**5**

*Charles Darwin, M.A.*

*Tell me what company thou keepest,
and I'll tell thee what thou art.*

MIGUEL DE CERVANTES

*(Don Quixote, 1605)*

At the time of writing this chapter, *Bowker's Subject Guide to Books in Print for 1983-84* (Bowker 1983) listed more than seventy titles related in one way or another to the biography of Charles Darwin. Many of these titles were reprints of books published earlier in this century and a surprising number from the previous century. It might be wondered, first, Why reprint books first published a century ago? and second, What new thing could possibly be said about the man at this time? The answer to both questions is believed to be the same answer that would be given to the question, Why produce yet another commentary on the Bible? Basically, because people are interested. Many of the biographies, especially the more popular shorter versions, are little less than eulogies to the great scientist, and it has been only recently that some of the more *human* aspects of Darwin's life have come to the surface; the conspiracy to secure priority over Wallace has already been mentioned. Part of the reason for these latter-day revelations is the fact that a vast quantity of Darwin's correspondence still remains unpublished at the Cambridge University library. A further reason is the fact that Darwin's autobiography, written in 1876, and the published Darwin correspondence, was edited by his son, Francis, at the insistence of his widowed mother, Emma Darwin. It was not until 1958, when the unexpurgated edition of the autobiography was published by Darwin's grand-daughter, Lady Barlow, that it became evident that Francis Darwin had expunged some six thousand words that were claimed might embarrass the Darwin name.[1] In addition, there had always been a critical gap in Darwin's otherwise meticulously kept correspondence for the vital years 1856-59 but in 1961 notebooks relating to this correspondence were discovered among the papers of Sir Charles Lyell (Brackman 1980, 32).[2] Both the completed autobiography and the missing correspondence reveal Darwin to be less of a saint than his biographers had previously been led to believe.

Finally, there is a tendency on the part of many biographers to dismiss quickly the kind of Christian upbringing Darwin had as a child and youth and the subsequent influence of his wife's beliefs. Prior to Darwin's birth and throughout his formative years, England was experiencing an evangelical revival. Very few were not, in one way or another, exposed to this influence. It is reasonable to suppose that the young Darwin was included in or at least aware of this movement. There was, however, an opposing influence close to his own family that would certainly have discouraged any association or inquiry into evangelical Christianity. That influence was the Unitarian Church.

**The Unitarian Church**

From the beginning of Christendom there have always been those individuals within it who have found it not only difficult to believe...
certain parts of the faith but who have actively and openly spoken out against it. Arius, in the third century A.D., could not accept the idea of three persons in one God, that is, the Trinity, and in those early days he and his followers were branded as heretics. In the Middle Ages those who expressed such disbelief were burned at the stake, but later within the Protestant Lutheran church, disbelief of this kind led to exile. England and the Americas were the recipients of some of these exiles, principally from Hungary and Poland, and from the sixteenth century their ideas began to spread among the liberal members of the established Protestant churches.

This disbelief eventually multiplied but always centered on certain crucial areas involving the supernatural: denial of the Trinity, the Virgin birth of Christ, the Resurrection, Hell and eternal punishment; all the purely miraculous events were rationalized in one way or another. These are the views of the Unitarian Church today. With all this denial it may be wondered what they regard as their purpose in meeting; inquiry shows that their principal concerns are humanitarian and social issues.

John Biddle (1615-62) is regarded as the founder of English unitarianism, and it remained confined to individuals at first, among whom are claimed poet John Milton, philosopher John Locke, and scientist Isaac Newton. In the rationalistic atmosphere of the eighteenth century, many were converted through active Unitarian missionary efforts and teachings by men of such intellectual caliber as the founder of modern chemistry, Joseph Priestley, in England, and Ralph Waldo Emerson, in America. The first Unitarian church building was opened in London by a liberal defector from the Anglican Church in 1773. King's Chapel in Boston was the first Unitarian church opened in America about a decade later. Soon after this, however, the famous divinity school of Harvard University, founded in 1816, became the center of Unitarian thought. Although there were divisions within the Unitarian church caused by the level of disbelief the organization would sanction among individuals, it has since coalesced under the name of the Unitarian-Universalist Church and is a quietly influential group behind today's humanist activities; it has no connection with the Unity School of Christianity or the Unification Church of Sun Myung Moon, although all of these organizations depart so far from the orthodox and entire biblical teaching that they can in no way be considered Christian.

The Creation account and the great Flood in the book of Genesis are supernatural events. Individuals whose minds found it difficult to accept the New Testament miracles, which were supernatural events on a local scale, warmly welcomed evolutionary ideas, which seemed to rationalize away the supernatural on the grand scale. As we shall see, the Unitarian Church's teachings played a small, though, it is believed, vital part in influencing the mind of Charles Darwin, and its teachings continue to do so today within orthodox churches, where it is found that many liberal intellectuals are Unitarian in belief even though they may stand in orthodox church pews and pulpits.

**Darwin's Youth**

Charles Robert Darwin was born in 1809, the second youngest of six children, four of whom were girls. The Darwin family home was in Shrewsbury, a market town on the English side of the Welsh border. The source of family income, which was not inconsiderable, derived from the ills of the local populace since the father, Dr. Robert Darwin, had one of the most successful medical practices in provincial England. Dr. Darwin had married the daughter of the Unitarian Josiah Wedgwood, but she died when Charles was five, and until he was eight he was educated at home by his elder sister, Caroline. From his eighth to ninth years, he attended his first day school, kept by a Unitarian minister, and then went to Dr. Butler's famous Shrewsbury grammar school for the next seven years, where virtually the entire curriculum was given over to Latin and Greek. Darwin later said of this purely Dickensian part of his education: "Nothing could have been worse for the development of my mind than Dr. Butler's school.... The school as a means of education to me was simply a blank"
Charles was brought up among physicians so this was not an unexpected venture. His paternal grandfather, Erasmus, had been a famous physician. A paternal uncle, also named Charles Darwin, and, of course, father Robert, and eventually another older brother Erasmus were all physicians, so that things medical were not foreign to Charles Darwin in his developing years. In fact, before going to Edinburgh he had often helped his father compound the medicines, and he had learned how to follow and observe symptoms. Ironically, although he never became a physician, he was to be concerned with these techniques for the greater part of his life (Colp 1977, 3-8).

After two years at medical school and having been present at two gruesome operations there were no anesthetics in those days - Charles found that he didn't have the stomach for medicine as a vocation. Many people today can identify with Charles's stomach problem, those for whom upsetting thoughts or sights go straight to the bowels. Darwin expressed it in a letter to his sister Caroline when he said: "The noodle (his head) and the stomach are antagonistic powers" (Colp 1977, 15). Headaches, gastric upsets, cardiac palpitations, vomiting, and diarrhea eventually became a way of life for the poor man, and one of his life's preoccupations was to find a remedy, which eventually only came with old age. However, as a young man fond of fun and the outdoor life, health problems were not yet to be a part of his daily regimen.

Dr. Darwin was sympathetic to his son's reaction to the seamer side of medicine and sent him to Christ's College, Cambridge, to spend three years as a pre-divinity student. The change from medicine to theology was not entirely without rationale on the part of Robert Darwin, even though his son's aptitude for language was abysmal -- he managed to forget most of the seven years of Greek he had learned at Dr. Butler's school in his two years at Edinburgh and had to be specially tutored for entrance to Cambridge, beginning again with the Greek alphabet. Dr. Darwin's opinion of his son's potential as a creditable heir to the family name was not high. In this early part of Victorian society, becoming a member of the clergy when all else failed was seen by many fathers as a convenient route for otherwise wayward sons and was, above all, to be part of a respectable profession. There was a further reason in the back of the good doctor's mind: as a young man he had joined the Freemasons, and he could see the possibilities for advancement into a secure and comfortable position within the church for his son by suitable words at the right time in the appropriate episcopal ear (Barlow 1958, 30).

Charles passed his B.A. examination in 1831. At the age of twenty-two he was all set, at least on paper if not entirely in spirit, to become Rev. Charles Darwin in some Anglican country church -- he had specified a country church so that he could still enjoy some hunting and shooting. Had he acquired either the title Doctor or Reverend, there is little doubt that the world would never have heard of Charles Darwin. But as fate would have it, circumstances conspired in a most unexpected way and he found himself on board the HMS Beagle as official scientist, then called naturalist, to set sail on a voyage of exploration around the world that would last five years; the date of sailing was December 1831. This momentous voyage would change Darwin's way of thinking and eventually that of most of mankind. It is for this reason that so much has been written on the subject.

## Darwin and the Bible

Some of the more popular biographers, such as William Irving, like to say that Darwin began his famous voyage as a Bible-believer and finished up five years later convinced of evolution (Irving 1955, 51); however, Himmelfarb more diligently shows that this impression is not true, pointing out that Darwin's thoughts on evolution did not begin until July 1837, nine months after his return (Himmelfarb 1968, 65, 147). As we shall see later from what is known of Darwin's early life it is not difficult to discern that the statement about being a Bible-believer is very much an open question; it is evident that he never understood the Bible in the first place and was little wiser after three years at Cambridge.

Charles Darwin never actually knew his paternal grandfather, Erasmus Darwin, as he died seven years before Charles was born. However, the liberal and evolutionary ideas of Erasmus undoubtedly influenced the young Darwin. Erasmus was a physician, something of a poet, an instrument of the Industrial Revolution, and author of a massive two-volume work Zoönomia (1794-96); this work contained within it the essence of the theory that his grandson would announce to the world half a century later. Charles always had a great respect for his grandfather and in spite of the latter's evident racy lifestyle -- he acknowledged two illegitimate daughters -- he had a German biography translated, thus perpetuating the memory of his grandfather among English readers (Krause 1879, 61).

Robert Darwin, Charles's father, was even less orthodox in his faith than his grandfather Erasmus. Although very secretive about his disbelief, he nevertheless felt it necessary to have his children brought up in an orthodox Anglican fashion to allay public suspicion of his own irreligious nature (Barlow 1958, 22). Robert's disbelief extended to the borders of atheism, which may be inferred from his statement that he had only known three women who were genuinely enlightened, one of whom was his sister-in-law, Kitty Wedgwood, and of her he was convinced that "so clear-sighted a woman could not be a [Bible] believer" (Litchfield 1915, 1:164). Doctor Darwin's authority in the Darwin family was patriarchal, even awesome, at six feet two inches and 328 pounds; when he was present, every conversation had to be exactly pleasing to the master's ear; under these conditions, it is extremely unlikely that there would have been any "Bible-talk" in the Darwin home.

The period in life that a young man may spend away at university is very crucial and often serves to establish what are only half-formed ideas learned earlier in the home. Darwin's first real foray into the alien world beyond his Shrewsbury home began when his father sent him to join his elder brother, Erasmus, at the medical school of Edinburgh University. At that time the universities of Oxford and Cambridge were dominated by theological interests, so that even the earth sciences were circumscribed by Archbishop Ussher's dating of Creation in 4004 B.C. Edinburgh, on the other hand, was open to all faiths, and with what inevitably results, professed belief in none. The young Darwin met several geologists, zoologists, and botanists of his own age whose discussions were keenly Lamarckian. It was during this period that he found time to read his grandfather's then widely read Zoönomia.
This, then, was the intellectual atmosphere in which Darwin found himself during two of his most formative years. Interestingly, grandfather Erasmus, Unitarian Joseph Priestly, and geologist James Hutton had all attended the same university in their youth and, it can be concluded from their writings, had abandoned any belief they had ever had in the orthodox Christian faith.

Finally, it might be thought that Darwin, having taken a B.A. at Cambridge and now ready as a young clergyman-to-be, would surely have some knowledge of the Bible. In fact, there is no record that he ever cracked a Bible open during his days as a pre-divinity student nor was there any requirement to do so. A B.A. consisted of three subjects: classics, mathematics, and theology. For theology there were two required works to be studied, Paley's *Evidences of Christianity* and Paley's *Moral and Political Philosophy*. Darwin did rather poorly in classics and worse in mathematics, even with a private tutor, but he enjoyed Paley so much that he read another of Paley's works, *Natural Theology*, even though it was not required reading.

Paley's influence was deep and lasted him throughout his life, while from the point of view of his attitude towards the Bible, Paley no doubt contributed to the loss of even the little faith he had. Paley was a liberal for his day and had published an anonymous work decrying the need as a lecturer in divinity at Cambridge to subscribe to the thirty-nine articles of faith (Clarke 1974, 20). Before going to Cambridge Darwin had studied these articles to acquaint himself with the Anglican doctrine, which he had happily accepted, concluding that he did not “in the least doubt the strict and literal truth of every word in the Bible” (Barlow 1958, 57). Writing his autobiography half a century later, he looked back on this occasion and remarked, “It never struck me how illogical it was to say that I believed in what I could not understand and what is in fact unintelligible” (Barlow 1958, 57).

A further and final indication of the total absence of his understanding of even the basic elements of salvation comes from a passage that was deleted from his autobiography, written when he was nearly seventy. He cites the “damnable doctrine” that would condemn all unbelievers to everlasting punishment, protesting that “this would include my father, brother and almost all my best friends” (Barlow 1958, 87). This statement was made after having been married to a Unitarian for more than thirty years, and it is fairly certain that at this point in his life even the unorthodox denial of hell had been pressed upon his mind.

Such were the wells of unbelief from which he slaked his youthful thirst for truth. As a university graduate of twenty-two about to embark on the greatest adventure of his life, he had by this time imbibed of unbelief deeply, yet it seems Providence was to offer him an opportunity to make a free-will choice: rationalism or Scripture as pathways to the truth.

**The Beagle Voyage**

It seems that in bringing together the assortment of seventy-four souls that would be locked together on the Beagle for the five-year voyage, providence had arranged for Darwin's mind to be encouraged by hearing the Bible read on a regular basis; he may even have read it for himself, since he had a copy among the books he had selected to accompany him on the journey around the world. Captain Robert FitzRoy was a deeply religious man who believed every word in the Bible and, with a passionate fundamentalism, personally conducted each Sunday service on board the Beagle throughout the entire five years. Attendance was mandatory. Although the official object of the voyage was to map and explore the coast lines, FitzRoy had his private motives, one of which was to discover minerals of commercial value, and the other, perhaps less clearly defined, to substantiate the book of Genesis.

As the naturalist, these were Darwin's assigned tasks. It is reported he agreed with enthusiasm, although there is good reason to believe that he probably had little real knowledge of theology, on the one hand, or geology, on the other. In any event, Darwin, over the next five years, apparently did become a convinced believer in the Genesis account and on one occasion was quite shocked when a member of the crew was heard to flatly deny the Flood of Noah. He even got involved in some of FitzRoy's evangelistic schemes to Christianize the natives of Tahiti and other heathen ports of call and was a supporter of a missionary society until his dying day.

Charles Darwin's real love had always been the study of nature, and it seems he had been presented with an opportunity such as few men have ever had before and which no man will ever have again, to study the unspoiled natural world and have about him men -- there was also a missionary on board -- who believed the Creation account and were enthusiastic to find factual evidence for its support.

Darwin was traveling at the leisurely pace of the sailing ship, feeling every nuance of the elements and going, not as a common traveler, but with the express purpose of exploring the unexplored world of the nineteenth century. He could wonder at the brilliance and majesty of a tropic starlit night above or marvel at the microscopic life forms teeming in the ocean waters below. He had taken a microscope and could study the plankton and radiolaria as easily as throwing a bucket on a rope over the ship's side. He wandered through the virgin rain forest, explored unusual rock formations, climbed volcanoes, studied strange birds and beasts, and observed the customs of peoples unaffected by Western culture. And throughout it all he saw the immense diversity of life, every living thing perfectly fitted to its habitat. Were all these inanimate and animate things the work of the Creator's hands -- the master Designer that Paley spoke of -- or was there some other explanation? This question undoubtedly passed through his mind, yet at that time there was really no alternative,
There were some negative aspects to the five-year voyage: it hardly had the comforts of a luxury cruise, and it actually circumnavigated the earth's lower hemisphere almost one-and-a-half times. Although FitzRoy was only twenty-six, four years older than Darwin, he was an exceptionally competent captain. He did, however, have some peculiarities that must have made life in the close quarters of the little ship somewhat strained at times. FitzRoy was, as we would say today, in a condition of being permanently "upright"; he was a man of almost manic-depressive moods and demanded absolute obedience from all. In many ways he was a hard man after the breed of Captain Bligh, although in the days of the sailing ship, some of this attitude was undoubtedly necessary. Darwin was a likeable and easygoing individual and, even though he shared a cabin with FitzRoy, managed to survive his moods and tempers. The thought may have occurred to Darwin that if there was any relationship between the captain and his faith then the latter should be approached as the former -- rather cautiously. As it was, poor FitzRoy did have a mental problem; years later, shortly after Darwin had published his Origin, he committed suicide.

Apart from seasickness, which he endured for the entire five years along with FitzRoy's moods, it might be wondered what it was that eventually turned Darwin's mind around from belief to disbelief in the Creation account. The books he had taken with him on the voyage consisted of a few to study French, Spanish, mathematics, and the classics, a copy of Milton's Paradise Lost, Humboldt's Personal Narrative, a Bible, and the first volume of Charles Lyell's Principles of Geology, which had left the publishers just a few months before the Beagle set sail; the second volume was sent on and reached him in Montevideo. Since one of his main tasks was to study the geology of the places visited and since he had had no formal training in the subject, it is fairly reasonable to assume that Darwin spent considerable time reading Lyell's books. Lyell, it will be recalled, proposed that the natural processes we see going on today have been slowly and quietly working away for millions of years and are responsible for all the earth's geological features. Lyell's books probably stood on the cabin's little bookshelf side by side with the very book they denied. The Bible said that there had been a cataclysmic judgment by water -- a flood destroying everything some time in the past near the beginning of man's recorded history. Rather than millions, it happened only a few thousand years ago. As they sailed, day after day, Darwin saw the South American coastline where the rocky continent rose vertically two or three hundred feet above the surface of the ocean and remained at this level for hundreds of miles. He also saw how the wave action steadily eroded the rock-strata. Was all this the result of a great flood a few thousand years ago or has this been here for millions of years with the continent rising and falling below the water to build a new sedimentary layer on each occasion? When on land, he saw the great diversity of life each day: new species of insects, new kinds of animals and birds, thousands of different trees and flowers, and in his mind's eye the ark of Noah must have become impressively crowded. Yet, for all we know, he said little or nothing about these thoughts but returned from the voyage outwardly a believer in Genesis but inwardly a secret doubter. He had departed a boy and returned a man, matured by the experience and with much of that experience recorded in notebooks that would serve him for the remainder of his life.

He spent the two years following his return to England in 1836 writing the narrative of the Beagle's voyage in his Journal and Remarks (1839). He also wrote papers for the Geological Society during this period, and there is evidence from his notes that it was during the organization of his thoughts for these written works that disbelief took firmer hold in his mind. The steps taken in this mental process are not difficult to retrace. They are well-worn steps taken by others before him and a great many since; they begin, typically, with doubt in the supernatural. Darwin himself confirmed this years later when speaking of the Gospels; he thought that the miracles were not credible to any "sane man" and that the fixed laws could explain everything (Barlow 1958, 86). There are many today who hold these same views privately, if not openly.

The Genesis Flood was a supernatural event, and with Lyell's Principles of Geology before him, Darwin had the choice to interpret what he saw as the result of natural forces over a long period of time or as the result of supernatural forces acting over a short period of time, and comparatively recently. Reporting what he saw was a simple matter. Providing a rational explanation, however, required a decision, and he chose to reject the supernatural account and adopt Lyell's naturalistic explanation. Having rationalized what orthodox science of the day held to be evidence of the Flood, the next step was to find a naturalistic explanation for another key belief: what was claimed to be the divine creation of each species.

Darwin was an avid reader, and, as Eiseley (1959) has pointed out, during this period of meditation on the species problem, he read Patrick Matthew's Naval Timber and Arboriculture. A title unlikely to quicken the pulse, yet Darwin evidently found the appendix of sufficient interest to lift the author's expression "this natural process of selection", change it slightly to "natural means of selection", and incorporate it in his first essay written in 1842. Matthew had published his work in 1831, before Darwin set sail on the Beagle. In 1844 Darwin wrote a second essay and contracted the expression further to "natural selection".

Darwin's extensive reading had also included Edward Blyth's work, published in 1835 and 1837, on the species question, and, again, Eiseley remarks on the similarities of ideas in the essays with those of Blyth. Darwin acknowledged neither Matthew nor Blyth in his Origin, nor in his essays, which were not published until 1909, by which time Darwin's claim to priority was well-established. Eiseley was not alone in pointing out that the idea of natural selection did not originate with Darwin and questioned the enormous body of myth that has obscured the truth underlying the origin of a theory to which history has bestowed the dubious credit on Charles Darwin.

During this period of reading other men's ideas about species, Darwin began to keep his "secret" notebooks on the transmutation of species. The date he started these notebooks is known precisely, July 1837, which coincides nicely with the publication of Blyth's articles in the then popular Magazine of Natural History. Darwin knew that the idea of transmutation, that is, the imagined change of, for example, a reptile into a bird over a great many generations, ran counter to every other scientist of that day. He was no doubt also aware that what he was thinking was shocking and, in a sense, blasphemous by virtue of his removal of God the Creator further and further away from his Creation. For the next several years, Darwin confided all his thoughts on the subject of "transmutation" to his notebooks, and it wasn't until 1844 that he confessed to his friend Dr. Hooker that "at last gleams of light have come, and I am almost
The Darwin Family

At the time the disbelief was becoming established in his mind, Darwin married Emma Wedgwood, his maternal father's youngest grand daughter. The Darwin family was intimately associated with the Wedgwood family, the same family of Wedgwood pottery fame today. Old Josiah Wedgwood was a Unitarian and friend of Darwin's grandfather Erasmus, while the chemist Dr. Joseph Priestley (a Unitarian of missionary zeal) was included in this circle of friends. Josiah's oldest daughter, Susannah, had married Robert, the son of Erasmus, and was thus Charles Darwin's mother. Thus, Charles married his mother's niece. On the eve of the marriage Darwin's father had counseled him to conceal from his future wife his religious doubts and beliefs, since he had found by experience that a husband seldom managed to convert his wife to skepticism (Barlow 1958, 95). Darwin dutifully kept this advice and extended it in principle to his writings where he later admitted, "Many years ago I was strongly advised by a friend [it was Lyell] never to introduce anything about religion in my works, if I wished to advance science in England" (Himmelfarb 1968, 383). As we have seen, the principle was even carried beyond his mortal life for references to his irreligion were posthumously removed from his autobiography at the insistence of his widow.

One of the Wedgwood boys had married Charles's eldest sister Caroline, so that the Darwin family, who had no commitment to a faith, were now well married into a family with a fairly strong commitment to the Unitarian faith. It is reasonable to ask why Darwin brought a Wedgwood girl all the way from Shrewsbury when London had more than a few likely women to offer an eligible bachelor. Times have changed, but class distinction was important to Victorian England and especially so to the Darwins and the Wedgewoods who recognized in each other all the qualities of "superior" people. More than that, however, was a principle that many writers have observed runs right throughout Darwin's work and might be described as latent Lamarckism. Lamarck, in the previous century, contended that characteristics acquired by the present generation will tend to be inherited by the next. Lamarck's thinking had been discredited in Darwin's own day, but the theme continued then, as it still does today, in the collective unconscious and appeared several times in Darwin's writings. Thus, reasoning that thoroughbred animals or plants are produced by selection, conditioned Darwin to select a mate from closely related "superior" stock. In most countries today a first-cousin marriage, such as made by the Darwins, would not be allowed by law.

Another cousin of Darwin, Francis Galton, wrote extensively on this principle and openly advocated selective breeding programs for the creation of tomorrow's elite ruling class (Galton 1869, 24). We now know, of course, that inbreeding of this sort is positively dangerous because of the likelihood of expressing mutant genes, resulting in physical and mental disorders of the offspring. Highly inbred animals are known to be temperamental and prone to sickness.

Darwin's idea of inbreeding to produce superior stock can be seen to be a complete disaster in the case of his own ten children. Of the ten, one girl, Mary, died shortly after birth; another girl, Anne, died at the age of ten years; his eldest daughter, Henrietta, had a serious and prolonged breakdown at fifteen in 1859. Three of his six sons suffered such frequent illness that Darwin regarded them as semi-invalids while his last son, Charles Jr., was born mentally retarded and died in 1858, nineteen months after birth.

Darwin's Illness

Darwin began to suffer ill health soon after returning to England, and Emma became his lifelong and devoted nurse, his companion, and, of course, mother of his ten children. The subject of Darwin's illness has been much discussed particularly in medical circles and more especially perhaps because he kept extensive notes on his symptoms, medications, and treatments; however, there does not appear to be concerted agreement on the exact cause of his problem. Dr. J. H. Winslow, for example, believes that he suffered from cumulative arsenic poisoning. There was nothing sinister about this; it was merely thought to be the effect of having taken Fowler's solution beginning in his teens and continuing throughout his life -- Fowler's solution contained a small quantity of arsenic and was a popular Victorian tonic (Colp 1977, 132). Others have speculated that it was his addiction to nicotine, which he regularly took as snuff (powdered tobacco) and preferred to cigarettes; he confined his smoking to part of a daily ritual in which he smoked one cigarette while his wife read to him or played the piano. Professor Saul Adler, on the other hand, believes that Darwin suffered from Chagas' disease, which he had contacted in Argentina by being bitten by "the great black bug of the Pampas", thought by Adler to be Triatoma infestans; Chagas' disease was not known until about 1909; Darwin's several physicians would not have been familiar with the disease or its treatment (Colp 1977, 126). And then there are all the psychoanalytic and psychoneurological theories based on the apparent relationship between the mental activity of working on the theory of evolution and his physical health -- a mind-body relationship about which there is still much to be learned.
Colp has recently produced one of the most exhaustive surveys of Darwin's illness and includes a critical analysis of all the theories. He concludes that psychological stresses were the most probable causes of his illness, as there were even indications of this in his youth. Most remarkable, however, is the simultaneous occurrence of the beginning of his thinking about evolution (around July 1837) and the beginning of his illness, and later, the cessation of his evolutionary thoughts and the lessening of his illness (Colp 1977, 142).

The illness was exacerbated with every psychologically disturbing event, such as the death of his father, the suicide of FitzRoy, and the severe criticism he received on the publication of the *Origin* in 1859. The stressful situations were never quite consistent; most times they seemed to lead to stomach upsets but, at other times, to heart palpitations and, less frequently to eczema; it was very probably the anxiety over the reception of the *Origin* that caused the eczema on his facial skin and prompted him to grow the famous beard at this time. In his introduction Colp points out that Darwin's illness cannot be understood without understanding two attributes of Darwin the man: his determination to win acceptance for his evolutionary theory and his anxieties over the difficulties of proving his theory and its ideological consequences (Colp 1977, xiii).

The commentaries on Darwin's illness seem to fall into two camps: On the one hand, there are those, such as Sir Gavin de Beer and Sir Peter Medawar, who have a deep commitment to evolution and who claim that Darwin's illness was purely organic, with no psychic overtones (Brackman 1980, 7). In the opposing camp, there are those who probably accept the theory of evolution but have no commitment to it; they see Darwin's illness as psychic in origin. There is as yet no conclusive diagnosis of his illness, but, as so often happens where there is no proof, investigators will draw conclusions from the evidence according to their presuppositions, for a hero with a psychiatric disorder is something of a suspect, but a hero with an incurable disease is a martyr.

Darwin and his wife moved to Down House in the village of Downe in Kent, just south of London, and he remained there raising his family, made more or less a recluse by his illness, which became a way of life until his dying day. He was something of a hypochondriac with all the medical treatments, but the illness did seem to serve one useful purpose: it became a convenient crutch by which he could avoid meeting people, avoid confrontation, and even terminate difficult interrogation by some who did manage to visit. His entire time was spent working on his theory, experimenting with plants, breeding pigeons, and writing letters all over the country for information that would substantiate his ideas. The work eventually developed into an obsession. It is a fact that he was tortured by obsessional thoughts: first, to find the mechanism by which evolution occurred; second, to establish the theory by proof; and third, to maintain a claim to the theory as his own.

**The Origin of Species**

Darwin's twenty years of work on the subject of natural selection culminated in the publication, in 1859, of the book that was to make his name both famous and infamous. However, the events leading to the book's being written and published have been reinvestigated recently by Brackman (1980), whose conclusions deserve to be reiterated at this juncture.
Darwin received Wallace's "Sarawak" paper in 1855, which came as a shock, because he realized that someone else was as close as he was to himself to the answer to life's riddle. His friend and mentor, Charles Lyell, persuaded him to begin writing a book immediately on all that he had thus far discovered. Three years later, in 1858, he received a bigger shock when Wallace's "Ternate" paper arrived, giving the entire theory complete with the elusive "key", the survival-of-the-fittest as the mechanism by which selection took place and caused one species to diverge to another. Darwin was now persuaded by his friends, Lyell and Hooker, to stop work on the "big book" and prepare instead an abstract, a shorter version, for publication as quickly as possible. In what was described as a "delicate arrangement", Lyell and Hooker then conspired to present to the Linnean Society meeting on 1 July 1858 Darwin's 1844 sketch (which did not mention divergence), followed by Darwin's copy of his letter to Asa Gray of 5 September 1857 (which purportedly did mention divergence), then finally Wallace's "Ternate" paper of March 1858.

Asa Gray was in the United States, and Wallace was safely out of the way in the Malayan jungle; Darwin's priority was thus established by presenting the documents in a chronological but unorthodox order. The protocol of science would dictate that, as a "paper", Wallace's presentation should have been made first. Correspondence for the period just prior to the July meeting is mysteriously missing, and there seems to be no record of the actual letter received by Gray. All of Gray's replies to Darwin for this crucial period are also missing. Moreover, Darwin admitted editing his copy of the letter for the Linnean Society. All told, a great cloud of suspicion hangs over Darwin's claim of priority to the vital divergence principle. Darwin was embroiled in a disease-ravaged household at the time of the meeting and did not attend, so that he did not in fact present a preliminary joint paper with the Wallace paper and "with a fineness of character" share the priority with Wallace, as it is commonly reported. It would, in fact, be another year before Darwin made his formal disclosure in his now famous Origin of Species (Brackman 1980, 58; J.L. Gray 1939; Sarton 1930).[3-15]

Darwin's "abstract" actually contained 490 pages and was entitled On the Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life, which has been popularly contracted to simply the Origin. The first edition of 1,250 copies appeared in November 1859, and the second quickly followed in January 1860. In Darwin's lifetime, six editions were published, each revised from the previous edition as critics pointed out deficiencies and as new information was obtained; Darwin lived to see the last edition translated into nine major languages, and it has since been translated into at least twenty-four. The expression "survival-of-the-fittest" originated in the writings of Herbert Spencer, a contemporary of Darwin's, and did not appear in the Origin until the fifth edition, while the word "evolution" did not appear until the sixth edition in 1872. Darwin never did complete his "big book" of which the Origin was only an abstract (Freeman 1965; Peckham 1959).

It might be inferred from this account of multiple editions and translations that it was a popular book, but its success was brought about principally through notoriety rather than literary excellence. In fact, it was rather badly written and hard to follow, while even Huxley, writing in 1888, complained, "I have read ... the Origin for the sixth or seventh time, becoming confirmed in my opinion that it is one of the most difficult books to exhaust that ever was written" (L. Huxley 1900, 2:193). The book caused a public uproar, scathing newspaper articles appeared, and it was soundly denounced from virtually every pulpit; nevertheless, it is notable that neither the Origin nor the Descent of Man ever appeared on the Catholic Index. This is surprising since Charles Darwin's work was more damning to Christian orthodoxy than his grandfather's Zoönomia. Placed on the index in 1817, Zoönomia was still there when the final edition of the index was published in 1948. It is evident, then, that a radical change in policy with regard to origins had occurred within the Vatican sometime between 1817 and 1859.

The Origin contained a great many examples to show how breeders carefully selected offspring of domestic animals or plants having desired characteristics, in order to produce in subsequent generations an animal or plant more useful to man. This was artificial selection, and Darwin reasoned that if this could happen by intelligent guidance over a few generations, then it could also happen by random chance in nature over a much greater length of time. Lyell's new geology had provided vast spans of time that were vital to Darwin's theory but at the same time precluded laboratory confirmation. The main thrust of the Origin was what Darwin saw as the evidence of the mechanism, that is, natural selection by which one species, when isolated and subjected to a changing environment, diverged over many generations to become an entirely separate species. By extension of this principle, Darwin saw all living forms related in a great continuum from the most simple speck of life to the most complex; however, he stopped short of saying that a certain mammal, namely the ape, diverged to become man. In fact, the origin of man had been skillfully and deliberately avoided, but the theological bloodhounds could sniff out a heresy or even the makings of one just as they had almost thirty years earlier when Lyell had published his Principles of Geology.

The establishment of the theory of evolution was an uphill battle but one in which Darwin took no part. He was lampooned and caricatured by the popular press, hooted at and called "reprobate" by the villagers. But in this kind of persecution there was no question of his losing his position or security; financial independence had left him accountable to no man. He had shrewdly invested in stocks and multiplied his inheritance to more than a quarter of a million pounds at the time of his death, and this is the vital distinction between Darwin as a scientist with a new vision and the scientist today with an idea that runs counter to the establishment (Keith 1955, 231).[16]
Darwin's Other Books

Between continuing bouts of illness and days when he could only work for an hour or so, Darwin continued to write. During his lifetime he managed to produce a surprising number of monographs and books dealing with such subjects as coral reefs, volcanic islands, barnacles, insects, and orchids. Apart from the Origin, for which he is best known, there are two other works that deserve mention.

In 1871 he published The Descent of Man, and Selection in Relation to Sex. This was in two volumes and contained much of the data not included in the Origin, namely sexual selection as one of the agencies through which evolution could be explained. Observing the mating of animals, Darwin claimed that the special structures, such as the peacock's train and deer's antlers, assist in natural selection by sexual attractiveness; he also dealt with sexual selection in man. The simple conclusion of this work, which did not arouse nearly as much public controversy as might be expected, was that "man is descended from an hairy, tailed quadruped ... an inhabitant of the Old World ... the progenitor of the ... New World monkeys" (Darwin 1871, 2:389). Why the placid acceptance of this notion? Most likely because the greater part of the energy of the religious opponents of the theory of evolution had been expended during their attacks on the Origin. Ironically, the Descent met the approval of very few natural scientists of the day, and even Lyell had only just turned to accept the logical outcome of Darwin's theory that man was included in the hierarchy of life.

The most serious claim implicit in the Descent had to do with man's moral and mental faculties. It was one thing to point out the physical affinities between man and ape, but quite another to extend this reasoning to man's mind. Although this flatly contradicted the scriptural statement that Adam had received his soul from the breath of God, there was no great outcry from the church on this point, at least not at the level that might be expected. The secular press did pick up the implication from the Descent, however, pointing out that not only were Darwin's ideas unscientific but that, should they ever gain wide acceptance, "morality would lose all elements of stable authority."

The London Times (8 April, 1871) went on to say that Darwin was exploiting the "authority of a well-earned reputation" to advance the "disintegrating speculations of this book" and that having done so on the basis of cursory evidence and hypothetical arguments was not only unscientific but positively reckless. We today are able to look back and perhaps appreciate the prophetic nature of these newspaper comments.

If the notion of the evolution of man's mental faculties was implicit in the Descent, it became explicit the following year, in 1872, when Darwin published The Expression of the Emotions in Man and Animals in which he moved into an area that today would be considered essentially psychological. Darwin is, in fact, considered to be the “father of psychology” by the faithful (Zusne 1975, 112);[17] a moment's reflection on, for instance, Freudian psychology will show it to be strictly based on Darwinian principles. Darwin had for many years closely observed his ten children and his pets, making notes on the different ways emotions were facially expressed. Certain facial muscles, he said, are used to indicate a particular state of mind. As an evolutionary example, Darwin gave that of the snarling of a man, even though he no longer has large canine teeth with which to follow through the threat (Darwin 1965, 247-52).[18] Darwin's book thus completely rejected the concept maintained by a near contemporary, Sir Charles Bell, after whom the palsy is named, that the facial muscles of expression in man were a special divine endowment (Bell 1844, 131).[19]

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The memorial statue of Charles Darwin on the day of its unveiling in the most prominent location within the British Natural History Museum. T.H. Huxley is reading the dedication.

(Metropolitan Toronto Reference Library Board)
Darwin’s Death

Darwin died in April 1882 at the age of seventy-three, worn out with the struggle of his work in the midst of ill health for almost half a century. The clamor over his evolutionary idea had died down significantly by this time, and many in high places had been completely won over. Instead of being buried in the Anglican churchyard in the village of Downe, he was buried, by request of a parliamentary petition, in Westminster Abbey, where he lies today near the tomb of Sir Isaac Newton. He was soon to be followed by his evolutionary friend Sir Joseph Hooker; Sir Charles Lyell was already placed at the Abbey. (Thomas Huxley, the great champion of Darwin’s ideas, did not make it to the Abbey, presumably because he had ruffled too many episcopal feathers; however, he did receive secular sanctification if not sacred.) The British Natural History Museum had virtually defied Darwin by having a marble image of the man carved twice life-size and seated pensively on a huge marble throne; for many years the image took pride of place in the central hall of the museum at the head of the main stairway. When chief apostle Huxley died in 1895, a similar image was produced and raised to be seated on the right hand of his master. In recent years both images have been quietly removed to a small antechamber behind the main staircase. Darwin’s theory, like his statue, is definitely on its way out.

From time to time pamphlets and tracts appear which claim that near his death Charles Darwin became a Christian. The little homily concerns a certain Lady Hope, a Christian worker who visited the partially bedridden Darwin shortly before he died. The scene is set in "one of those glorious autumn afternoons," and the account describes him as “a dying man reading his Bible" and regretful at having rejected in his youth its early chapters. The conclusion piously calls for all those believing in evolution to repentance and points out that even the father of the theory recognized his errors just in time to save himself from damnation. [20] The truth to this account has finally been secured by Dr. James Moore and given in his book The Darwin Legend published in 1994 (Baker Book House).

Dr. Moore spent twenty years tracking down the facts which briefly are as follows: Elizabeth Reid Cotton was born in Tasmania in 1842 and moved to England in the mid-1850s where her father retired as General Sir Arthur Cotton. Both father and daughter were Anglican evangelists opposed to the evils of drink and tobacco. When the American evangelist D. L. Moody came to Britain in 1875, Elizabeth was asked to join his team for the English crusade. In 1877 and at the age of 35, Elizabeth married the 69-year old Admiral Sir James Hope. Elizabeth became known as Lady Hope, an entirely appropriate name for an evangelist. She was widowed in 1881; then, at the age of 51, married philanthropist T. Anthony Denny; he was 73. In 1909 he died and she was widowed again and a potentially wealthy woman. However, she badly mismanaged her money and by 1911 was officially declared bankrupt. In 1913, at the age of 69, she moved to America and in 1915 visited the Moody family -- one can only suspect to seek some financial assistance. It was at this time, 34 years after the event, that her written account of her visit to Charles Darwin first appeared in the August 19, 1915 issue of the Watchman-Examiner (Vol. 3, p. 1071). Following this story of Darwin’s alleged conversion, she became the darling of the Christian talk circuit and her fortunes took an upward turn. She died at the age of 80 en route to England.

The records show that Lady Hope did visit the village of Downe and did visit Charles Darwin at his request, while according to meteorological records, the “glorious autumn afternoon” was sometime between September 28th and October 2nd of 1881. Darwin died at the age of 73 in April of the following year. The circumstances were that two well-known atheists, Edward Aveling (Karl Marx’s son-in-law) and Ludwig Büchner had had a two-hour meeting with Darwin on Wednesday, September 28th. During this meeting, at which Emma Darwin was present, Darwin had admitted that he had given up Christianity at the age of 40. Although a Unitarian regularly attending the village Anglican church, Emma Darwin had always been concerned for her husband’s salvation. Dr. Moore suggests that Charles had merely invited Lady Hope as a sop to mollify his wife’s concern. The facts were that Darwin was not an invalid, but his habit was to lay on the couch and smoke a cigarette in the afternoon; he may even have arranged to be holding a Bible at the time of Lady Hope’s visit. Her written account consists of a little truth larded with a lot of imagination. She was a skilled writer, having written dozens of Christian booklets and tracts, and had written the account of her visit to Darwin in such a way that the reader would naturally conclude that he had had a genuine conversion experience. However, the account is careful not to claim that he was actually converted either
before, during or after her visit. Henrietta, Darwin's daughter, had sat at his bedside during the hour of death with notebook in hand to
catch every last word, but there was nothing to indicate that he had been converted. The Darwin family have always emphatically denied
any suggestion that Darwin was a Christian. Certainly, there is no indication from Darwin's correspondence written from September 1881
to a few days before his death seven months later, that he even acknowledged the existence of God.[22]