: *Life of Wesley*.

the day.' After some years, however, his piety returned, and he died in the odour of sanctity. There was much nerve-disorder in the ranks of the eminent Protestant Divines who flourished in Europe from the Reformation down to the close of the last century. Middleton's lives<sup>1</sup> abound in examples. Wickliffe died of paralysis, Melancthon's health required constant care, and Calvin was thin and consumptive. George Herbert, who was consumptive, and subject to frequent 'fevers' and other infirmities, appears to have grown more pious as he became more stricken; he was also a poet. Philip Henry, called the 'heavenly Henry,' was weakly as a child, and was subject to great excitement in the pulpit, where 'he sweated profusely as he prayed fervently;' he died of apoplexy. Harvey, who died at thirty, was such a weakly, puny object that his father did not like his becoming a minister, lest his stature should render him despicable. Hervey was weakly, and was terribly emaciated before his death. Guise became lame and blind. Toplady struggled constantly against ill-health, until he succumbed at thirty-eight.

A noteworthy circumstance from the physiological point of view is, that not a few of Middleton's worthies were, like Bunyan, irregular and wild to begin with, piety supervening upon prodigality in strict accordance with pathological principles. Some of them in their youth were given to drunkenness and profanity, others to licentiousness. Allowing for the exaggerated view which a religious biographer would naturally take of worldly proclivities, the 'conversion' of these good and gracious men is an instructive detail in mental science. Further evidence of the essentially pathological nature of religious enthusiasm is to be found in the fact that the children of extremely pious parents often turn out badly. Upon this, as upon so many other matters that seem to tell against his *protégé*, the biographer is curiously, one might almost say dishonestly reticent, but the fact is one of common observation, and is quite in accordance with the principle of the metamorphosis of heredity. The direct transmission of piety from father to son appears to be in pretty much the

<sup>1</sup> Middleton: *Biographia Evangelica*.

same ratio as that of epilepsy or any other special affection of the nervous system. Matthew Henry, son of Philip above mentioned, was devout from infancy, and precocious. At three years of age he could read and even comment upon the Bible. He was weakly when young, and is said to have further injured his constitution by 'fervent preaching' and overstudy. The mother of George Herbert was a woman of 'extraordinary piety.' Other examples might be quoted, but, generally speaking, piety appears to be the result of indirect transmission; the biographer with the best intentions in the world being unable in the majority of cases to employ more definite phrases with reference to the parentage of his subjects than that the father was a worthy man, the mother an excellent woman, and so forth. Of George Herbert's brothers one was a sceptical writer, the second a renowned duellist, and the third a dashing naval officer—the two latter showing that courage, like so many forms of genius, depends upon a congenital want of mental balance. The jumpings, contortions, and shoutings of the converted at revival meetings, are only the physical outcome of violent cerebral action. Just as anger makes a man walk sharply up and down a room and throw his arms about, so strong religious emotion passing into the motor area of the brain induces violent and aimless movements of the limbs, and the emission of senseless sounds. Much the same effect is produced by the excitement of battle, as savage war-dances and the excesses of civilised soldiery testify.

It is startling enough to find that, not only the 'lunatic and the poet,' but the successful merchant, the philanthropist, and the fervidly pious person 'are of imagination all compact.' What shall be said if, to the list, be added the criminal? Yet, in sober truth, there is every reason to believe that the habitual criminal owes his characteristics to the same set of causes as the types above named. He, too, is a man of genius in the sense that he is differently constituted from his neighbours. That criminality is congenital is shown by an overwhelming mass of evidence collected by Lombroso, Dugdale, and other investigators of the present day. In a large proportion of cases, criminals have abnormal skulls

and brains approaching the idiotic type; they are epileptic, alcoholic, and otherwise afflicted with nerve-disorder in a high degree; physical malformations and sensory defects are frequent among them. The progenitor of the infamous Jukes family in America, whose genealogical tree has been made out for seven generations, and who now number nearly six hundred individuals, all more or less stained with crime, was evidently of the neuropathic temperament. He is described as a 'hunter and fisher, a hard drinker, jolly and companionable, averse to steady toil, working hard by spurts and idling by turns, *becoming blind* in his old age and entailing his blindness upon his children and grandchildren.' In the Jukes family 'harlotry,' among other vicious proclivities, is shown to be largely due to heredity, there being among women of the Jukes blood over 20 per cent. more harlots than among other women of the same class intermarrying or cohabiting with the Jukes.

Like men of genius, criminals show a considerable inequality of faculty. They are often excessively vain and excessively addicted to venereal pleasures. While remarkably shrewd, too, in some respects, they are just as obtuse in others. 'Some young criminals,' says Barwick Baker, 'appear to have scarcely the power of determining between good and evil. Yet, strange to say, there are among them boys whom almost any schoolmaster would class as of remarkably high intelligence, their arithmetic, their knowledge of Scripture, their answers, not merely as to facts but as to reasoning, being very far above the average of boys of their age. . . . In the case of the passionate, the bad, or the idiot,' this writer adds, 'it does not seem as if punishment would have much effect.'<sup>1</sup> The truth is that punishment operates as a deterrent only in cases where there is no great departure from normal conditions; the criminal propensity may be so strong as to be ungovernable, in which case it may be classed as a true insanity.

Closely related to criminality is the ne'er-do-wellism which

<sup>1</sup> Lombroso: *L'Uomo delinquente*. Dugdale: *The Jukes; a Study in Crime, Pauperism, and Heredity*. Barwick Baker: *War with Crime*.

is so constantly found in the families of distinguished men. This condition has been shown to occur in an aggravated form in near relations of Newton, Southey, Campbell, Scott, the Brontës, Mrs. Siddons, William Herschell, Warren Hastings, Josiah Wedgwood, Balzac, and Dickens. It is the borderland between crime and genius.

## CHAPTER X

MEMORY AS AN ELEMENT OF GENIUS—AUTOMATIC ACTIVITY OF THE BRAIN—CREATIVE GENIUS AS DISTINGUISHED FROM TALENT—DREAMS OF EMINENT MEN—WAKING VISIONS—INSPIRATION—ITS PHYSICAL BASIS—THE IMPULSE TO PRODUCE—ACTIVE AND SLUGGISH GENIUSES—LITERARY STYLE—METRE AND CADENCE AS SENSORI-MOTOR EFFECTS—THE VISUAL ELEMENT IN LITERATURE—WIT AND PUNNING—THE ARTISTIC FACULTY AS AN ASSOCIATED SENSORY AND MOTOR ENDOWMENT—EXAMPLES IN MUSIC AND PAINTING—ACTING CONSIDERED AS A MOTOR SUSCEPTIBILITY—ITS INDEPENDENCE OF INTELLECT—MILITARY GENIUS AND EPILEPSY—BRAIN-MECHANISM OF THE ORATOR, THE STATESMAN, THE PHILOSOPHER, THE MAN OF SCIENCE, THE PHILANTHROPIST, THE RELIGIOUS ENTHUSIAST, THE MAN OF BUSINESS, THE NE'ER-DO-WELL, THE MISER, AND THE CRIMINAL

THE external manifestations of genius having been set forth in some detail, there remains to be considered its action in the individual, with special reference to the character of his work. This brings us back to the subject of brain-structure, where alone the solution of such problems as reason, judgment, imagination, and inspiration is to be sought. As we have seen, there are many grounds for believing that our sensations are represented by so many groupings of nerve-cells and fibres in the brain, that ideas consist of organic cohesions or associations among such groupings, and that the so-called exercise of reason, judgment, or will is an automatic struggle for predominance between revived and associated impressions, one set of which finally asserts itself, and is translated into action. If all brains were constituted alike, all men would think and feel alike. But this is not so. As there are diversities of brain-structure, so there are diversities of intelligence and intellect. Before a sight, a sound, or a touch can become an idea, it

must be coupled with other sensations or movements to which it is in some way related; there must be a cohesion formed between the present sensation and a group more or less extensive of past sensations; and just in proportion as these associations are readily established and far-reaching, will the person's ideas be simple or complex. The individual, therefore, is clever or stupid, sharp or dull, according to the receptivity of his centres of sense and the facility with which in these, hosts of associated feelings can be summoned up. The centres of the sensations which accompany muscular action and which form in part the basis of our ideas of movement would appear to be distinct from the motor centres themselves and to be merely associated with these. The destruction of the motor centres in the gray matter paralyses the power of execution, but not the ideal conception of the movement itself. For a dog with its motor centres destroyed has a distinct notion of the movements desired when asked to give a paw, though it makes only ineffectual struggles to comply with the demand. Nevertheless, highly developed and susceptible motor centres necessarily re-act upon our sensations and thus assist in the production of thought.

If an ordinary man were to be suddenly equipped with the brain of a Shakespeare, he could not for many years be as witty or as wise as his prototype, because he would have no fund of past experience or observation to go upon. He would have to accumulate his knowledge before he could apply it. A good memory is an essential element of genius. Macaulay's memory is proverbial. Ben Jonson's must have been nearly as good, for until he was forty, as he tells us, he could repeat all that he had ever written and whole books that he had read. Niebuhr, the historian, restored from recollection a large book of accounts that had been accidentally destroyed in one of the public offices of Denmark. Gibbon, Pascal, Leibnitz, Burke, and many other eminent men, are noted for their memories. It is said that Themistocles could call by their names the 20,000 citizens of Athens, and that Cyrus knew the name of every soldier in his army.

The nerve-cells of the brain are not merely retentive,

they may also be spontaneously active, and without any external stimulus throw into all sorts of shapes and combinations the existing material of thought. This is the secret of the hallucinations of insanity, and there is no doubt that the same excitability of the nerve-cells of various regions of the brain is the cause of what is called creative genius. A choleric temperament like Walter Savage Landor's represents a rapid discharge of nervous energy. Many men of genius are of very active habits, and an excess of energy in the motor area of their brain is no doubt a necessary condition of their productiveness. If the sensory centres alone are active, the individual will pass his life amid visions and reveries which he will not exert himself to give to the world in the shape of poetry, fiction, or art. On the other hand, activity may be confined to the motor regions, in which case we have a fussy, bustling personage, whose energy expends itself to no purpose, having no basis of observation to work upon. In order that genius may incontestably assert itself, there must be a special excitability of both the sensory and motor areas of the brain. The energy so manifested may be rapid and temporary, or slow and persistent. In the former case we have men of brilliant achievements, like Shelley, Byron, and Brougham; in the latter, slow and laborious workers like Wordsworth and Flaubert. When the spontaneous activity of the nerve-cells is great the condition of the brain is a morbid one; whence the close relationship of genius to insanity.

The following notes by a medical man of the course of an insane patient's ravings, illustrate most aptly both the spontaneous generation of ideas in the brain and the mechanical process whereby one train of thought is associated with another:—'Bring the tea—tea comes from China—wall of China—wall *mur*, *muraille*, difference between them in French—French habits—habit a coat—long-tailed coats for soldiers—jackets—division of Spaniards into jacquitos and habitos—civil war—murder of Cabrera's mother—mother a widow—widows—suttee—cremation—Inquisition—Catholic faith—Pope of Rome—Capitol—Tarpeian Rock—mode of punishing criminals—Central Criminal Court—Court of Victoria—visit to the King of France—Queen Bess—female sovereigns



—lady who thought herself Mary Queen of Scots—Highland dress not ancient—introduced by an Englishman—Englishmen all over the globe—Colonies best resource of the poor—Poor Law—introduced by the Whigs—Whigs and Tories—origin of the names—surnames from trade—state of trade—Board of Trade—Board of Green Cloth—green—composition of light—polarisation—Poland—sympathy with Poland—nerves and muscles—poisoning from mussels—poisoning—new style of novel writing—printing has superseded writing—printing reports—cannon—attack on Afghanistan—Progress of British Empire—Emperor—Napoleon—snows of Russia—Russian leather—binding—Bodleian Library.<sup>1</sup> And in the delirious rapidity of thought, peculiar to the insanity that arises from over-excitability of the nerve-cells, not only is the patient unable to control his ideas, but his mechanism of articulation is strained to the uttermost by the rapidity of its action.

Nicolai, whose hallucinations have already been referred to, found that the figures he saw before him came and went without his being able to control them. 'The phantasms,' he remarks, 'appeared to me involuntarily, as if they had been presented externally like the phenomenon of nature, though they certainly had their origin internally.' Similar observations were afterwards made by a medical man named Bostock, to whom, after a period of nervous prostration, figures like those of Nicolai appeared. What chiefly struck Bostock was that the figures which were best defined and longest visible were such as he had no recollection of having previously seen. 'For about twenty-four hours,' he says, 'I had constantly before me a human figure, the features and dress of which were as distinctly visible as those of my real existence, and of which, after many years, I still retain the most lively impression; yet neither at the time nor since have I been able to discover any person previously known to me who resembled it.' It is proved by the experience of hypnotic patients that many impressions are made upon our senses of which we are unconscious, and no doubt Bostock at some time or other saw the figure he speaks of. He may have

<sup>1</sup> Wigan.

seen, indeed, only the component parts of it, for the spontaneous action of the nerve-cells is capable of blending several past impressions into one, as when an insane patient sees floating before him portions of human faces and bodies which suddenly combine to form a grotesque and impossible whole. All images and ideas that pass through the mind are necessarily either revivals in whole or in part of actual sensory impressions, or of their induced effects. An image may rise before us different from anything we have actually seen, but it will be found to have been suggested by something in our past experience through the faculty whereby we discriminate the like and the unlike.

Dreams, in all their variety, are the product of the automatic action of the brain. 'The degree of the soul's creativeness in sleep,' says Lamb, 'might furnish no whimsical criterion of the quantum of poetic faculty resident in the same soul waking.' The remark is absolutely just. A brain well stored with impressions will always furnish richer dreams than one which is less susceptible. It was only a Coleridge who could have dreamt the poem of Kubla Khan. Coleridge's account of the origin of this poem is as follows:—'In the summer of the year 1797, the author, then in ill-health, retired to a lonely farmhouse on the confines of Somerset and Devonshire. In consequence of a slight indisposition an anodyne had been prescribed, from the effect of which he fell asleep in his chair at the moment that he was reading the following sentence in Purchas's Pilgrimage:—"Here the Khan Kubla commanded a palace to be built, and a stately garden thereunto, and thus ten miles of fertile ground were enclosed with a wall." The author continued for about three hours in a profound sleep, at least of the external senses, during which time he has the most vivid confidence that he could not have composed less than from 200 to 300 lines, if that, indeed, can be called composition in which all the images rose up before him as things, with the parallel production of the correspondent impressions without any sense or consciousness of effort. On waking he appeared to himself to have a distinct recollection of the whole, and taking his pen, ink, and paper instantly and eagerly wrote down the

lines that are here preserved.' Before he had transcribed much of his poem, Coleridge was called away, and on resuming his task some time afterwards he found to his mortification that, 'with the exception of some eight or ten scattered lines, all the rest had passed away like the images on the surface of a stream into which a stone is thrown.'

Southey's dreams are remarkable for their originality, and show what wild work may go on in a brain which is morbidly excitable. They are all such conceptions as might originate with a madman. For example: He dreamt that he met a human head which had been so born, without any body belonging to it. Afterwards he thought he was in a castle where there were several such heads, well born and enjoying respect and all the comforts that could be given them. They were sustained by odours, and had all the pleasures of taste, but swallowed nothing, and they had power enough of motion to turn themselves as they liked. Equally fantastic was the dream that he had been left a legacy of ten thousand pounds on condition that he should never wear breeches, pantaloons, trousers, or any description of that masculine garb, and that he was deliberating whether to adopt Moorish or Highland dress, though afraid the former would not be allowed. The following is pictorially vivid:

'I thought a fiend and a good spirit were shooting arrows at each other, many of which fell near me, and I gathered them, and endeavoured to shoot at the fiend also, who was very little, but never could get them to fit the bow. The good spirit at last heaped coals and peat upon the head of his enemy, so as to bury him completely till he, by the fieriness of his nature, kindled them and they blazed and burned, burning him who yet could not be consumed.'

And here are all the elements of a romance:—

'To my great surprise I discovered that my wife had a former husband living. He was either by birth or descent a Spaniard, but in the English army. He had been dotingly fond of her, and she of him, till in some action he received a musket ball in his leg, which, as long as it remained there, rendered him feeble, and he would not suffer it to be extracted because some old woman had told him it would be fatal.

Upon this he abandoned his wife. I now, however, understood that he was perfectly recovered. The way I learnt this was by seeing a Spanish grammar, so philosophically and ably arranged as to make me inquire for the anonymous author, who proved to be this person. Upon questioning Edith she said it was all true. . . . I asked her if I should write to him or find him out. She said no, because she still felt a regard for him which he did not deserve.'

Dr. Johnson says: 'I was often during sleep engaged in controversial discussions, and whilst recognising that my antagonist occasionally had the best of the conflict, I entirely forgot that my own arguments as well as those advanced by my opponent were supplied by myself.' Newton is alleged to have solved a subtle mathematical problem while sleeping, and Condorcet recognised in his dreams the final steps in a difficult calculation which had puzzled him through the day. Hartley Coleridge's dreams were intensely painful. 'There are figures always at me in my dreams,' he writes, 'hooting, pelting, spitting at me, stopping my way, setting all sorts of hideous, scornful faces at me, oppressing me with indescribable horrors, to which waking life has no parallel.' Shelley also had vivid and distressing dreams, which he has not left on record.

Apart from actual hallucinations there are waking experiences as vivid and as fantastic as any dreams. Examples of what Galton calls the visualising faculty prove how, by the automatic activity of the nerve-cells of the brain, conscious and unconscious memories are worked up into new and startling combinations. 'When passing a shop in Tottenham Court Road,' says a correspondent, 'I went in to order a Dutch cheese, and the proprietor, a bullet-headed man whom I had never seen before, rolled a cheese on the marble slab of his counter, asking me if that one would do. I answered yes, left the shop, and thought no more of the incident. The following evening on closing my eyes I saw a head detached from the body rolling about slightly on a white surface. I recognised the face, but could not remember where I had seen it, and it was only after thinking about it for some time that I identified it as that of the cheesemonger who had sold me

the cheese on the preceding day. I may mention that I have often seen the man since, and that I found the vision I saw was exactly like him, although, if I had been asked to describe the man before I saw the vision, I should have been unable to do so.'

Still more remarkable is the recorded experience of a well-known clergyman. Whenever he shuts his eyes and waits he is sure in a short time to see before him the clear image of some object or other, but usually not quite natural in its shape. It then begins to change from one form to another, and continues to do so as long as he cares to watch it. One of these initial images seen by him was a cross-bow. This was immediately provided with an arrow remarkable for its pronounced barb and superabundance of feathering. Some person, but too indistinct to be recognised except in the hands, appeared to shoot the arrow from the bow. The single arrow was then accompanied by a flight of arrows from right to left, which completely occupied the field of vision. These changed into falling stars, then into flakes of a heavy snow-storm; the ground gradually appeared as a sheet of snow, where previously there had been vacant space. Then a well-known rectory, fish pond, walls, etc., all covered with snow, came into view most vividly and clearly defined. The rectory suggested a bed of tulips. These all vanished, except one, which gradually became denuded of its petals until only the stump was left. And so on. When this process is in full activity the writer says he feels as if he were a mere spectator at a diorama of a very eccentric kind, the succession of images refusing to be modified or interfered with by the will. The same writer gives another example. He thought of a gun. The stock immediately came into view, the metal plate and wood-work being very distinct. As he was scrutinising it, the stock oscillated up and down and crumpled up, turning into something like a tuning fork. He then proceeded to examine the lock and get it well into view, the rest of the gun disappearing. It turned out to be an old-fashioned flint-lock. It immediately began to nod backwards and forwards in a manner suggestive of the beak of a bird pecking. Consequently it became forthwith converted into

*Note**Note*

the head of a bird with a long curved beak, the knob on the lock becoming the head of the bird. He then looked to the right, expecting to see the barrel, but the snout of a saw-fish, with the tip distinctly broken off, appeared instead. He had not thought either of a flint-lock or of a saw-fish, both came spontaneously.<sup>1</sup>

In all minds of a creative turn some process like that above described is constantly going on, though it may not always come within the scope of consciousness. The old material of thought is being constantly moulded afresh. Old material it is, inevitably. Nothing absolutely new ever is or can be evolved by the automatic action of the sensory centres, which, from their nature, can only be concerned with impressions already received in one form or another from the outer world. Hence the highest conceptions of genius must have some actual basis of observation to go upon, and the richer a person's stores of observation, the more retentive of their impressions his various sensory centres are, the better he is equipped for the creative operations of the intellect. In all De Quincey's visions<sup>2</sup> the reader can perceive how fragments of conscious memories in his brain are worked up into fantastic images, each with a power of seemingly endless growth and self-reproduction due to unconscious memories. The visions of the English opium-eater are those of a man who has read history and who has a literary knowledge of the East; they are revivals of images and conceptions that have passed through his brain in his waking hours. For the function of opium is to arouse not only known, but all sorts of unknown, that is to say, forgotten or unsuspected, nerve-groupings in the brain—memories which have never been vivid or consistent enough to make us conscious of them. These lie buried in the living tissue of the cerebral substance, but are ready to be revived, like invisible ink, in due season. The dreams of the opium-eater necessarily take shape from his own sensory impressions; they are portions of his past sensory impressions, conscious or unconscious, recalled into a state of activity. To have the visions of a De Quincey one

<sup>1</sup> Galton: *Inquiry into Human Faculty*.

<sup>2</sup> De Quincey: *Confessions of an English Opium-eater*.

must have the general reading and knowledge of a De Quincey. The reveries of the illiterate Malay sailor to whom De Quincey once gave a dose of his drug, would differ from those of the author of the 'Confessions' almost as widely as the dreams of the rabbit in his warren differ from those of the fox in his hole. There would be an entirely distinct order of cerebral memories aroused in each case.

The mysterious gift of inspiration, essential to all literary and artistic genius, is evidently nothing but the automatic activity of the nerve-cells of the brain—a phase of that morbid condition which finds its highest expression in insanity. For this reason inspiration can never carry us beyond the limits of experience. Milton's archangels are only disguised men. They are animated by purely human motives, and their warfare is based upon the strategy of human battles; while the poet's conception of the universe is in accordance with the Ptolemaic system, which was generally accepted in his day. If the most highly gifted writer of fiction attempted to describe the inhabitants of another planet, he would inevitably draw upon his experience of human or animal life. The Deity himself has a human shape assigned to him by the loftiest imaginations.<sup>1</sup> When Milton wrote 'Paradise Lost' he was blind, but the imagery he employed in it was that which he had stored up while he had the use of his eyesight; it is very largely visual. Had he been born blind, the poem would not have been written or must have taken a wholly different shape. Again, Dante wrote in an age when tortures were commonly practised by rulers; hence his conception of hell and purgatory, which he would inevitably have modified had he been writing at the present day.

The difference between genius and talent may be thus defined. In genius there is a spontaneous morbid activity of the nerve-cells and fibres of the brain whereby new combinations of sensory impressions and memories are constantly being formed. This condition is identical in kind with that

<sup>1</sup> In *Paradise Lost* Raphael tells Adam that God 'did wisely' not to divulge his secrets to be scanned by those who ought rather to admire, and that if they choose to conjecture, he has perhaps left the fabric of the universe to their disputes in order that they may 'move his laughter' by their quaint opinions.

which obtains in certain forms of insanity; but whereas in the latter case the nerve-connections or memories which enable the patient to keep in touch with his surroundings are weakened or destroyed, in genius such connections remain intact. Hence, while the lunatic's actions are uncontrolled by past or present experiences, owing to his having no sufficient basis of comparison to go upon as between the real and the ideal, the man of genius, with similar conceptions seething in his brain, is held in check by his actual perceptions, and is more or less amenable to ordinary human motives. Talent, on the other hand, implies a great extension of the basis of comparison owing to the multiplicity of the memories which may be aroused by a given stimulus; the nerve-connections existing between the various centres are very complete and active, but there is little spontaneous activity in the nerve-cells, and consequently little of the creative faculty. Originality of thought is a characteristic of talent as well as of genius, and is due to a wider faculty of discrimination between the like and the unlike; a more extensive nerve-connection than exists in average brains. In the superior forms of genius there would seem to be present all the conditions of talent with a spontaneous overflow of nerve-energy in addition. Owing to the complexity of the brain-functions, however, there is room for infinite shades or degrees of both genius and talent. Both states of mind, when in excess, are probably morbid. Genius is unquestionably so, entailing as it does the same instability of the nervous system and being attended by the same train of functional disorders as positive insanity.

It is a characteristic of the creative mind that its possessor is, in some sort, impelled to produce. He cannot help himself, he is the victim of his organisation. 'The author,' said Beaconsfield on one occasion, 'is a being with a predisposition which is irresistible, a bent which he cannot in any way avoid, whether it drags him to the abstruse researches of erudition or induces him to mount into the fervid and turbulent atmosphere of imagination.'<sup>1</sup> This is proved by the early ex-

<sup>1</sup> Beaconsfield: *Speech at the Anniversary of the Royal Literary Fund*, 1868.

Genius  
talent



periences of many men of genius, who have followed their bent despite unfavourable surroundings and often in the face of violent opposition from their parents. An instructive glimpse of the creative mind is given us by Bulwer Lytton, who, writing at the age of forty-two, says: 'For sixteen years I can conceive no life to have been more filled with occupation than mine. What time was not given to action was given to study, what time not given to study, to action—labour in both! To a constitution naturally far from strong I allowed no pause or respite. The wear and tear went on without intermission, the whirl of the wheel never ceased. Sometimes, indeed, thoroughly overpowered and exhausted, I sought for escape. The physicians said "Travel," and I travelled, "Go into the country," and I went. But at such an attempt at repose all my ailments gathered round me—made themselves far more palpable and felt. I had no resource but to fly from myself—to fly into the other world of books or thought or reverie, to live in some state of being less painful than my own. As long as I was always at work it seemed that I had no leisure to be ill. Quiet was my hell.'<sup>1</sup>

The foregoing extract illustrates curiously enough what has been said about the will. The writer thinks that his action was voluntary. 'To a constitution far from strong,' he remarks, 'I allowed no pause or respite.' In reality the automatic forces of his brain drove him to what he did. Among the private papers of Bulwer Lytton was found a criticism of his own character, written at the age of forty-three, in which a further illustration of this argument presents itself. 'Thought,' says the writer, 'is continually flowing through my mind. I scarcely know a moment in which I am awake and not thinking. Nor by thought do I mean mere reverie or castle building, but a sustained process of thinking. I have always in my mind some distinct train of ideas which I seek to develop, or some positive truth which I am trying to arrive at. If I lived for a million years I could not exhaust a millionth part of my thoughts.'

Defoe believed that the premonitions he sometimes felt as to coming events were spirit warnings, and a passage in

<sup>1</sup> Bulwer Lytton: *Confessions of a Writer Patient*.

his works bearing upon this subject may be taken to illustrate the automatic character of his inspiration. 'I have never,' he writes, 'had any considerable mischief or disaster attending me, but, sleeping or waking, I have had notice of it beforehand; and had I listened to these notices I believe I might have shunned the evil. Let no man think this is a jest.' He further says, 'I know a man who made it a rule to obey these silent hints, and he often declared to me that when he obeyed them he never miscarried.' This man, —, there is good reason to believe that Defoe means himself; at all events, he seems to write from his own experience. — came under the ban of a Government prosecution, and was much perplexed as to what he should do. 'In this extremity,' writes Defoe, 'he felt one morning just as he had waked and as thoughts of his misfortune began to return upon him, I say he felt a strong impulse darting into his mind, thus: "Write a letter to them." It spoke so distinctly to him, and as it were forcibly, that, as he has often said since, he could scarcely persuade himself to believe but that he heard it; but he grants that he did not really hear it too. However, it repeated the words daily and hourly, till, at length, walking about in his chamber where he was hidden, very pensive and sad, it jogged him again, and he answered aloud to it as if it had been a voice: "Whom shall I write to?" It returned immediately, "Write to the judge." This pursued him again for several days, till at length he took his pen, ink, and paper.' He was puzzled what to say, but on beginning to write, 'the words flowed upon his pen in a manner that charmed even himself,' and the letter was instrumental in averting the prosecution.

Mrs. Gaskell says of Charlotte Brontë that it was not every day that she could write. Sometimes weeks, or even months, elapsed before she felt that she had anything to add to that portion of her story which was already written. Then some morning she would waken up, and 'the progress of her tale lay clear and bright before her, and she had only to sit down and write out the incidents and consequent thoughts, which were, in fact, more present to her mind at such times than her actual life itself.'

Whether the creative power is active or sluggish would seem to depend upon a greater or less degree of energy in the nerve-cells. Both conditions are met with among distinguished men of letters. Irritated by current reports that he was suffering from mental aberration, Byron said to Nathan, who set the 'Hebrew Melodies' to music, that he would try for once to write like a madman. Hastily seizing the pen, he stared for a moment into vacancy and then wrote down, as if by a flash of inspiration, and without erasing a single word, the beautiful verses beginning:—

My soul is dark—oh ! quickly string  
The harp I yet can brook to hear ;  
And let thy gentle fingers fling  
Its melting murmurs o'er mine ear.

There was nothing laboured in Hartley Coleridge's inventions. 'Intense, glowing, ever-kindling genius,' says Townshend, 'breathed in every word he uttered. Originality was the life and soul of his most common converse.' And, as with Hartley Coleridge's conversation, so with his written compositions. 'His poems,' says his brother Derwent, 'including the best, were thrown off with the greatest facility and in the most casual manner. . . . At any hour, in any place, or in any company if the fit took him, he would ask for a scrap of paper and produce a short piece of poetry, perhaps a sonnet, often of very perfect construction.' He had a great contempt for what he called 'baker's poetry,' poetry that had to be kneaded and pounded by its author. His own thoughts, according to his friend Thomas Blackburne, 'always came out finished cap-a-pie like a troop in quick march.'

Byron assured Leicester Stanhope that the gift of poetry had 'burst upon his mind unexpectedly,' and had excited his wonder, as he was not previously conscious of its possession. Goethe found himself impelled to turn into an image or a poem everything that delighted or troubled him, and Coleridge 'from childhood' was accustomed to 'abstract, and as it were unrealize,' whatever of more than common interest his eyes dwelt upon, and then, 'by a sort of transfusion and transmission of his consciousness, to identify himself with the

*of his character.*

object.' Brougham wrote with extreme rapidity. There seemed to be no bounds to his energy or to the impetuosity of his spirit. His accomplishments were manifold and dazzling. It was said of him that if a new language were discovered in the morning, he would be able to talk it before night, and that if locked up in the Tower without a book he would be able to write an encyclopædia.

The foregoing examples represent a very high degree of morbid excitability. Wordsworth's brain, on the other hand, had little of the actual glow of insanity, though sensitive to rhythm and harmony. He had to slowly grind out his grandest poetry, and had few compensatory bursts of inspiration. He records as a remarkable feat of fancy his shaping out a single sonnet off hand. His sister's journals are full of lamentations over the sad hours he passed at his desk when out of the mood, hunting with a dismal sense of failure after thoughts and expressions that eluded him. Though a vigorous pedestrian and indifferent to weather, a trifle would interfere with his literary work, such as the pinch of a tight shoe.

In literary and poetic genius there would seem to be a considerable excitability of the visual centre, with more or less extensive cohesions in other centres. Describing in 'Facino Cane' his own early life, Balzac says: 'Observation had become to me intuitive. It penetrated the spirit without neglecting the body; or, rather, it seized external details so clearly, that it immediately went beyond them. It gave me the power of living the life of any individual upon whom it was exercised, and permitted me to substitute my personality for his. . . . While listening to the poor people around me, I espoused their life. I felt their rags on my back, my feet marched in their tattered shoes; their desires, their needs all passed into my spirit, and mine into theirs; it was the dream of a waking man. . . . To relinquish my identity, to become another through the intoxication of the moral faculties, and to play this game at will, such was my sole distraction. I have sometimes wondered if this gift were one of those whose abuse leads to madness, but its causes I have never sought. I know merely that I possess and make use of it.'

Balzac's characters were as realistically vivid to him as people of flesh and blood, and he spoke of them as friends and acquaintances. 'I am going to Alençon,' he would say; 'you know Mdlle. Cormon lives there,' or, 'I am off to Grenoble, the abode of M. Benassis.' 'Let us talk of realities,' he one day said to Jules Sandeau, 'let us talk of Eugénie Grandet;' and at another time, when his sister asked him for some information about Captain Jordy, Balzac replied very simply, 'I never knew the man before he came to Nemours, but if he interests you I will try to learn something of him.'

'Dickens once declared to me,' says George Henry Lewes,<sup>1</sup> 'that every word said by his characters was distinctly heard by him,' and the eminent critic accounts for the novelist's vividness of imagination, much to the disgust of Dickens's biographer, John Forster, by a theory of hallucination. 'When he (Dickens) imagined a street, a house, a room, a figure, he saw it not in the vague schemetic way of ordinary imagination, but in the sharp definition of actual perception, all the salient details obtruding themselves on his attention. He, seeing it thus vividly, made us also see it, and believing in its reality, however fantastic, he communicated something of his belief to us. So definite and consistent was the image, that even while knowing it was false, we could not help for a moment being affected, as it were, by his hallucination. . . . The imagination of the author laid hold of some well-marked physical trait, some peculiarity of aspect, speech, or manner which everyone recognised at once; and the force with which this was presented made it occupy the mind to the exclusion of all critical doubts; only reflection could detect the incongruity. . . . Dickens sees and feels, but the logic of feeling seems to be the only logic he can manage. I do not suppose a single thoughtful remark on life or character could be found throughout his twenty volumes. Keenly as he observes the objects before him, he never connects his observations into a general expression. Compared with that of Fielding or Thackeray his was merely an animal intelligence, *i.e.* restricted to perceptions.' The hallucination theory of Dickens's art is

<sup>1</sup> *Fortnightly Review*, February 1872.

supported by a letter of his to Forster. 'May I not be forgiven,' he writes, 'for thinking it is a wonderful testimony to my being made for art, that when in the midst of this trouble and pain I sit down to my book, some beneficent power shows it all to me and tempts me to be interested, and I don't invent it—really do not—but *see it* and write it down?'

What seems to limit Dickens's genius is the fact that while his perceptions are vivid, their cohesions in the brain are not extensive, and, unlike those of Balzac, for example, embrace no profound experiences of human nature. Scott's genius is also largely pictorial. He draws his materials from history and legend, but the automatic activity of his brain blends so many impressions that his picturesque scenes deviate widely from the pattern of past realities; and while he is not without a shrewd knowledge of the world he depicts rather the actions of men than their motives. Yet with all the spirit Scott had none of the executive faculty of the painter. 'The humble ambition which I long cherished of making sketches of those places which interested me was,' he writes, 'totally ineffectual. After long study and many efforts I was unable to apply the elements of perspective or of shade to the scene before me, and was obliged to relinquish in despair an art which I was most anxious to practise. But show me an old castle or a field of battle and I am at home at once, filling it with its combatants in their proper costume and overwhelming my hearers by the enthusiasm of my description. In crossing Magus Moor, near St. Andrews, the spirit moved me to give a picture of the assassination of the Archbishop of St. Andrews to some fellow travellers with whom I was accidentally associated, and one of them, though well acquainted with the story, protested that my narrative had frightened away his night's sleep.' Scott's defect evidently lay not in the visual centre of his brain, but in the nerve-connections between that and the motor apparatus for the hand.

Given morbid conditions of the brain a conceived idea may assume the force and vividness of a fact. It is a common delusion among the insane that they have taken part in great

historical events. George IV. was convinced that he had fought at the Battle of Waterloo, and was accustomed to call upon the Duke of Wellington to corroborate him. Balzac described with enthusiasm to Madame Delphine Gay a superb white horse which he wished to present to Sandeau. A few days afterwards he believed that he had really given the horse, and meeting Sandeau asked him how the animal was doing.<sup>1</sup> Gustave Flaubert, like Dickens, had remarkably quick perceptions intimately associated with each other. While describing the death by poison of his famous character Emma Bovary, he felt the taste of arsenic so sharply in his mouth that he made himself ill and vomited his dinner.<sup>2</sup> His epileptic visitations were a dread to him, but the 'poetic vision' he frequently experienced with pleasure. 'Very often,' he observes, 'it comes slowly, bit by bit, like a scene set on the stage. At other times, however, it is sudden and fleeting. Something passes before your eyes and it must be seized quickly or it is lost.' Théophile Gautier, passing by the Vaudeville Theatre in Paris one day, noticed on the printed bill a commonplace phrase which stuck in his memory. He found himself repeating it mechanically. After a time it sounded in his ear as if uttered by a third person in a clear and distinct voice; and this continued intermittently for several weeks. From the repetition of a single phrase, such voices readily pass into a threatening key, make prolonged and more or less appropriate remarks, order the patient to do this or that, and finally assume all the characteristics of an insane hallucination.

Shakespeare's perceptions must have been extraordinarily keen and persistent. His mind must have photographed everything he saw. Natural scenery, natural objects, human character, society and its usages—all must have been vividly impressed upon his brain, and there associated with extensive and hardly less vivid memories. Probably had we known the man we should have discovered that he had limitations. All we can gather from his writings is that his surroundings must have impressed him with a force out of all proportion to the attention he could have given them, and that his

<sup>1</sup> Taine : *De l'Intelligence*.

<sup>2</sup> *Ibid.*

impressions being retained must have furnished him with an enormous amount of intellectual material and a basis of comparison infinitely greater than that possessed by ordinary men. He seems to have been untravelled, and to have had but a moderate knowledge of books; yet by dint of his acquisitions—mainly visual in their origin, but extensively cohering together and thus creating a great identifying or constructive faculty—he was able to people foreign scenes and the ancient world with appropriate characters, and to supply them with incidents to match. Such immense creative power as Shakespeare's can only be understood in connection with a morbid impressionability. Walter Scott and Charles Dickens, of all English authors, have probably drawn the largest number of distinct characters after Shakespeare, and their imaginative faculty, as we have seen, was associated with an extremely unsound condition of the nervous system. Thomas Kenny, although ignorant of this physical aspect of genius, makes some suggestive observations upon Shakespeare's character as a man. Accepting the sonnets in common with most English commentators as pure autobiographical material, Kenny finds that they exhibit throughout a 'teeming, unchecked, more or less disordered profusion of thought and imagery in the mind of the writer,' and from Shakespeare's unparalleled faculty of transporting himself into the state of mind of every species of human being, he concludes that the poet cannot have possessed a very resolute character of his own.<sup>1</sup>

From the absence of all mention of him by his contemporaries outside a small theatrical circle, it is indeed not unlikely that Shakespeare may have looked a comparatively insignificant person, gliding through life quietly and unpretentiously. Masson, after a close analysis of his works, comes to the conclusion that he was 'essentially a meditative, speculative, and, even in his solitary hours, an abject and melancholy man, rather than a man of active, firm, and worldly disposition.' Instead of being a calm, strong observer of life and nature, a 'bird singing on the bough,' as Carlyle puts it, he was, in Masson's view, 'a man of the gentlest and

<sup>1</sup> Thomas Kenny: *Life and Genius of Shakespeare*.



most troublesome affections; of sensibility abnormally keen and deep; full of metaphysical longings; liable above most men to self-distrust, despondency, and mental agitations from causes internal and external; and a prey to many secret and severe experiences which he did not discuss at the Mermaid Tavern.<sup>1</sup> Physically and mentally this is precisely what a man of Shakespeare's surpassing genius might be expected to be.

Style, so important an element of literary genius, consists in the choice of words, images, metaphors, and illustrations appropriate to the subject in hand. It has its basis in our sensory and motor cohesions, and is therefore dependent upon the reciprocal action and retentiveness of the several centres of the brain. The great writer is one who has a profusion of words at his command, together with a great stock of observation, and who is able out of the plenitude of his resources to convey the exact shade of meaning he desires—to communicate to others the precise effect, pictorial or comparative, which has been produced by something upon his own mind. A necessary part of the faculty of choosing the right word is to be able to discriminate between the associations of one word as compared with those of another which may have pretty much the same meaning. Such associations may be extremely delicate, in many cases almost indefinable. 'Acute' and 'sharp' are obvious examples of a distinction without much fundamental difference. Most people know or feel which of the two in a given connection is the more suitable. It is less easy to say why 'plenitude' is sometimes a better word than 'fulness,' or 'stupendous' than 'vast,' though every skilful writer prefers one or the other according to circumstances.

Some remarks by George Henry Lewes<sup>2</sup> on the difficulties of making an adequate translation of poetry, illustrate the delicate effects of association and suggestion in the use of words, effects of which the poet's mind takes account. The line,

The river wanders at its own sweet will,

<sup>1</sup> David Masson: *Essays Biographical and Critical*.

<sup>2</sup> *Life of Goethe*.

is not adequately rendered by this other, although the meaning is the same :

The river runneth free from all restraint.

In the first case, a landscape is somehow brought before the mind, probably by the word 'wander' in conjunction with a river. The words of the parody, on the other hand, have only bad associations. 'Runneth,' 'free,' and 'restraint' are in no way associated with rural scenery, but rather with Bow Street or the Old Bailey. Walter Scott speaks of the verse of an old ballad which haunted his boyhood. It is this :

The dews of night began to fall.  
The moon, sweet regent of the sky,  
Silvered the walls of Cumnor Hall  
And many an oak that stood thereby.

Lewes renders the verse as follows, and asks, as well he may, 'Where is the poetry of it?':

The nightly dews commenced to fall.  
The moon, whose empire is the sky,  
Shone on the walls of Cumnor Hall  
And all the oaks that stood thereby.

The beauty and the force of the original lie mainly in the phrases 'sweet regent,' which gives the moon a personality, 'silvered,' which pictorially represents the effect of her light, and 'many an oak,' which conveys a sense of vagueness and romance incompatible with such a precise and matter-of-fact statement as 'all the oaks.'

In general, that style is clearest and best which enables the nerve-currents in the reader's brain to travel along easy and direct tracks. Long parentheses or suspensions of the interest are fatiguing from the greater expenditure of nerve-energy required to establish the necessary organic cohesions in the brain, and for the same reason, vague, abstract terms call for a greater effort on the reader's part than direct word-pictures. To 'send a man to prison' is a more forcible expression than to 'punish him in accordance with the regulations of the penal code.' 'Beware of the bottle' is better than 'be careful not to indulge excessively in intoxi-

cating fluids.' A word learnt and used in childhood has more meaning to us as a rule than one acquired in after life, the reason being that it lies upon a well-established track of nervous impulse, and has easily aroused associations. The fancied superiority of Latin to Saxon English is only a question of early use. It so happens that an English child's vocabulary is almost wholly Saxon. Hence, 'sour' has always more forcible associations in the average Englishman's mind than 'acid,' though to a Frenchman who has learnt English the cases are reversed. The words of a foreign language seldom become as vivid to us as those of our mother tongue, but increasing familiarity with them brings increased rapidity and ease of comprehension.

A good style of writing is one that is constantly arousing pleasing and illustrative associations. To express everything overloads the reader's mind with detail. The skilful writer feels how much may be left to the average reader's imagination, and is careful not to say more than he need for the purpose in view. Much of the effect of style depends upon the sequence of the ideas presented, and there is also the music of language to be considered—the rhythmic effect of words and phrases upon the ear. All these niceties of writing are governed by the degree of the susceptibility of the writer's brain, the physical basis of language being the innumerable nerve fibres that run between the visual, auditory, and articulatory centres. The enjoyment of a good style by the reader necessarily depends, of course, upon the reader's own faculties. If he has no associations, his author cannot be expected to stir them into activity.

It may further be laid down that the extreme sensibility which raises the individual's faculties of perception and expression to the level of genius is a morbid condition, which, if it were not demonstrated by the pathological history of great men, could still be proved from the records of insanity. Gérard de Nerval, the friend of Théophile Gautier and Gustave Flaubert, in the lucid intervals of an insanity which afflicted him from his youth upwards, and which terminated in his suicide, was a prolific writer of fiction, and his colleague, Maxime du Camp, pointedly observes that he possessed 'a

great *finesse* of style' and a rare gift of 'subtle observation,' as, indeed, every reader of his works will acknowledge.

Nothing is more remarkable in Shakespeare than the easy flow of his language. 'Abundance, ease, redundance,' observes a literary critic, 'a plenitude of word, sound, and imagery which, were the intellect at work only a little less magnificent, would sometimes end in sheer braggardism and bombast, are the characteristics of Shakespeare's style! On and on the poet flows: words, thoughts, and fancies crowding upon him as fast as he can write, all related to the matter on hand, and all poured forth together, to rise and fall on the waves of an established cadence. Such lightness and ease in the manner, and such prodigious wealth and depth in the matter, are combined in no other writer.' The little we know of Shakespeare the man attests his extraordinary fluency. Ben Jonson says: 'I remember the players have often mentioned it as an honour to Shakespeare that in his writing he never blotted out a line.' 'Shakespeare,' his brother poet adds, 'had an excellent phantasy, brave notions, and gentle expressions, *wherein he flowed with that facility that sometimes it was necessary he should be stopped!* His wit was in his own power. Would the rule of it had been so too! Many times he fell into those things which could not escape laughter, as when in the person of Cæsar, one speaking to him, "Cæsar, thou dost me wrong," he replied, "Cæsar never did wrong but with just cause," and such like, which were ridiculous. But he redeemed his vices with his virtues. There was ever more in him to be praised than pardoned.' The editors of the First Folio, Hemynge and Condell, remark of Shakespeare: 'His mind and hand went together, and what he thought he uttered with that easiness that we have scarce received from him a blot on his papers.' Fluency of expression occurs in insanity, and may be temporarily increased by alcohol and other drugs. Evidently, therefore, it depends upon a morbid excitability of the nerve-cells and fibres of the brain.

The susceptibility of the mind to the minutiae of style may, in extreme cases, seriously impede a writer's productivity. Gustave Flaubert exhausted himself in corrections.

He would toil for hours at a single phrase. It is recorded that in one of his pages of manuscript the word 'mais' at the beginning of a sentence is struck out and written in eleven times before being allowed to stand. Latterly his life was a perpetual irritation, his work haunting him in his feverish sleep, and his days being consumed in frenzied attempts to push the art of composition beyond the limits even of perfection. Probably there is some affinity between such a condition and the somewhat rare form of insanity called by the French *la folie du doute*, and by the Germans *Grübelnsucht*, or prying-mania, the essential feature of which is the obsession of the mind by a perpetual interrogation—a constant and urgent morbid impulse to inquire into and investigate everything of however trivial a nature, a tendency to spin an endless web of questionings, an inability to accept the ordinary facts of experience.<sup>1</sup> The assonance of words in a sentence produced as violent an effect upon Flaubert's nerves as a discord did upon those of Mozart.

Closely allied to the choice of the right word is that curious sense displayed by some famous writers of fiction of the appropriateness of names. Balzac was very scrupulous in the naming of his characters. He never invented names; he discovered them. They could no more be fabricated, he held, than granite or marble; they were all the work of time and revolutions. It is told of him that for a whole day he scrutinised the signboards of Paris in company with Léon Gozlan for a name for a personage in his 'Scènes de la Vie Politique,' and found it at last on a tailor's signboard. It was 'Marcas,' to which he took the liberty of prefixing the initial 'Z.' 'A certain harmony,' he afterwards wrote, of the character whom he called Marcas, 'existed between the man and the name. This Z with which Marcas was preceded presented to the imagination a something indescribably fatal. Marcas! Repeat to yourself the name! Does it not seem to have a sinister significance? Does it not seem as though its owner were born to be martyr'd? . . . I would not dare affirm that destiny is uninfluenced by a name, for between

<sup>1</sup> A curious example of this malady is reported in the *Journal of Mental Science* for October, 1888.

the deeds of men and their names there are inexplicable affinities and visible discords which at once astonish and surprise. But the subject will some day assuredly form part of the occult sciences. Does not the Z present a thwarted and contradicted appearance? Does it not represent the contingent and fantastic zig-zags of a tormented life? What ill wind can have blown upon this letter that in every language to which it is admitted it commands barely fifty words? . . . . Examine the name again—Z. Marcas! The entire existence of the man is contained in this fantastic assemblage of seven letters. Seven!—the most significant of the cabalistic numbers! Marcas died at the age of thirty-five; his life, therefore, was composed of but seven lustres. Marcas! Does not the sound convey to you the idea of something precious broken in a noiseless fall! Very few people, perhaps, will discover as much as Balzac in the conjunction of letters referred to, but the anecdote is instructive as pointing to the existence in certain minds of subtle appreciations of harmony and discord in words, akin to the musical sense.

Susceptibility to metrical cadence is a natural endowment. It is more or less developed in individuals, and when brain disease occurs it is liable to be depressed or elevated. To Swift, during one phase of his insanity, it was 'as hard to find a rhyme as a guinea.' On the other hand, patients in lunatic asylums sometimes rhyme with marvellous facility. I apprehend that the metrical faculty has its main seat in the area of the brain concerned with articulatory movements, and that it is largely dependent upon the efficiency of the nerve-fibres passing between that area and the auditory centre. Of the muscular element in rhyme we may assure ourselves by a simple illustration. In walking along the street, or, still better, in going down stairs, a rhythm is established in the movements of our limbs. The concussions of our steps recurring in a definite order, we automatically adjust the muscular resistance needful for each concussion; the body husband its resources so as to meet the calls made upon it. Then, if our foot knocks against an unexpected obstacle, or if at the bottom of the stairs there is a step more or less than we counted upon, we receive a shock. Precisely the same thing happens in

rhyme if we come across a misplaced accent or a super-numerary syllable. In both cases there is an erroneous pre-adjustment of our muscular forces. A special susceptibility of the motor as well as of the auditory centres and their connections would therefore seem to be essential to the writing of verse.

But rhyme does not necessarily go with reason nor cadence with poetry. Coleridge observes that the words—

Behold yon row of pines that shorn and bowed  
Bend from the sea-blast, seen at twilight eve—

contain so little poetry that if re-arranged they would not be out of place in a book of topography, or in a description of a tour. The same image, however, rises into a semblance of poetry if thus conveyed :

Yon row of bleak and visionary pines  
By twilight glimpse discerned ! Mark how they flee,  
From the fierce sea-blast, all their tresses wild,  
Streaming before them !

Whence comes the difference ? Surely from the identity unexpectedly established between the row of trees and some form of moving animal life. The visual and motor centres, with their respective memories, contribute to the creation of the image.

The part played by the visual sense in poetry is very great, hearing, touch, taste, or smell furnishing comparatively few metaphors or illustrations. Frequently a mere optical effect is reproduced with great force and propriety. For example :

As when far off at sea a fleet descried  
*Hangs* in the clouds, by equinoxial winds  
Close sailing from Bengala, or the isles  
Of Ternate or Tidore, whence merchants bring  
Their spicy drugs ; they on the trading flood,  
Through the wide Ethiopian to the Cape,  
Ply, stemming nightly toward the pole : so seem'd  
Far off the flying fiend.

Here the word 'hangs' governs the whole image, and the optical effect is further heightened by representing the fleet, an

aggregate of many ships, as one mighty person whose track is upon the waters. Another example of the same kind is Milton's description of the Messiah :

Attended by ten thousand thousand saints  
He onward came ; far off *His coming* shone.

What finer abstraction could there be than *His coming*, which merges into a single optical effect a multitude of individuals? Shakespeare abounds in visual images. Here is a fine example :

Night's candles are burnt out and jocund day  
*Stands tip-toe* on the misty mountain tops.

A similar picture presented itself to the poet while he was writing his sonnets, and was thus rendered :

Full many a glorious morning have I seen  
*Flatter* the mountain tops with sovereign eye.

In both cases the optical virtue of the words italicised is very marked. Wordsworth delighted in the exercise of

—that inward eye  
Which is the bliss of solitude.

( The woods, the fields, the seasons, and aspects of simple rural life, alone moved the poetic spirit of Wordsworth to expression.

( The most exciting and dramatic public events scarcely interested him. He visited France during the great Revolution and saw the first French politician sent to the guillotine. To

( this subject he alludes casually in his letters ; but he notes nothing of it in his verse, though he could make sonnets on the sunsets on the banks of the Loire. Turner the painter had, of course, the pictorial eye required by the poet, but he was deficient in the rhythmic sense. His verse was very jolting, and his command of words ludicrously inadequate to the task of writing even passable poetry. Wordsworth's

( deficiency was evidently in the perception of the dramatic and social or historical element in events. It was the pictorial sense that he excelled in, and, unlike Turner, he had the necessary command of words and rhythm to give it poetic expression.

Graphic writing is due to the possession of a strong visual faculty. It is more telling to say that a 'field is *black* with



people,' than that 'thousands of people are in a field.' Carlyle, ridiculing a doctor who failed to cure him of his dyspepsia, says he might as well have poured his tale into 'the long, hairy ear of the first jackass' he met. In penning this, Carlyle must have had the picture of the jackass, with its long, hairy ear, in his mind.

The identifying faculty whereby unsuspected likenesses and analogies are discovered, is strong in all forms of literary genius; it is exceptionally strong in wit, and even in the despised form of wit called punning. Sydney Smith's theory that surprise is an essential ingredient of wit is probably the true one. The best joke loses its effect on repetition, and the reason would seem to be that the 'sudden joy,' the 'flash of astonishment' with which it was first received is not re-kindled in our minds. 'The greater the surprise,' says Sydney Smith, 'the greater the pleasure.' Voltaire was praising Haller to a Swiss gentleman. 'I am astonished,' said the Swiss, 'you should speak so well of Haller, for he is outrageous in his abuse of you.' 'Well, well,' replied Voltaire, 'I believe the truth is we have both formed very erroneous notions of each other.' 'Here,' says Sydney Smith, who quotes the anecdote, 'surprise is excited by the connection discovered between the apparent candour and the real severity of Voltaire. We expect from the first physiognomy of the answer that he is going to say something kind and conciliatory of his enemy, when at the same time he overwhelms him with the keenest satire.' When surprise is accompanied by other feelings the sensation of wit is almost entirely lost. This is aptly illustrated by Sydney Smith. 'In looking over the various parts of a steam engine,' he remarks, 'the mind is repeatedly affected by sensations resembling those of wit; the mode in which the valves open and shut, etc. But, at the same time, we begin to speculate upon the importance of the discovery; to reason upon its utility, and the sensation of surprise no longer remains pure and unmixed. In the mind of a child capable of understanding these mechanical discoveries, the unexpected relation between the parts and movements would excite nearly the same feeling as wit would do; he would enjoy the pure surprise and speculate little, if at all, on

the matter.' Hobbes thought the pleasure of wit lay in the implied superiority of the person expressing it or hearing it, and it is undoubtedly true that wit is nearly always derogatory to somebody or something. On reflection it will be found, however, that surprise is a more constant ingredient of wit than detraction. When a joke is twice told the detraction remains, but in the absence of surprise its characteristic effect is lost.

Many of Sydney Smith's own recorded witticisms are as perfect in the element of surprise as the one he quotes from Voltaire. Such were his remarks: to a boy, who was trying to please a tortoise by stroking its shell, that he might as well stroke the dome of St. Paul's to please the Dean and Chapter, and his pithy reply to the medical men who advised him to 'take a walk on an empty stomach'—'On whose?' This, again, is a fairly good specimen of wit: 'The observances of the Church as to feasts and fasts are tolerably well kept upon the whole, since the rich keep the feasts and the poor the fasts.' Just as wit depends upon an identity of intellectual conceptions, so does punning consist in establishing an identity of word sounds. A good specimen of a pun is the following:

Customer (to Tailor): Were you at Balaclava?

Tailor: No! Why?

Customer: Because you *charge* so magnificently.

Here the memorable charge of the Six Hundred is unexpectedly associated with such a trivial matter as a tradesman's bill, and, as in wit, surprise is evoked. Generally, however, punning is confined to identities of sound. It stirs a much more limited circle of associations in the brain than wit and is justly accounted inferior. Remarkable wits and punsters like Voltaire, Sydney Smith, and Thomas Hood, have invariably been of the morbid type as regards their nervous organisation, and it is probable that excellence, either in wit or in punning, is only attained at some cost to the other faculties. Wits and satirists, it has been observed, are themselves peculiarly sensitive to ridicule. This, one would expect from their keen sense of the ridiculous in others.

In the exercise of the fine arts, both a sensory aptitude and an associated muscular endowment are called into play.

The musician's discrimination of sound is acute, and there is a wealth of sound-memories accumulated in his auditory centre; but the perception of time is as obviously as much a question of muscular movement as the metrical sense. Again, the painter, like the poet, has an extensive perception of colour in nature together with a strong retentiveness for all kinds of pictorial display. With this, however, he also possesses a faculty for delicate movements of the hand and fingers. If he is good at drawing, his sense of touch and the muscular adjustments of his eye will be keen. Whence his perception of form—an endowment likewise of the sculptor. The mere colourist, on the other hand, will rely chiefly upon his optical sense and his mechanical aptitude.

As few musicians write poetry, or poets music, it may be concluded that time in music and metre and cadence in poetry are not identical. I have associated rhyme with the speech-centre. Considering how prone we are to beat a measure with hands and feet, and how greatly music conduces to dancing, it is probable that time in music is connected with movements of the limbs. Individuals differ widely in their perceptions of music, and although the ear may be improved by cultivation, the musical faculty is essentially a natural gift, that is to say, dependent upon the number and the susceptibility of the nerve-cells and fibres in the auditory and motor centres. Executive power, involving the use of the hands in conjunction with the visual reading of the musical notes, is a distinct faculty from that of musical creativeness or the mere taste for music. Wagner confessed to being a poor hand at the piano. Other musicians, such as Paganini, have been great executants with little creative power.

Like visual images, sounds are revived by association. They, too, form more or less extensive cohesions, and it is probable that the educated musician has many thousand such cohesions at his command. A memory for sounds is as important to the musician as is a visual memory to the man of letters. Revived combinations or sequences of notes, whether conscious or unconscious, are the raw material of musical composition, and creativeness in music is due to precisely the

same cause as creativeness in literature, namely, the spontaneous action of the nerve-cells and fibres of the brain, the only difference being that the auditory and general motor areas are affected in place of the visual and the articulatory.

In Mozart the impulse to compose manifested itself in his fifth year, by which time he was already a good player. His ear was extremely delicate. 'Until he was about ten years old,' says his early friend Schachtner, 'he had an insurmountable horror of the horn when it was sounded alone without other instruments; merely holding a horn towards him terrified him as much as if he had been threatened with a loaded pistol.' Schachtner once blew the horn in the boy's presence notwithstanding. 'Mozart no sooner heard the clanging sound than he turned pale and would have fallen into convulsions had it continued.' To be creative it is necessary that the musician should have his mind well stored with musical memories. Mozart said of himself: 'It would not be easy to find a celebrated musician whose works I have not often and laboriously studied.'<sup>1</sup> Wherever he happened to be, Mozart was incessantly occupied with musical thoughts. 'I am,' he wrote, 'steeped in music so to speak; it is in my mind the whole day and I love to dream, study, and reflect upon it.' He was always strumming—on his hat, his watch-fob, the table, the chairs, as if he were at the piano, and even in conversation with his friends he seemed to be carrying on an under-train of musical thought. More remarkable still, when music was going on that did not interest him, he had the power of working upon his own musical ideas. At the opera, his friends could tell by the restless movements of his hands, by his look, and the motion of his lips as if he were singing or whistling, that he was entirely engrossed by his internal musical activity. It is further related of Mozart that, in walking or driving, he would be occupied in inventing, arranging, and elaborating melodies, often humming or singing aloud, and growing red in the face with excitement, and the briefest indications in black and white sufficed to preserve these studies in his memory.

It is often quoted as a proof of Mozart's wonderful

<sup>1</sup> Otto Jahn.

memory that, as a boy, he was able to recollect and write down Allegri's 'Miserere' after hearing it once; but this was by no means a solitary feat of the kind on his part. Concertos that he had not heard for a long time he could play by heart; he wrote the trumpet and drum parts of the second finale in 'Don Giovanni' without a score; on one occasion he wrote only the violin part of a sonata for violin and piano, playing himself the piano part without having heard the piece, and he could write a composition at once in parts without having scored it. Compositions that he had once thought out he could recollect with perfect clearness in their minutest details. In composing he was not obliged to have recourse to the piano; his mind pictured the whole work when he had once conceived it. According to his wife, 'he wrote music like letters and never tried a movement until it was finished.' He could, however, improvise marvellously. At such times, 'the bold flights of his imagination into the highest regions and down again to the very depths of the abyss caused the greatest masters of music who heard him to be lost in amazement and delight.' The impressions produced, says one of them, were like the gift of 'new senses of sight and hearing.'

Mozart, in the height of his activity, lived in a delirium of invention, often working so hard that, as he himself expressed it, he did not know whether his head was on or off. Concerning his method of work he wrote: 'It is when I am, as it were, entirely myself, alone and in good spirits, that my ideas flow best and most abundantly. Whence or how they come I know not, nor can I force them. Those that best please me I retain in my memory, and I am accustomed, as I have been told, to hum them to myself. If I continue in this way, it soon occurs to me how I may turn this or that *morceau* to account, agreeably to the rules of counterpoint and to the peculiarities of the various instruments. All this fires my soul, and, provided I am not disturbed, my subject enlarges itself, becomes methodized and defined, and the whole, though it be long, stands almost complete and finished in my mind, so that I can survey it, like a fine picture or a statue, at a glance. In my imagination I hear the various parts, not successively but all at once. What a delight this is I cannot

tell. All this inventing and producing takes place in a pleasing, lively dream. Why my productions take from my hand that particular form and style that makes them "Mozartish" and different from the works of other composers is probably owing to the same cause that renders my nose Mozart's and different from the noses of other people. For I really do not study or aim at any originality; I should not, in fact, be quite able to describe in what mine consists. At least, I know that I have not constituted myself either one way or another.'<sup>1</sup>

Other great composers have similarly been controlled by the automatic forces of their brain. Handel was not only born of unmusical parents, but was sternly forbidden to practise music and, as a boy, received no instruction in the art whatever. Yet his earliest delight was a mimic orchestra of toy drums and trumpets, horns, flutes, and Jew's harps. He practised on an old clavichord in secret, and by dint of his unaided efforts made such progress in executive power and artistic expression as to astonish all who heard him the first time he was allowed to touch an organ. At eight or nine years of age he was consumed by the fire of inspiration. Of Beethoven, Schindler relates that he would not infrequently, in a fit of the most complete abstraction, go to his washhand basin and pour several jugs of water upon his hands, all the while 'humming and roaring, for sing he could not.' After splashing in the water till his clothes were wet through, he would pace up and down the room with a vacant expression of countenance and his eyes frightfully distended. These were his moments of profoundest meditation. Again, 'when one of his musical ideas took possession of his mind, he would look upwards, his eyes rolling and flashing brightly, or stare straight in front of him with his eye-balls fixed. These fits of inspiration frequently came to him when he was in company or even in the street. In public, at such moments, he naturally attracted attention and ridicule.' The fact that Beethoven went on composing after his hearing failed him, shows how his brain must have seethed with musical material. Mendelssohn's fits of inspiration were sudden. 'Sometimes

<sup>1</sup> Holmes: *Life of Mozart*.

I have a feeling like this,' he remarked to Rockstro, twisting his hands rapidly and nervously in front of him—'and when that comes I know that I must write.'

The key to this great creative activity in music is furnished by the insanity of Schumann. While in a beer saloon one evening Schumann threw down a newspaper he had in his hand, saying to a friend, 'I can read no more; I hear an incessant A.' Afterwards he imagined he heard a tone which pursued him incessantly, and from which harmonies, and even whole compositions, were gradually developed. Spirit voices whispered in his ear; now gently, now rudely and reproachfully. These hallucinations robbed him of sleep for the last two weeks of his wretched existence. One night he rose suddenly and called for a light, saying that Schubert and Mendelssohn had sent him a theme which he must write out at once, and this he did in spite of his wife's entreaties. During his illness he composed five piano variations upon this theme, which was his last work.<sup>1</sup> Taken in conjunction with Mozart's remarkably lucid statement of his methods, nothing could more conclusively establish the automatic character of musical inspiration than this experience of Schumann's.

That musical inspiration is subject to pretty much the same rules and exceptions as literary, is shown by the fact that Chopin, like Flaubert, had a mania for corrections. Chopin's creations were spontaneous; the idea came to him without his seeking it. It would come to him at the piano suddenly and completely, or it would spring up in his mind out of doors when he would hasten to fix it upon paper. 'Then began,' says Madame George Sand, 'a painful labour of correction. Chopin wrote, erased, added, diminished, transformed, and, finding his idea still inferior, would sink into the depth of despair. For whole days he would be shut up in his room, marching to and fro, weeping, tearing his hair, tearing up his written sheets, breaking his pens, changing a hundred times a measure, a harmony, a note. He would spend six weeks torturing a page only to restore it ultimately to its original form.' Such incessant correction would seem to arise from a persistent flow of fresh combinations upon a

<sup>1</sup> Wasilewski.