This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

5 In the Sweat of My Brow

Cambridge, September, 1901–September, 1903

On Avon Street in Cambridge we took a moderately old but pleasant house, with an ell behind and a little below the level of the main house. It had ground- and cut-glass front doors, a library and living room in front, and a small but adequate study for my father. The upstairs rooms were large and sunny, and the little upper story of the ell housed our nursery. There was a fairly large back yard for my sister and me to play in.

Some two houses from us lived Professor Bôcher, who, we later learned, was a great mathematician. He was the son of a former French professor of modern languages at Harvard, and I believe he had a family of two children about my own age. On the Easter of 1903, I joined his children to look for the Easter eggs which had been planted for their benefit. A little beyond him, well back from the road, was the house of Professor Otto Folin, the distinguished physiological chemist. Of Swedish peasant origin, he was married to an old-stock Western American woman, one of my mother's closest friends from her Missouri days. I had the run of their house and used to read their books. Both my mother and Mrs. Folin are still alive, and are still close friends.

The geneticist Castle and the physiologist Walter Cannon were two other friends of my father and of them I asked childish questions about science. My father and I went to see Cannon in his laboratory at the Harvard Medical School of that day, which was then behind the Boston Public Library, in a building now used by Boston University. I was particularly interested in the pictures Dr. Cannon showed us of the Canadian backwoodsman, Alexis St. Martin, who had accidentally shot a hole in his stomach, and of the American Army doctor, Beaumont, who had used him as a guinea pig for the study of digestion. Cannon himself told us the fascinating story of this partnership.

I was also interested in Dr. Cannon's X-ray machine, which, if I remember correctly, was excited by some sort of electrostatic generator. Cannon

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

was perhaps the very first man to use the new ray of Röntgen in the study of the softer tissues, such as the heart and the stomach, and thus to continue the early work which St. Martin's ghastly fistula had made possible. He was also a pioneer in the use of lead screens for the protection of the X-ray operator. It was because of this precaution that he seemed for many years to have gone scatheless from these dangerous beams, while the majority of his early colleagues had crumbled to pieces by bits, submitting to amputation after amputation. Yet while he lived well into his seventies, his early X-ray burns killed him in the end.

These men I saw only occasionally. A much commoner visitor to our house was Father's friend, the Assyriologist Muss-Arnoldt. Muss-Arnoldt was, I believe, an Austrian Jew, and he had almost exactly the face and expression of his own Assyrian winged bulls. He was black-bearded and rather burly, a great scholar, and a man with an irascible disposition. He taught me occasionally when he was staying at our house, and my father was otherwise occupied; and he was a strict but unskillful disciplinarian. One day a few years later, after a Latin lesson which particularly rankled in me, I was watering the lawn, and obeying a sudden and irrational impulse, I turned the hose on him. I was duly punished by my parents and Muss-Arnoldt looked askance at me ever after.

To a person who has seen the intervening stages of its development and decadence, it is difficult to compare the American Cambridge of today with the Cambridge of the beginning of the century. It is only by imperceptible steps that the houses have become grimier, that the traffic has become heavier, that the vacant lots have vanished, and that a community which in 1900 preserved much of the atmosphere of the country town has grown into a great, dirty, commercial city.

When I was a child, there were those who still spoke of Massachusetts Avenue by its old name, North Avenue; and it was lined by the inartistic but attractive and comfortable mansions of well-to-do businessmen. They are still standing, but fallen from glory. Their porte-cocheres shelter no coaches, and the elaborate wood carving of their porches is rotting away. They were inhabited by families with four or five children, and were ruled from the kitchen by a competent and masterful servant girl. The children had ample yards to play in, and the trees which shaded them had not yet been reduced to sickly pallor by the smoke of the East Cambridge factories.

The vacant lots of Cambridge bloomed with dandelions in the spring, buttercups in the summer, and the bluish blossom of chicory in the fall. The streets were, for the most part, unpaved; and when it rained, they were

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

deeply rutted by the wheels of the horse-drawn delivery trucks. In the season of snow, the wagons were replaced by sleighs and sledges, and it was a favorite pastime of the youngsters to tie their sleds behind the delivery sleighs then known as pungs. On the hilly streets there was coasting, not only on the small sleds which one rode belly-bump but on large double-runners made up of two such sleds, a plank, and a steering wheel. There was an abundance of frozen puddles on which one could skate, and it was always possible to go to Jarvis Field and watch the Harvard hockey team at practice.

As I have said, my father was an enthusiastic amateur mycologist; and under his guidance, I toured vacant lots in search of morels in the spring and field agarics in the fall. The morels were confined to a few well-known spots, and the Harvard mycologists considered that they had duly staked their claims on these spots. It was a frequent cause of bad feeling when one of them stole a march on a colleague and reaped the little clump that the latter had considered his private property. Stands of field agarics were less subject to this test of ownership, and coprinus was too common to be considered a property at all.

These additions to our kitchen were supplemented by an occasional lepiota or a batch of elm mushroom. Every now and again we would find a clump of clavaria or hydnum, and even a few rarer delicacies; but these were mostly reserved for our summer vacations. Part of the fun was the fact that one might just possibly confuse these edible fungi with an amanita, or at least an emetic russula; and the knowledge that one would have to wait some twelve hours before the symptoms became obvious was a source of more than one sleepless night to my parents and to myself.

I have botanical memories beyond these stray fruits of the field. I can never forget the little maple keys taking root in the soil, nor the tiny trees which started from them. The smell of fresh earth, of maple bark, of the gum of cherry trees, and of newly mowed grass all belonged to my youth, with the drawl of the lawn mower and the pattering of water from the spray which kept our grass green. In the fall it was always delightful to trudge through the crisp heaps of fallen leaves in the gutter or to smell their aromatic smoke as they burned. In my childhood recollection, these are supplemented by the resinous perfume of freshly cut pinewood and the various builders' smells of linseed oil and new cement.

The whole frame of our lives has changed between that day and this. Wood then was so cheap that we used to knock up for firewood the boxes in which our groceries were delivered, and our butter came in wooden tubs or in neatly dovetailed wooden boxes with sliding lids. The chief token

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

of those ampler days was, however, the ease with which one could secure servant girls. Mother never had less than two, a cook and a children's maid, together with the services of a laundress, and yet my father was only an impecunious instructor or assistant professor, with no promise of tenure for some time to come. For a large part of our time on Avon Street I nearly worshipped our maid, Hildreth Maloney, an intelligent, loyal and competent young woman, who was later to improve her position in the world. I do not remember our cook, but our laundress was a faithful and hard-working woman by the name of Maggy, to which we added the soubriquet, "The Button-breaker."

I was brought up in a house of learning. My father was the author of several books, and ever since I can remember, the sound of the typewriter and the smell of the paste pot have been familiar to me. But it was not the efforts of the literary scholar that first seized my imagination. By now I could read freely. I had full liberty to roam in what was the very catholic and miscellaneous library of my father. At one period or other the scientific interests of my father had covered most of the imaginable subjects of study. Somewhere in our bookcases there was a Chinese dictionary, there were grammars of unusual and exotic languages, there were charlatanlike books on the occult, there were accounts of the excavations of Troy and Tiryns, and there were a series of the English scientific primers of late Victorian times. Above all, there was a compilation of papers on psychiatry, electrical experiments, and travels of naturalists in the wilder parts of the world, that went by the name of the Humboldt Library. There were two odd volumes of the excellent *Natural History* of Kingsley, together with the far less scholarly and more anecdotic book of Wood which Mr. Hall had given me years before.

I was an omnivorous reader, and by the time I was eight I had overstrained a pair of rather inefficient eyes in consuming whatever books came my way. The learned works of my father's library shared my attention with the books of Dickens which my mother read to me, Stevenson's *Treasure Island, The Arabian Nights,* and the writings of Mayne Reid. To me they were all books of high adventure; yet the tale of Long John Silver and the stories in the *St. Nicholas Magazine* were pale to me beside the true accounts of the adventures of those naturalists who had found new beasts and birds and plants in the somber darkness of the rain forest, and had heard the raucous calls of the macaws and the parakeets.

Thus I longed to be a naturalist as other boys long to be policemen and locomotive engineers. I was only dimly aware of the way in which the age of the great naturalists and explorers was running out, leaving mere tasks

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

of gleaning to the next generation. Yet even if I had been fully aware of this, my allegiance in science was already mixed. My father had brought me from the Harvard library a book devoted to the various branches of the study of light and electricity, which included a stillborn theory of television, frustrated by the inadequacies of the selenium cell. This book had attracted my fancy. I followed it up by further reading in physics and chemistry. When I was about seven years old, Father recognized this interest by inviting a chemical student, who had shown an interest in Russian and had attended his classes, to set up a little laboratory in the nursery and to show me some simple experiments.

Of course, I was particularly interested in the smellier of the experiments, and learned the trick of making a sulphide by heating scraps of metal with sulfur, and then of generating hydrogen sulphide by exposing this sulphide to the action of an acid such as vinegar. Mr. Wyman, my instructor, continued to teach me over the period of a few months later when I was forbidden to read because of my rapidly advancing myopia. Not long after this, I heard of his early death in an automobile accident not far from where my M.I.T. office is today. I believe that this was one of the earliest automobile fatalities in Cambridge.

Even in zoology and botany, it was the diagrams of complicated structure and the problems of growth and organization which excited my interest fully as much as the tales of adventure and discovery. Once I had been sensitized to an interest in the scientific—and various toys of scientific content played almost as great a role in this as my reading—I became aware of stimulating material all about me. I used to haunt the Agassiz Museum until there was more than one exhibit which I knew almost by heart. I read one scientific article that has had a direct influence on my present work, but I am unable to recollect where I saw it. It is confused in my memory with an article by Dan Beard which appeared in the *St. Nicholas Magazine* and was called "The Jointed Stick." It contained some material on the analogies and homologies of the skeleton of the vertebrates. The deeper article which my memory has long confused with this must have been written by some professional physiologist. It contained a very sound account of the progress of a nerve impulse along a nerve fiber, as a consecutive process of breakdown, analogous to the consecutive fall of a train of blocks rather than to a continuous electrical phenomenon. I remember that the article excited in me the desire to devise quasi-living automata, and that the notions I acquired from it survived in my mind for many years until they were supplemented in my adult life by a more formal study of modern neurophysiology.

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

Behind these books, which I read freely, there were a number that caused me a very real pain, yet a pain in whose titillations I was ashamed to observe elements of pleasure. No one had forbidden them to me, but I had forbidden them to myself, and yet when I turned past the fearful pages I could not refrain from giving them a stray glance. Much of *Struwwelpeter* came under this heading and a good deal of *Max und Moritz*. In *The Arabian Nights* there is a terrible "Tale of the Greek Physician," and there is Grimm's fairy tale of "The Boy Who Did Not Know Fear." There were certain parts of the scientific books to which I had access that excited this baser mixture of emotions, and I remember in particular terrifying but fascinating passages in the Humboldt Library which were devoted to an account of execution by electricity and of fashion in deformity. I had an early interest in medical books which was partly legitimate and scientific but which also contained not a little element of "looking bogy in the face." I was quite aware of the mixture of emotions with which I read these, and I was not able for any length of time to pretend that my interest was altogether innocent. These books aroused or recalled emotions of pain and horror, yet showed these emotions to be related to those of pleasure. I knew this then, long before Freud's work had come to my attention and helped me to understand these tangled emotions.

Probably much of my early reading was over my head at the time. It is not essential for the value of education that every idea be understood at the time of its accession. Any person with a genuine intellectual interest and a wealth of intellectual content acquires much that he only gradually comes to understand fully in the light of its correlation with other related ideas. The person who must have the explicit connection of his ideas fed to him by his teacher is lacking in the most vital characteristic that belongs to the scholar. Scholarship is a progressive process, and it is the art of so connecting and recombining individual items of learning by the forces of one's whole character and experience that nothing is left in isolation, and each idea becomes a commentary on many others.

This unusual reading history of mine made me difficult to place in school. At seven, my reading was far in advance of my handwriting, which was awkward and ugly. My arithmetic was adequate but unorthodox, in that I preferred to use such shortcuts as to add nine by adding ten and subtracting one. I still was inclined to do sums on my fingers, and was not yet very sure of the later parts of my multiplication tables. I had the beginnings of a familiarity with German, and I devoured every scientific book on which I could lay my hands.

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

After a certain amount of looking around, it was decided to put me in the third grade of the Peabody School on Avon Street. The teacher was kind and intelligent, as well as very tolerant of my infantile maladroitness. I do not know how long it was before my parents and my teachers came to the conclusion that I should be shifted to the fourth grade. I do not believe that they waited all year to make this decision. I still could scarcely have been much more than seven years old at the time. At any rate, the fourth grade teacher was less sympathetic with my shortcomings, and in one way or another I did not click.

My chief deficiency was in arithmetic. Here my understanding was far beyond my manipulation, which was definitely poor. My father saw quite correctly that one of my chief difficulties was that manipulative drill bored me. He decided to take me out of school and to put me on algebra instead of arithmetic, with the purpose of offering a greater challenge and stimulus to my imagination. From this time until I went to the Ayer High School at the age of nearly ten and even later, all my teaching was in my father's hands, whether directly or indirectly.

I do not think that his original purpose had been to push me. However, he had himself started his intellectual career very young, and I think that he was a little surprised by his own success with me. What had started as a makeshift was thus continued into a definite plan of education. In this plan, mathematics and languages (especially Latin and German) were central.

Algebra was never hard for me, although my father's way of teaching it was scarcely conducive to peace of mind. Every mistake had to be corrected as it was made. He would begin the discussion in an easy, conversational tone. This lasted exactly until I made the first mathematical mistake. Then the gentle and loving father was replaced by the avenger of the blood. The first warning he gave me of my unconscious delinquency was a very sharp and aspirated "What!" and if I did not follow this by coming to heel at once, he would admonish me, "Now do this again!" By this time I was weeping and terrified. Almost inevitably I persisted in sin, or what was worse, corrected an admissible statement into a blunder. Then the last shreds of my father's temper were torn, and he addressed me in a phraseology which seemed to me even more violent than it was because I was not aware that it was a free translation from the German. *Rindvieh* is not exactly a complimentary word, but it is certainly less severe than "brute"; and *Esel* has been used by so many generations of German schoolteachers that it has almost become a term of endearment. This cannot be said of the English word "Ass!" or of its equivalents, "Fool! Donkey!"

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

I became accustomed to these scoldings quite rapidly; and in view of the fact that my lessons never lasted many hours, they were emotional hurdles which I could take in my stride. However, they never ceased to be genuine hurdles. The schoolmaster everywhere can summon to his aid the absurdity of his pupil. The very tone of my father's voice was calculated to bring me to a high pitch of emotion, and when this was combined with irony and sarcasm, it became a knout with many lashes. My lessons often ended in a family scene. Father was raging, I was weeping, and my mother did her best to defend me, although hers was a losing battle. She suggested at times that the noise was disturbing the neighbors and that they had come to the door to complain, and this may have put a measure of restraint on my father without comforting me in the least. There were times for many years when I was afraid that the unity of the family might not be able to stand these stresses, and it is just in this unity that all of a child's security lies.

But much more serious for me were the secondary consequences of my father's discipline. I used to hear my juvenile ineptitudes repeated at the dinner table and before company until I was morally raw all over. On top of this, I was made well aware of the shortcomings of my father's father, and it was borne in upon me that his worst traits were latent in my makeup, and only waiting for a few years to be brought out.

When I now read John Stuart Mill's account of his father, it seems on the surface to have represented a completely virtuous relationship on both sides. I know better, and when I read his few words about his father's irascibility I know just how to interpret these statements. I am certain that even if that irascibility had been more decorous than that of my father, it had probably been no less unremitting. There is passage after passage in Mill which could well be the statement by a proper Victorian of a course of training which had been very close to that I had experienced.

My own education had both remarkable similarities to that of Mill and important differences from it. Mill's education was predominatingly classical at a time when there was no other basis for a sound training. Hence Mill covered a wider range of the classics than I did, and at an earlier age; but he began mathematics rather later, and his father was a less authoritative preceptor in these matters. My father had shown from his youth a rather outstanding mathematical ability, which he imparted to me from my seventh year on. Moreover, by the time I was seven, my own reading had penetrated into branches of biology and physics which were even beyond my father's own scope, and which must have gone far beyond the rather pedantically classificatory natural history available to the boy Mill during his tramping excursions.

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

In one respect my father resembled James Mill: both were ardent walkers and loved the countryside. I gather, however, that the elder Mill did not have the green thumb of which my father was so proud, and that the boy was not under the same pressure to work in the garden and in the field. With Mill as with myself, walks with our fathers seemed to be a fruitful source not only of outdoor pleasure but of the moral stimulus derived from contact with men of learning and of character.

Both the Mills seem to have centered their lives around questions of ethics. They were of a Scottish family, and it is every Scotsman's birthright to be a philosopher and a moralist. It is likewise the birthright of every Jew. And yet the more impulsive character of the Mediterranean gives to his philosophizings and moralizings a different appearance from that which belongs to the man of the north.

The Mills rank as two of the great humanitarians of history. My father's career shows an almost equal depth of humanitarian motivation. Yet the roots of his humanitarianism were different from the Mills', as different as Jeremy Bentham and Leo Tolstoy. The Mills' passion for mankind was an intellectual passion, full of nobility and righteousness, but perhaps rather arid in its lack of an emotional participation with the oppressed. The roots of my father were in the deep human sympathy of Tolstoy, which itself has much of the compassion and self-abnegation of the Hindu Holy Man. In short, the Mills were classicists partaking of the sympathies of a romantic period, whereas my father, although educated in the classical tradition, was a romanticist of the romanticists.

I cannot imagine my father or myself being greatly moved as the Mills were by the icy glitter of Pope's translation of Homer. The poetry that most moved my father, as it has most moved me, was that of Heine, with its aspiration for the beautiful and the bitter revulsion which comes as the poet sees far too clearly the horrible contrast of that which is with that which he would like to believe. I cannot imagine Mill regarding Heine as more than an impertinent upstart, although there well may be hidden references to Heine in Mill's books which give me the lie.

In the details of Mill's experience and of my own as well as in their larger lines, there is much that is parallel. It is clear that both of our teachers wished to prevent us from taking ourselves too seriously by a policy of enforced modesty, which at times amounted to systematic belittling. It is clear that both children combined a profound respect for their fathers with a certain degree of an inner feeling of deprivation and resentment. Yet the conflict of son and father has come to show itself in very different ways. There seems to have been in both Mills an aversion to any display of

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

emotion, which was certainly not present in my father. Yet it is quite clear from Mill's account of his training that strong emotions were there and that they were not weakened in any way by the impassive façade which both father and son maintained.

I doubt whether the older Mill had any of the possibilities of explosiveness and anger that certainly existed in my father, and I equally doubt that he showed the human weaknesses and longings which at times almost reversed the roles of father and son in my family, and made me love my father the more deeply because he never wholly ceased to be a child. In Mill's book it always seems that the awareness of his ambivalence toward his own education is pruned like the trees of an eighteenth-century garden.

That we may readily be aware of the suppressed conflict between John Stuart Mill and his father we owe in part to Samuel Butler. Samuel Butler was perhaps not a prodigy in the full sense of the word, but like many of the infant prodigies, he had been brought up under the intimate supervision of a dominant father, and like many of the infant prodigies including myself, this supervision had led to a certain degree of revolt in his reminiscent attitudes. Indeed, I feel that Samuel Butler as the Ernest Pontifex of *The Way of All Flesh* suffered from a parental tutelage at least as strict as my own, and at the hands of a man infinitely more commonplace and less sympathetic than my father. His ambivalence toward his own father had much more in it of hatred than of love, and what respect it contained was more a respect for strength of character than for good will. I cannot deny that in my own attitude to my father there were hostile elements. There were elements of self-defense and even fear. But I always recognized his exceeding ability in intellectual matters and his fundamental honesty and respect for the truth, and these made tolerable the many frequently occurring painful situations which must have been absolutely intolerable to the son of a Rev. Mr. Pontifex.

As far as the impact of the outer world is concerned, the conventionality of the parental Pontifex certainly offered Ernest a most intense situation of conflict, but it spared him from something of the potential disapproval of the world about him as a breakwater spares the ships of the harbor. The Rev. Mr. Pontifex was unconventional in nothing but the massiveness and whole-souledness of his conventionality. For myself, with all the understanding of my father, I had to pay the double penalty of being the unconventional child of an unconventional man. Thus I was isolated from my environment by two separate isolations.

Religious problems seem to have dominated Samuel Butler and also John Stuart Mill in the relations with their fathers. These problems were even

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

more acute in the youth of Edmund Gosse, another writer who must be mentioned in the discussion of father-son relations. Gosse's book *Father and Son* is like Butler's in being the account of the relations of a boy with a desire for independence to a very dominant father with theological interests. Indeed, Mill's book, for all of the want of a formal theology on the part of both father and son, has a strongly ethical tone which echoes similar preoccupation. In my own case, while my father was a man of strong moral sense, it cannot be said that he had any great interest in theology. The source of his humanitarianism was Tolstoy, and even though Tolstoy embellishes his propagandist texts with many quotations from the Bible, he is at home with that side of Christianity which preaches humility and charity and extols the virtue of the oppressed and undervalued. I have already said that I had begun to express doubts of religion at the early age of five, in terms that would have brought me severe castigation and even more severe chiding at the hands of the elder Butler or the elder Gosse.

Let me return to the details of my own history. I certainly do not remember any effective opposition on the part of my father. Indeed, I strongly suspect that my infantile adventures in agnosticism and atheism were scarcely more than a reflection of my father's own attitude which may have reflected the attitude of my scapegrace grandfather, who had already left the fold of Judaism without embracing any equivalent religion. Even a skeptic like James Mill would have found my levity intolerable. My own career as an infant prodigy thus differs from that of these victims or beneficiaries of dominant fathers in that it was entirely on a secular plane.

It is clear that religion or the equivalent moral questions were what made the mid-Victorian tick. With my father as with me, the predominating motive was that of a profound intellectual curiosity. He was a philologist; and for him, philology was more nearly an exploratory tool for the historian than a declaration of learning, or the means of taking to one's own soul the great writers of the past. Although there was always a strong moral implication in my father's personality and in the course of life toward which he directed me, my interest in science started with a devotion rather to the service of truth than to the service of humanity. Such interests in the humanitarian duties of the scientist as I now have are due more to the direct impact of the moral problems besetting the research man of the present day than to any original conviction that the scientist is primarily a philanthropist.

The service of truth, though not primarily a task of ethics, is one which both my father and I conceived to impose upon us the greatest moral obligation possible. In a later interview which my father gave to H. A. Bruce, he

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

stated this in his own words.[1] The legend that Galileo after his conviction was heard to say, *"Eppur'si muove!"* ("But it *does* move!"), while apocryphal, is true in essence as depicting the code of the scientist. My father felt the demand of intellectual honesty to be one which the scholar can as little repudiate on the basis of any personal danger into which it might lead him as the soldier can repudiate the duty to fight at the front or the doctor to stay and be effective in a plague-stricken city. Nevertheless, it was an obligation which both of us conceived to belong to a man, not merely as a human being, but precisely because he had chosen himself for the specific devotion of being a servant of the truth.

I have said that my father was a romanticist rather than a Victorian classicist. His closest spiritual kin, besides Tolstoy and Dostoevsky, were the German Liberals of 1848. His righteousness partook of the element of *élan,* of triumph, of glorious and effective effort, of drinking deep of life and the emotions thereof. For me, a boy just starting life, this made him in many ways a noble and uplifting figure, a poet at heart, amid the frigid and repressed figures of an uninspiring and decadent Boston. It was because of this, because my taskmaster was at the same time my hero, that I was not bent down into mere sullen ineffectiveness by the arduous course of discipline through which I went.

My father not only taught me directly but also had a Radcliffe pupil of his, Miss Helen Robertson, come several times a week to review my Latin with me by ear and to help with my German. It was a delight to have her come and to have opened to me another contact with the world of grown-ups besides that of my family. I learned from her the legends of Harvard and of Radcliffe; of the acerbity of this professor, of the wit of that; of the old peddler known as John the Orangeman and the cart which the Harvard students had given him with the donkey bearing the name of Ann Radcliffe; and of the wonderful blind-and-deaf student, Helen Keller. I learned of the visit of Prince Henry of Prussia and of the student pranks on that occasion. In short, even at the age of eight, I had a foretaste of the life of a college student.

It was about this time that I began to discover that I was clumsier than the run of children about me. Some of this clumsiness was genuinely poor muscular co-ordination, but more of it was based on my defective eyesight. I thought that I could not catch a ball, when the really fundamental fact was that I could not see it. Undoubtedly all this was accentuated by the early age at which I learned to read and by my immoderate indulgence in that pastime.

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

My appearance of clumsiness was accentuated by the learned vocabulary which I had acquired from my reading. While it was entirely natural and not in any degree an affectation, it emphasized to my elders and particularly to those who did not know me very well that I was in some sense a misfit. As I shall point out in the next chapter, I had a fairly normal acquaintance with other boys of my age, so that I do not believe this anomaly in fact excited as much attention among my contemporaries as it did among my seniors. If my contemporaries received any particular impression from my adult vocabulary, I am inclined to believe it was only a secondary impression conveyed to them by their parents.

During the year when I was eight, my eyes began to trouble me in a rather alarming way. Of course my parents noticed this long before I did. A child is not aware of a constant deficiency of sense such as of eyesight. He accepts his own vision as the norm of vision, and if there are any defects, he assumes that they are common to the human race. Thus while a rapid aggravation of eye trouble is noticeable, a steady level of visual deficiency calls no attention to itself, especially when, as is the case with the myope, the difficulty does not interfere with reading. The myope tends to hold the book too close to his eyes, and this is conspicuous to his more sophisticated parents. But it is not conspicuous to himself until it has been pointed out, and until he has been given the advantage of adequate glasses.

My parents took me to Dr. Haskell, our oculist, who gave strict orders that I was not to read for a period of six months, and that at the end of this period the entire question of my reading was to be reconsidered. Father went ahead teaching me mathematics, both algebra and geometry, by ear, and my chemistry lessons went on. This period of ear training rather than eye training was probably one of the most valuable disciplines through which I have ever gone, for it forced me to be able to do my mathematics in my head and to think of languages as they are spoken rather than as mere exercises in writing. Many years later my training proved of great service to me when I came to learn Chinese, which a complicated notation has rendered far more difficult to the eye than it is to the ear. I don't suppose that this early training created the very good memory which I have carried with me down to the present day, but it certainly showed me that I had such a memory and made it possible for me to exploit it.

At the end of six months, my myopic eyes showed no further alarming symptoms, and I was allowed to read once more. The doctor's judgment in permitting me to go back to my work has been justified by the last fifty years of my life, for in spite of increasing nearsightedness, cataracts, and the

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a portion of the eBook at doi:10.7551/mitpress/11597.001.0001

removal of both lenses, I still have very fair vision, and I see no prospect that my eyes will let me down as long as I live.

There is one particular passage in Mill's *Autobiography* which excites a certain resonance in my own experience. Mill speaks of passing on his instruction to his younger brothers and sisters. My sister Constance tells me that she suffered much from my juvenile didacticism. I certainly was not made the official pupil-teacher in my family as Mill was. Yet the entire example of a life in which the person one most respects always appears as a teacher can only make the child think of maturity and responsibility as the maturity and responsibility of the school master. It is inevitable that all concentrated teaching teaches the boy to be a teacher. This may be overcome later, but it represents a trend that must always be there.

During the next years, without excessive difficulty but with a severely lacerated self-esteem, I labored under my father's tutelage through the Wentworth textbooks on algebra, plane geometry, trigonometry, and analytical geometry, and learned the rudiments of Latin and German. I recognized that my father spoke with the authority of the scholar, even as I recognized that most of my outside teachers had spoken with something less.

Note

1. *The American Magazine*, July, 1911.

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

This is a section of doi:10.7551/mitpress/11597.001.0001

Norbert Wiener—A Life in Cybernetics

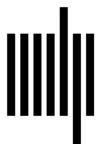
Ex-Prodigy: My Childhood and Youth and I Am a Mathematician: The Later Life of a Prodigy

By: Norbert Wiener

Citation:

Norbert Wiener—A Life in Cybernetics: Ex-Prodigy: My Childhood and Youth and I Am a Mathematician: The Later Life of a Prodigy
By: Norbert Wiener
DOI: 10.7551/mitpress/11597.001.0001
ISBN (electronic): 9780262347051
Publisher: The MIT Press
Published: 2018

Funding for the open access edition was provided by the MIT Libraries Open Monograph Fund.



The MIT Press

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024

MIT Press Direct

© 2017 Norbert Wiener

Foreword © 2017 Massachusetts Institute of Technology

Ex-Prodigy copyright © 1953 by Norbert Wiener. First edition published 1953 by Simon and Schuster, Inc. First MIT Press Paperback Edition, August, 1964

I Am a Mathematician copyright © 1956 by Norbert Wiener. First MIT Press Paperback Edition, August 1, 1964. Published by agreement with Doubleday & Co., Inc.

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from the publisher.

This book was set in ITC Stone Sans Std and ITC Stone Serif Std by Toppan Best-set Premedia Limited. Printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data

Names: Wiener, Norbert, 1894-1964, author. | Kline, Ronald R., writer of foreword. | Container of (work): Wiener, Norbert, 1894-1964. Ex-prodigy. | Container of (work): Wiener, Norbert, 1894-1964. I am a mathematician.
Title: Norbert Wiener--a life in cybernetics : Ex-prodigy : my childhood and youth, and I am a mathematician : the later life of a prodigy / Norbert Wiener ; with a new foreword by Ronald R. Kline.
Description: Cambridge, MA : The MIT Press, 2018. | Includes bibliographical references and index.
Identifiers: LCCN 2017042823 | ISBN 9780262535441 (pbk. : alk. paper)
Subjects: LCSH: Wiener, Norbert, 1894-1964. | Mathematicians--United States--Biography.
Classification: LCC QA29.W497 A25 2018 | DDC 510.92 [B] --dc23 LC record available at https://lccn.loc.gov/2017042823

10 9 8 7 6 5 4 3 2 1

Downloaded from http://direct.mit.edu/books/oa-monograph/chapter-pdf/2256800/9780262347051_cal.pdf by guest on 11 November 2024