

# Helen Keller as cognitive scientist

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**ABSTRACT** *Nature's experiments in isolation—the wild boy of Aveyron, Genie, their name is hardly legion—are by their nature illusive. Helen Keller, blind and deaf from her 18th month and isolated from language until well into her sixth year, presents a unique case in that every stage in her development was carefully recorded and she herself, graduate of Radcliffe College and author of 14 books, gave several careful and insightful accounts of her linguistic development and her cognitive and sensory situation. Perhaps because she is masked, and enshrined, in William Gibson's mythic and false Miracle worker, cognitive scientists have yet to come to terms with this richly enlightening, albeit anecdotal, resource.*

## I

Our study has given us something definite with regard to the question so long debated concerning the connection between the sense and the intelligence. "Nihil est in intellectu quod non ante fuerit in sensu" said Locke. Leibniz corrected this formula by adding: "nisi intellectus ipse". We see how right Leibniz was in making this reserve and how great this inner power of intellect is in individuals like Helen Keller and Marie Heurтин who, although deprived of nine tenths of our sensations, arrived notwithstanding, at a complete development. The necessity of outside excitation is proved by their example, since the awakening of their personality was delayed until the day when this excitation took place. On the other hand, this shows also that the results are not at all in accordance with the quantity of these excitations, so that the essential factor is here the inner factor. (Villey, 1990, pp. 357-358)

In my paper, "'Cartesian' linguistics?", and in a subsequent book, *An invitation to cognitive science*, I had occasion to refer to Helen Keller in the context of A. M. Turing's suggestion, in 1950, that we should be prepared to concede that a computer thinks if we are unable to distinguish it from a human being by its answers to questions we ask both the human and the computer via a teletype machine. We may ask as many questions as we wish, about any subject whatsoever, and, Turing seems to have imagined, as interrogators, not men-in-the-street, but a panel of

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experts well-prepared for the tell-tale signs of hacks and superficial simulation (notably, Descartes proposed much the same "sure and certain" test of "replying appropriately to whatever might be said in its presence" to distinguish something with a mind from a finite automaton disguised in a human-looking shell (Descartes, 1641/1979, p. 116)). Following the spirit of Turing's suggestion, I contrasted the "Turing-Tested Machine" with the also Cartesian, and at least in the empiricist tradition, temptingly solipsistic proposal that the test for mind is "simply" whether one's inner light is lit (the "light bulb", as I dubbed this view). Wanting to show up the very misleading but horribly seductive character of the "light bulb" metaphor, I thought to mention Helen Keller as someone who managed to think, with considerable distinction, "in echoless darkness", as she was both profoundly deaf and blind. Feeling that I may have written too facilely, I decided to read some of her books and related biographical and scholarly materials. What I found has fascinated me, most particularly in that Keller, throughout her life, experienced much the sort of doubt, rejection, and misunderstanding that people who believe in the "light bulb", and not in anything like Turing's test, are prepared to mete out to the mere idea that a machine could ever think. She is masked, caught forever as child, in the *Miracle worker* myth unintentionally spawned by her first book, and popularizations of it, which are available in every public or school library.

Nature's experiments-the wild boy of Aveyron, Genie, Casper Hauser, their name is hardly legion-are by their very nature illusive. To the degree that someone's development, someone's sensory, motor, and cognitive equipment, are isolatingly different from normal, to that degree we are likely to be curious about what it is like to be so and, at the same time, more and more likely not to receive much of an answer, and to question and pnz7le over the often enigmatic clues that are proffered us. In Helen Keller's case alone we have extraordinary deprivation combined with extraordinary recovery and brilliant development, almost as if the wild boy should have become the brilliantly talented scientist who investigated him. Her case is also unique in that her educated and then wealthy parents sought every means to alleviate her condition from the beginning, so we have a detailed record by scientists, physicians, and others before and throughout her isolation and her eventual acquisition of language.

Keller's characterization of herself fits well with the conception of qualia, language, narration, and consciousness recently championed by Daniel Dennett among others. This may well account for the dearth of serious attention to her characterization of herself in her own lifetime and the great willingness of her associates and the public to accept the edifying and wholly misleading view of her development that is enshrined in *The miracle worker* and is still repeated as gospel in scientific journals. What I have to relate here is necessarily anecdotal, for there is nothing comparable to her. But what an anecdote!

Helen Keller, whom disease rendered totally deaf and blind when in her 18th month, was transported into the world of language and cognition, through the finger spelling of her teacher, Anne Sullivan, in the sixth and succeeding years of her life. Latterly, Helen also learned to hand-write, to read and punch Braille, to operate a typewriter with speed and accuracy in English and several other languages, to

lip-read fluently with her fingers, and, with considerable difficulty, to speak in an ethereal and somewhat indistinct version of English, German, and, more clearly, French, and, on occasion, several other languages. Keller's first and most famous of her 14 books, *The story of my life* (1902), begins with the story of this transition, dramatized in stage and movie versions of *The miracle worker*, and continues through her education at the Perkins and the Wright-Humason Schools for the Blind, at Cambridge School, the most prestigious preparatory school for Radcliffe, and her first classes at Harvard (four years later, at the age of 24, she graduated *cum laude* from Radcliffe College). Though Anne Sullivan attended Keller's classes, finger-spelling the lectures to her, both Cambridge School and Radcliffe took care to exclude Sullivan from an examination process in which others finger-spelled to Keller, who answered on her typewriter. Mark Twain offered an enthusiastic account of her performance on Harvard's entrance exams:

[Keller] passes the Harvard University examination in Latin, German, French *history, belles-lettres*, and such things, and does it brilliantly, too, not in a commonplace fashion. She doesn't know merely *things*, she is splendidly familiar with the *meanings* of them. When she writes an essay on a Shakespearian character, her English is fine and strong, her grasp of the subject is the grasp of one who *knows*, and her page is electric with light (Twain, 1897/1925, pp. 280-281).

Nonetheless, throughout her life Keller had to contend with the presumption that she, lacking sight and hearing, could not be living in the real world. Whether the presumption was decked out by a sentimental but patronizing awe at her "pure soul", or by groundless and often refuted suspicions that Anne Sullivan, and perhaps others, were the real inventors of her speeches, articles, and books, and much of her conversation and letters, this presumption was above all maintained by an unreflective or occasionally explicit empiricism that took it that she could not really mean or think the things she said or wrote in a language so apparently visual and auditional about a world so obviously composed of sights and sounds.

While quite dependent on Anne Sullivan and other helpers in some respects, Keller precociously, aggressively, and successfully sought money, both to support an often sumptuous but invariably insecure life style for herself, and even more for Sullivan, and those around them, and to support an astonishing variety of causes, including Women's Suffrage, silver nitrate treatment for neonates' eyes, the Industrial Workers of the World, Eugene Debs' Socialist Party, American neutrality in World War I, the Spanish Loyalists, and Montessorian educational reforms, of which the most enduring was her lifelong work for the deaf and especially the blind, for whom she was relentlessly and ferociously determined to make possible a full life in the same world as that of those with sight and hearing. From the age of eight she was carrying on a voluminous correspondence with family, friends, the "little blind girls" of Perkins School, and the notable and wealthy, including Alexander Graham Bell, John Greenleaf Whittier, Oliver Wendell Holmes, Mark Twain, Andrew Carnegie, and many others; by the age of 10 she was publishing. Charity, energetically but discreetly pursued, often by intermediaries, was her chief support through

her teens. But soon, particularly with publication of *The story of my life*, she was well embarked on a career as a writer, lecturer, agitator, globetrotter, fund-raiser, and eventually ambassador to the world, which she actively pursued into her eighties. (Mark Twain responded to *The story of my life* by writing, "I must steal half a moment from my work to say how glad I am to have your book and how highly I value it, both for its own sake and as a remembrance of an affectionate friendship which has subsisted between us for nine years without a break and without a single act of violence that I can call to mind. I suppose there is nothing like it in heaven; and not likely to be, until we get there and show off ... I am practicing with a tin halo. You do the same". (Lash, 1980, p. 290))

Given her energetic determination to live in the real world, indeed aggressively to address its issues and problems, Keller was exasperated when she discovered that publishers who paid well were not interested in anything but more autobiography, sentimental demonstrations that she could (well almost, poor dear) lead a normal life despite her handicaps, whereas Keller intended to lead, and did, an extraordinary life, an existence as an accomplished thinker, writer, and doer, who coincidentally was blind and deaf (few struck with either affliction early in life become fully literate and none has displayed anything remotely like her accomplishments). Thus she comments acerbically in the preface to the one book in which she directly addresses her own subjectivity, *The world I live in* (1908), out of print for 50 years:

Every book is in a sense autobiographical. But while other self-recording creatures are permitted at least to seem to change the subject, apparently nobody cares what I think of the tariff, the conservation of our natural resources, or the conflicts which revolve about the name of Dreyfus. If I offer to reform the educational system of the world, my editorial friends say, "That is interesting, but will you please tell us what idea you had of goodness and beauty when you were six years old?" ... Until the editors give me opportunity to write about matters that are not-me, the world must go on uninstructed and unreformed, and I can only do my best with the one small subject upon which I am allowed to discourse.

Of course, Keller had written *The story of my life* and would go on to write *Midstream: my later life* (1929) and, in her seventies, 20 years after her lifelong companion's death, *Teacher: Anne Sullivan Macy* (1955). And Keller certainly did not allow the world long to go uninstructed and uninformed, for she pelted it with articles, books, lectures, speeches, appeals, and letters on a horde of subjects. In the finale of the first Hollywood movie about her, she herself gallops in on a white horse, blowing a horn [], and leading the peoples of the earth to freedom (*Deliverance* (1919)): Keller thought the scene "altogether too hilarious" but was at least able to eliminate another scene in which "I enter in a queer medieval costume and proclaim the Rights of Man rather feebly" (Lash, 1980, pp. 483-484).

However, in all her books except *The world I live in*, she maintains an objectivist perspective. She describes what happened to Helen Keller and what she did, and what went on in the world around her, as if the narrator (and reader) lived in a common world of colored objects, sounds, and so on. Indeed, in *The story of my life*,

she vividly and straightforwardly describes many events in the first seven years of her life that she knew in fact only through the later commentary of her family and the letters and recollections of Anne Sullivan. In *Teacher* she perspicaciously refers to herself as "the Phantom" when describing the period before "Teacher" had helped her acquire the beginnings of vocabulary and syntax, and as "Helen" until she acquired full-fledged language and had read some books ("With the acquisition of speech I moved from the baby phase of my mental growth to my identity as a separate, conscious, and, to a degree, self-determining ego" (Keller, 1955, p. 63)). In *The story of my life* she usually employs the first person but even there we find:

Two little children were seated on the veranda steps one hot July afternoon. One was black as ebony, with little bunches of fuzzy hair tied with shoestrings sticking out all over her head like corkscrews. The other was white, with long golden curls. One child was six years old, the other two or three years older. The young child was blind—that was I—and the other was Martha Washington. We were busy cutting out paper dolls; but we soon wearied of this amusement, and after cutting up our shoestrings and clipping all the leaves off the honeysuckle that were within reach, I turned my attention to Martha's corkscrews. [Phantom was soon to cut some of them off.] (Keller, 1902, p. 12)

When you read the following, representative passages of *The story of my life*, you easily forget the limitations of the actual writer:

I spent the autumn months with my family at our summer cottage, on a mountain about fourteen miles from Tuscumbia. It was called Fern Quarry, because near it there was a limestone quarry, long since abandoned.... When the bustle and excitement of preparation was at its height, the hunting party made its appearance, struggling in by twos and threes, the men hot and weary, the horses covered with foam, and the jaded hounds, panting and dejected—and not a single kill! Every man declared that he had seen at least one deer, and that the animal had come very close; but however hotly the dogs might pursue the game, however well the guns might be aimed, at the snap of the trigger there was not a deer in sight. They had been as fortunate as the little boy who said he came very near seeing a rabbit—he saw his tracks. (Keller, 1902, pp. 50-53)

Keller, of course, has no intent to deceive, but rather to convey features of a world common to her readers and, she insists and presumes, herself. In a few passages she manages both to convey that common world and to hint obliquely at the peculiarities of her subjective access to it (she could feel vibrations):

At dawn I was awakened by the smell of coffee, the rattling of the guns, and the heavy footsteps of the men as they strode about, promising themselves the greatest luck of the season. I could also feel the stamping of the horses, which they had ridden out from town and hitched under the trees. (Keller, 1902, p. 52)

On just two occasions she is straightforward and extraordinarily informative about her constraints, though still objectivist:

Just here, perhaps, I had better explain our use of the manual alphabet, which seems to puzzle people who do not know us. One who reads or talks to me spells with his hand, using the single-hand manual alphabet generally employed by the deaf. I place my hand on the hand of the speaker so lightly as not to impede its movements. The position of the hand is as easy to feel as it is to see. I do not feel each letter any more than you see each letter separately when you read. Constant practice makes the fingers very flexible, and some of my friends spell rapidly-about as fast as an expert writes on the typewriter. The mere spelling, of course, is no more a conscious act than it is in writing. (Keller, 1902, p. 62) [Good telegraphers are only conscious of reading *words* which unconsciously become separate letters which in turn become Morse code.]

I am frequently asked how I overcome the peculiar conditions under which I work in college. In the classroom I am of course practically alone. The professor is as remote as if he were speaking through a telephone. [I cannot avoid thinking of the Turing Test when I read this passage.] The lectures are spelled into my hand as rapidly as possible, and much of the individuality of the lecturer is lost to me in the effort to keep in the race. The words rush through my hand like hounds in pursuit of a hare which they often miss. But in this respect I do not think I am much worse off than the girls who take notes. If the mind is occupied with the mechanical process of hearing and putting words on paper at pell-mell speed, I should not think one could pay much attention to the subject under consideration or the manner in which it is presented. I cannot make notes during the lectures because my hands are busy listening. Usually I jot down what I can remember of them when I get home. I write the exercises, daily themes, criticisms and hour-tests, the mid-year and final examinations, on my typewriter, so that the professors have no difficulty in finding out how little I know. When I began the study of Latin prosody, I devised and explained to my professor a system of signs indicating the different meters and quantities. (Keller, 1902, p. 98)

But apart from these very rare asides, which remind me of Bertrand Russell's solitary personal interjection, in the middle of *Introduction to mathematical philosophy*, that he would continue to discourse on the ambiguities of the verb to be if he were dead from the waist down "and not merely in prison" (Russell, 1919, p. 167), Keller tells her story in a cheerful, colorful, witty, emotive, and thoroughly objectivist perspective, speaking to and of a common world, presuming that Keller, as a narrator, knew the objective and aesthetic qualities of the world as well as anyone. Her pre-linguistic life, and her initial acquisition of language, which she in fact knew only through family reminiscences and through her teacher's detailed reports and accounts, are described in the first person.

## II

Far different and distinct from all her other writing is her approach in *The world I live in*, in which she for once reluctantly turns her singular intellect to. -a direct, analysis of her subjective condition, as an otherwise busy cognitive scientist might, with determination and some defensive embarrassment, proceed to discuss some clinical peculiarities of his own condition (Oliver Sacks comes to mind). (Please do not bristle at my description of Keller as, among other occupations, a cognitive scientist. She was quite well educated and by far her most pervasive and enduring concern was with understanding, prevention, diagnosis, treatment, education, rehabilitation, and technology for the blind and deaf.)

Surely someone with the extraordinary intellectual gifts of Helen Keller should have realized that while, of course, she could write with interest, insight, and effect about the world at large, she was in a unique position to describe an unusual cognitive/sensory position and the larger implications of this for psychology more generally, as if a wild child, or a brain with severe neurological damage, should nonetheless have housed the mind of a Descartes or a Darwin. (Again, I choose Descartes and Darwin not simply for alliteration. In *Optimism, an essay* Keller writes: "Darwin could only work a half an hour at a time, yet in many diligent half-hours he laid anew the foundations of philosophy" (Keller, 1903, p. 21); in *The world I live in*, she, naturally, reiterates the existential claim of Descartes' cogito, briskly concluding: "Thus I am metaphysically established" (Keller, 1904/1908, p. 40).)

Characteristically, Keller begins her self-analysis in *The world I live in* by making the best of her task and by gently turning the tables on the reader:

It is pleasant to have something to talk about that no one else has monopolized; it is like making a new path in the trackless woods, blazing the trail where no foot has pressed before. I am glad to take you by the hand and lead you along an untrodden way into a world where the hand is supreme. But at the very outset we encounter a difficulty. You are so accustomed to light, I fear you will stumble when I try to guide you through the land of darkness and silence. The blind are not supposed to be the best of guides ... If you will follow me patiently, you will find that "there's a sound so fine, nothing lives 'twixt it and silence", and that there is more meant in things than meets the eye. (Keller, 1904/1908, p. 4)

Even in introducing her most important sensory channel, she insists that she and her reader live in a common world of objects and ideas of them:

My hand is to me what your hearing and sight together are to you. In large measure we travel the same highways, read the same books, speak the same language, yet our experiences are different. All my comings and goings turn on the hand as on a pivot. It is the hand that binds me to the world of men and women. (Keller, 1904/1908, p. 5)

Nonetheless:

You might as well say that a sight which makes you glad, or a blow which brings the stinging tears to your eyes, is unreal as to say that those impressions are unreal which I have accumulated by means of touch. The delicate tremble of a butterfly's wings in my hand, the soft petals of violets curling in the cool folds of their leaves or lifting sweetly out of the meadow-grass, the clear, firm outline of face and limb, the smooth arch of a horse's neck and the velvety touch of his nose—all these, and a thousand resultant combinations, which take shape in my mind, constitute my world. (Keller, 1904/1908, p. 6)

Admittedly:

My fingers cannot, of course, get the impression of a large whole at a glance; but I feel the parts, and my mind puts them together. I move around my house, touching object after object in order, before I can form an idea of the entire house. In other people's houses I can touch only what is shown me—the chief objects of interest, carvings on the wall, or a curious architectural feature, exhibited like a family album. Therefore a house with which I am not familiar has for me, at first, no general effect or harmony of detail. It is not a complete conception, but a collection of object-impressions, which, as they come to me, are disconnected and isolated. But my mind is full of associations, sensations, theories, and with them it constructs the house. The silent worker is imagination which decrees reality out of chaos. (Keller, 1904/1908, pp. 12-13)

Keller had been enthralled by Josiah Royce's history of philosophy course at Harvard. In *Optimism, an essay*, she writes: "Philosophy is the history of a deaf-blind person writ large" (Keller, 1903, p. 25). And she there insists on the rationalist character of human cognition—"Ideas make the world we live in":

Physics tells me that I am well off in a world which, I am told, knows neither color nor sound, but is made in terms of size, shape, and inherent qualities; for at least every object appears to my fingers standing solidly right side up, and is not an inverted image on the retina which, I understand, your brain is at infinite though unconscious labor to set back on its feet. A tangible object passes complete into my brain with the warmth of life upon it, and occupies the same place that it does in space; for, without egotism, the mind is as large as the universe. (Keller, 1904/1908, p. 10)

She notes how clearly different sensory channels minister to the same concepts, the same objective realities; if much of her tactile "seeing" is a "seeing as", or reading in, of more global and abstract mental propensities, so much of seeing is seeing as, too:

I remember in my fingers the large hands of Bishop Brooks, brimful of tenderness and a strong man's joy. Mark Twain's hand is full of whimsies and the drollest humors, and while you hold it the drollery changes to

sympathy and championship. I am told that the words I have just written do not "describe" the hands of my friends, but merely endow them with the kindly human qualities which I know they possess, and which language conveys in abstract words. The criticism implies that I am not giving the primary truth of what I feel; but how otherwise do descriptions in books I read, written by men who can see, render the visible look of a face? I read that a face is strong, gentle; that it is full of patience, of intellect; that it is fine, sweet, noble, beautiful. Have I not the same right to use these words in describing what you see? They express truly what I feel in my hand. I am seldom conscious of physical qualities, and I do not remember whether the fingers of a hand are short or long, or the skin is moist or dry. No more can you, without conscious effort, recall the details of a face, even when you have seen it many times. If you do recall the features, and say that an eye is blue, a chin sharp, a nose short, or a cheek sunken, I fancy that you do not succeed well in giving the impression of the person ... If I should tell you in physical terms how a hand feels, you would be no wiser for my account than a blind man to whom you describe a face in detail. (Keller, 1904/1908, pp. 18-21)

Indeed, she becomes snippy about the point:

It is not for me to say whether we see best with the hand or the eye. I only know that the world I see with my fingers is alive, ruddy, and satisfying. (Keller, 1904/1908, p. 42)

Recent research supports Helen's deft commentary, suggesting that we natively possess a "theory of mind" faculty which, intertwined with language, supports a richly intentional understanding of the behavior of others. Autistic children, with the same sensory input as normal children, but with a damaged theory of mind faculty, do not *read* an intentional understanding *into* the moving and expressive human hands, arms, torsos, and faces about them; lacking the *seeing as and intentional* discriminations of the non-autistic, they are "mindblind" (Baron-Cohen, 1995; Frith, 1989). An enormously driven, hard-working, and intelligent autistic person, Temple Grandin, describes herself as an "anthropologist from Mars" respecting her endless reasoned struggle to understand in others what we "see", and what Helen Keller "touched", with little effort and no conscious reflection (Grandin, 1995, p. 13). Keller was not mindblind.

Indeed, Keller herself deploys a nativist, psycho-physiological explanation for her rationalist views:

[The blind] man has imagination, sympathy, humanity, and these ineradicable existences compel him to share by a sort of proxy in a sense he has not. When he meets terms of color, light, physiognomy, he guesses, divines, puzzles out their meaning by analogies drawn from the senses he has. I naturally tend to think, reason, and draw inferences as if I had five senses instead of three. This tendency is beyond my control; it is involuntary, habitual, instinctive. I cannot compel my mind to say "I feel" instead

of "I see" or "I hear". The word "feel" proves on examination to be no less a convention than "see" and "hear" when I seek for words accurately to describe the outward things that affect my three senses. When a man loses a leg, his brain persists in impelling him to use what he has not and yet feels to be there. Can it be that the brain is so constituted that it will continue the activity which animates the sight and the hearing, after the eye and the ear have been destroyed? (Keller, 1904/1908, pp. 87-88)

It is a shame that Keller was, at least explicitly, captive to the still almost indelible tradition of "five" senses and had, in 1904, no explicit notion of proprioception and other visceral and vestibular perception, though she clearly shows implicit knowledge in the above paragraph ("to use what he has not and feels to be there") and elsewhere. I am sure she was delighted, and vindicated as well, when most neurophysiologists came to agree that there is common or somatic sensibility, including the varieties of touch, proprioception, and visceral and vestibular perception, as distinct from the "special" senses. She does contrast touch with smell:

Smell gives me more idea than touch of the manner in which sight and hearing probably discharge their functions. Touch seems to reside in the object touched, because there is a contact of surfaces ... Since I smell a tree at a distance, it is comprehensible to me that a person sees it without touching it ... By themselves, odors suggest nothing. I must learn by association to judge from them of distance, of place, and of the actions or the surroundings which are the usual occasions for them, just as I am told people judge from color, light, and sound ... Human odors are as varied and capable of recognition as hands and faces. (Keller, 1904/1908, pp. 71-73)

As if to carry further the participant-observer experiment that was her life, Keller notes that her loss of smell and taste, for several days, "gave me a clearer idea than I had ever had what it is like to be blinded suddenly". The experience embellishes her basic theme:

My temporary loss of smell proved to me, too, that the absence of a sense need not dull the mental faculties and does not distort one's view of the world, and so I reason that blindness and deafness need not pervert the inner order of the intellect. I know that if there were no odors for me I should still possess a considerable part of the world ... In my classification of the senses, smell is a little the ear's inferior, and touch is a great deal the eye's superior. (Keller, 1904/1908, p. 80)

Keller concludes this paragraph with a passage from Diderot that holds that the eye is the most superficial sense, the ear the most arrogant, smell the most voluptuous, taste the most superstitious and fickle, touch the most profound and most philosophical.

Keller recognizes that part of what is at work in her ability to live in our common world is that she can, hence, legitimately tap others' senses:

It might seem that the five senses would work intelligently together only when resident in the same body. Yet when two or three are left unaided, they reach out for complements in another body, and find that they yoke easily with the borrowed team. When my hand aches from over touching, I find relief in the sight of another. When my mind lags, wearied with the strain of forcing out thoughts about dark, musicless, colorless, detached substance it recovers its elasticity as soon as I resort to the powers of another mind which commands light, harmony, color. (Keller, 1904/1908, pp. 87-88)

You need to remind yourself that Keller will be receiving all these sights and sounds through finger spelling. But just as she makes it clear that when the spelling is fluent, the individual letters disappear into words, her central thesis, in *The world I live in*, is that the words disappear into sentences and these, in turn, into pictures and voices, sights and sounds. Her world is the world.

In *The story of my life*, Keller suggests that her early brief exposure to visual sensory experience may have been crucial to this:

I got used to the silence and darkness that surrounded me and forgot it had ever been different, until she came-my teacher-who was to set me free. But during the first nineteen months of my life I had caught glimpses of broad, green fields, a luminous sky, trees and flowers which the darkness that followed could not wholly blot out. (Keller, 1902, p. 8)

We now know that the first year or so of life is the critical period for vision; the acquisitional program that fine-tunes pattern recognition and spatial construction must be fed during this period. Babies born with cataracts attain normal vision only if the cataracts are removed during this critical period. Children whose cataracts are removed later are described as having visual sensations but are unable to integrate or make use of them. So it is plausible to assume that the 18 month period during which Keller could see may have been an important ingredient in Keller's eventual cognitive grasp of the world around her. Keller's case may also suggest that touch and proprioception play an integral role in full visual perception.

Linguistic fluency seems to require input by age five or six, and by puberty the acquisitional system seems to reach the end of the critical period for acquisition. Helen Keller was not rendered into the lamentable condition of "Genie", who, lacking exposure to age 14, proved, while otherwise bright enough, unable to acquire language (Curtiss, 1977; Rymer, 1993); similarly, the wild boy of Aveyron, "Victor", whole, like Genie, initially made painful but real progress, did not acquire language (Itard, 1801, 1807, 1962; Lane, 1984). The researchers who prepared to work with Genie were inspired by Francois Truffaut's movie, *The wild child*, which was mostly based on Itard's enthusiastic first report. At the end of Itard's effort, the French government provided Itard's housekeeper a pension to care for Victor for the rest of his days. The methods of instruction he had forged became a rich source for Helen Montessori. Genie, who lost her support system when the grant money ran out, is now wholly silent and has been permanently institutionalized (Rymer, 1993).

However, the more mature and reflective Keller who wrote *The world I live in* passes lightly over her early visual exposure and, surely correctly, lays the real emphasis on Darwinian nativism. Yes, exposure during a critical period may well be crucial, but much more fundamental is the contribution native to cognition. (As we will see shortly, Keller came to feel that *The story of my life*, for a variety of reasons; gave a misleading-in a word, miraculous, and instantaneous-picture of her cognitive/linguistic development, a picture cast, almost indelibly and mythically, into an even more scanty and misleading caricature, by that so captivating and compelling drama, *The miracle worker*.)

The blind child-the deaf-blind child-has inherited the mind of seeing and hearing ancestors-a mind measured to five senses. Therefore he must be influenced, even if it be unknown to himself, by the light, color, song which have been transmitted through the language he is taught, for the chambers of the mind are ready to receive that language. The language of the race is so permeated with color that it dyes even the speech of the blind. Every object I think of is stained with the hue that belongs to it by association and memory. (Keller, 1904/1908, pp. 123-124)

Thus even color, which in some philosophers' use of the inverted spectrum argument seems to suggest an unimaginable gulf between the subjectivity of one sighted person and another, is not, Keller insists, beyond her grasp (and for many of the reasons which other philosophers have offered for the counter-claim that we do indeed know that another's perception of redness is indeed like our own, and not like our own of green):

I understand how scarlet can differ from crimson because I know that the smell of an orange is not the smell of a grape-fruit. I can also conceive that colors have shades, and guess what shades are ... When I feel my cheeks hot, I know that I am red. I have talked so much and read so much about colors that through no will of my own I attach meanings to them, just as all people attach certain meanings to abstract terms like hope, idealism, intellect, which cannot be represented truly by visible objects. (Keller, 1904/1908, pp. 105-108)

Finally, she gives a prospective response to those, like Thomas Nagel in "What is it like to be a bat?", who insist that to have sensations is to have a world, and to have a world totally unknowable to one who lacks the particular sensory channel (Nagel, 1974):

I recognize truth by the clearness and guidance that it gives my thought, and, knowing what that clearness is, I imagine what light is to the eye. It is not a convention of language, but a forcible feeling of the reality, that at times makes me start when I say, "Oh, I see my mistake!" or "How dark, cheerless is his life!". I know these are metaphors. Still, I prove with them, since there is nothing in our language to replace them ... Because I can understand the word "reflect" figuratively, a mirror has never perplexed

me. The manner in which my imagination perceives absent things enables me to see how glasses can magnify things, bring them nearer, or remove them farther. Deny me this correspondence, this internal sense, confine me to the fragmentary, incoherent touch-world, and lo, I become as a bat which wanders about on the wing. (Keller, 1904/1908, pp. 126-127)

Is this perhaps what "sight" is like for those children with cataracts who do not have removal soon enough? In any case, Keller's claims are well supported by recent research that shows that even children blind from birth acquire words such as "see", "look", etc., and their appropriate use, at much the same age as sighted children (Gleitman, 1990; Landau, 1983).

Indeed, Keller reaches again for a philosophical and cognitive explanation:

This is really a corollary of the philosophical truth that the real world exists only for the mind. That is to say, I can never touch the world in its entirety; indeed, I touch less of it than the portion that others see or hear. But all creatures, all objects, pass into my brain entire, and occupy the same extent there that they do in material space. I declare that for me branched thoughts, instead of pines, wave, sway, rustle, make musical the ridges of mountains rising summit upon summit. Mention a rose too far away for me to smell it. Straightway a scent steals into my nostril, a form presses against my palm in all its dilating softness, with rounded petals, slightly curled edges, curving stem, leaves drooping. When I would fain view the world as a whole it rushes into vision—man, beast, bird, reptile, sky, ocean, mountains, plain, rock, pebble. The warmth of life, the reality of creation is over all—the throb of human hands, glossiness of fur, lithe windings of long bodies, poignant buzzing of insects, the ruggedness of the steep as I climb them, the liquid mobility and boom of waves upon the rocks. Strange to say, try as I may, I cannot force my touch to pervade this universe in all directions. The moment I try, the whole vanishes; only small objects or narrow portions of a surface, mere touch-signs, a chaos of things scattered at random, remain. (Keller, 1904/1908, pp. 111-112)

To have a world, or anyhow to have the world that Keller and we have shared, is to have ideas and imagination, schooled and instantiated in language, in vocabulary and the structures of syntax, that draw together and intertwine the available sensory channels in their native pathways. This is also, Keller effectively suggests, to have emotion, intentional perception, personhood, and consciousness.

### III

In *The story of my life*, Keller and Sullivan had, for a variety of reasons, inadvertently spawned a miraculous, precipitous, and misleading picture of her initial acquisition of language, and the popular imagination was fertile ground for the account, which is made still more miraculous by the distorting focus of *The miracle worker*, first a telecast, then Broadway play, and, at this date, two Hollywood movie versions. Over

40 years after publishing *The story of my life*, Keller wrote (she had made the point several times before):

Exceedingly I regret that in *The story of my life* I was careless in what I wrote about the progress Helen made in language and in learning to speak, The narrative was so telescoped that it seemed to ordinary readers as if Helen . . . in a single moment had "grasped the whole mystery of language". What misunderstandings I must have created by my artless account. (Keller, 1955, p. 4)

Keller hardly needed to blame herself. Keller's account, and still more the appended letters of Anne Sullivan to her mentor, the head of Perkins School, Mr Anagnos, which describe Keller's progress week by week, make it perfectly clear, *pave* William Gibson's drama, that the process was far longer and more complex, and much more instructive. Before Sullivan's arrival, Keller had put together a small repertoire of iconic signs and pantomime, with which she used to get things she wanted. Interestingly, the first deaf person to publish a book, Pierre Desloges, also found himself inventing a few disconnected signs before he met other deaf people who taught him sign language (Lane, 1984). In *The story of my life*, Keller mentions "yes" (nod), "no" (shake of the hand), "bread" ("I would imitate the acts of cutting the slices"), "ice-cream for dinner" ("I made the sign for working the freezer and shivered"). Sullivan (who was of course, along with Keller's mother, the source for Keller's own account of this) mentions several more in passing, though she was always pleased when Keller would drop a gesture, having learned to finger-spell its equivalent. Keller was learning manually-spelled English, not what are currently regarded as natural sign languages, such as American Sign Language, in which whole words, only a few with some residual iconicity, are given in individual signs, composed of a hand configuration, a "point of articulation" on or near the face, and a characteristic motion, plus in fluent signers a variety of inflexional overlays. In US, though not perhaps British, psycholinguistics it has become gospel that lip-reading is too difficult for deaf children (and should give way to sign) and that natural sign languages like ASL are the only appropriate and natural language for the deaf. But all seem agreed that finger-spelt English is utterly hopeless as a first and primary channel for linguistic communication. Only a small number of people born deaf acquire a genuinely fluent ability to read and write English whether first taught ASL or educated in the oralist, lip-reading tradition.

In "Beyond Herodotus: the creation of language by linguistically-impaired deaf children", Feldman (1978) describes deaf children of hearing parents who have been sequestered from signing and enrolled in a school for the deaf which teaches lip-reading and English, and forbids any kind of signing: they spontaneously invented the beginnings of a sign language. Their experience echoed that of another 18th-century Frenchman, Jean Massieu, who, with his fellow deaf siblings, developed a large number of signs. However, in all such cases, full-fledged sentences and the systematic properties of language do not appear. Presumably this requires generations of use and development (birds raised in isolation from their parents' songs develop stunted and rudimentary versions—a pidgin, so to speak). There were

no full-fledged sentences in Helen's gestural signing, any more than there were in the manual alphabet signing that Sullivan taught her until a number of weeks after the supposed miracle of "w-a-t-e-r". Some have argued that the minimal proto-sentence of spontaneously-invented signing is a combination of pointing (subject) plus predication, giving as an example a child pointing to a jar and then making a , twisting gesture (Goldin-Meadows & Mylander, 1990). Sullivan notes precisely this behavior in the very first minutes she had with Keller:

She felt my face and dress and my bag, which she took out of my hand and tried to open. It did not open easily, so she felt carefully to see if there was a keyhole. Finding that there was, she turned to me, making the sign of turning a key and pointing to the bag. (Keller, 1902, p. 304)

A note of caution is in order, however. Deaf children of deaf, and fluently-signing, parents can exhibit "signing" some time before the first words of hearing children, though subsequent vocabulary and syntactical development, at least under optimal conditions, proceeds much as with hearing children. This apparent precocity may well result from the greater complexity of pronouncing a word or, still more, finger-spelling it, as opposed to pointing and mimicking everyday manual actions such jar-opening and key-turning.

In *The miracle worker*, playwright Gibson has Sullivan again and again say, "All I have to teach is one word"; there is virtually nothing to support this in Sullivan's letters. Gibson's Keller is presented as imitating some of Sullivan's finger-spellings but as not understanding that these signs stand for, or mean, things. Then, in the climactic scene, Sullivan pumps water over Keller's hand while finger spelling "w-a-t-e-r" to her: the inner light dawns, little Keller's mouth creaks out "wah-wah", and she excitedly asks for the name of many other things, including "m-o-t-h-e-r", "f-a-t-h-e-r", etc., even going so far as yanking on a cord to ring a large bell! The miracle has occurred. Exit all.

In reality, Anne Sullivan uses the word "miracle" once in her lengthy correspondence, on March 20, 16 days before the "w-a-t-e-r" incident. And the miracle had not to do with language but with discipline, with gaining physical control over Helen:

My heart is singing for joy this morning. A miracle has happened! The light of understanding has shone upon my little pupil's mind, and behold, all things are changed! The wild little creature of two weeks ago has been transformed into a gentle child. (Keller, 1902, p. 311)

In her letter of April 3rd, two days before "w-a-t-e-r", she writes with satisfaction:

On March 31st I found Helen knew eighteen nouns and three verbs. Here is a list of the words. Those with a cross after them are words she asked for herself: Doll, mug, pin, key, dog, hat, cup, box, water, milk, candy, eye (x), finger (x), toe (x), head (x), cake, baby, mother[!], sit, stand, walk. On April 1st she learned the nouns knife, fork, spoon, saucer, tea, papa [!], bed, and the verb run. (Keller, 1902, p. 315)

Sullivan does write here, and elsewhere after the "w-a-t-e-r" incident, that Helen did not understand sentences, though she is resolved to continue finger-spelling them, just as speaking parents with hearing children. On April 5th, we have the myth-breeding incident. Sullivan did think something important transpired at the pump, but it was not the learning of the word for water. That had already happened: e.

This morning, while she was washing, she wanted to know the name for "water" [since "water" had been on her vocabulary list of five days before, Helen presumably was asking for a reminder]. When she wants to know the name of anything, she points to it and pats my hand. I spelled "w-a-t-e-r" and thought no more about it until after breakfast. Then it occurred to me that with the help of this new word I might succeed in straightening out the "mug-milk" difficulty. We went out to the pump-house, and I made Helen hold her mug under the spout while I pumped. As the cold water gushed forth, filling the mug, I spelled "w-a-t-e-r" in Helen's free hand. The word coming so close upon the sensation of cold water rushing over her hand seemed to startle her. She dropped the mug and stood as one transfixed. A new light came into her face. She spelled "water" several times. Then she dropped to the ground and asked for its name and pointed to the pump and trellis, and suddenly turning round she asked for my name. I spelled "Teacher". All the way back to the house she was highly excited, and learned the name of every object she touched, so that in few hours she had added thirty new words to her vocabulary. (Keller, 1902, p. 316)

It would seem that Helen has solved the "milk/mug" difficulty, though Sullivan does not explicitly mention this in her account. As Sullivan generalized to Mr. Anagnos about the incident,

Helen has taken the second great step in her education. She has learned that everything has a name, and that the manual alphabet is the key to everything she wants to know. (Keller, 1902, p. 315)

Obviously, Sullivan is referring to two related changes. One is that Helen has reached something like the stage in more normal language acquisition in which children begin to exhibit bursts of a general curiosity about the names of things, rather than one bounded by particular desires. The second and surely vastly more important is that Helen has bought into manual signing and an educational/emotional relationship with Sullivan. *Pace* Gibson, Helen had already learned "p-a-p-a" and "m-a-m-a", and only now asked for a *label-teacher-for* the itinerant orphan who would now become her comradely avenue to the world and for whom Helen would provide wealth, fame, and a sumptuous lifestyle. There is no suggestion in anything Sullivan or Keller wrote to support Gibson having Helen mouth "wah-wah" at the climactic moment. To the contrary, Sullivan observed that as soon as Helen had learned a finger-spelled word that could replace one of the few half-articulated oral mumblings that she still occasionally made, she would *immediately stop* the mumble. Helen had learned and used "w-a-t-e-r" days before. The playwright's fabulous "wah-wah", had it really occurred, would have been a

startling retrogression. We may be glad that Sullivan did not live long enough (as Keller did) to view Gibson's play, for it insists that only *sound* can legitimize (finger-spelled) *language*; in the very moment of claimed *miracle* it invalidates the *worker*, her method, her work, and Helen Keller herself. The mythic "wah-wah" (like having Helen ring the bell) panders to the prejudice that insists that "real language" has to be spoken and heard language. In *The world I live in*, as we have seen, Keller quotes with approval Diderot's remark that the ear is the most arrogant of our senses, *le plus orgueilleux*, (the early-onset *deaf*, who have been made *dumb* and unpersons through most of history, are Diderot's most compelling witnesses). Voice has an imperial grip on us, a guarantee of authenticity and real cognition that is withheld from language transmitted through any other channel. Indeed, the suspicion that Keller did not live in the real world, could not mean what she said, and was a sort of symbol-crunching language machine (Villey, 1930, pp. 21-22; note, however, pp. 312-317), suggests a prejudice against the Turing test so extreme that it carries the day even when the Turing test passer has a human brain and body, and the passer does not pass as simply human but as a bright, witty, multilingual product of a most prestigious university, and professional writer about a variety of topics.

But what is most invidious about the myth of *The miracle worker* is its central suggestion that the essence of language is the word, that to learn a language is just to learn a lot of labels for things. As Pierre Desloges wrote:

[F] or as long as I was living apart from other deaf people ... I was unaware of sign language. I used only scattered, isolated, and unconnected signs. I did not know the art of combining them to form distinct pictures with which one can represent various ideas, transmit them to one's peers, and converse in logical discourse. (Lane, 1984, p. 32).

Genie and Victor, of course, did learn individual words. It was the combining of words, the flow of sentences, that was beyond them and tragically so.

Still, Keller's linguistic development was extraordinarily rapid. Sullivan used complete sentences in talking with Helen and, as with normal children, Helen soon began more or less to understand even though she continued to use single words. In her April 24th letter we find Helen's first sentence, "Give baby candy", to which Mrs Keller spelled "No-baby eat-no", with Helen responding, "Baby teeth-no, baby eat-no", which Sullivan interpreted to mean "Baby cannot eat because she has no teeth".

What can make her progress seem even more impressive is that Helen was reading and writing immediately, given that her vocabulary was spelled from the beginning. So we find that, in Sullivan's letter of June 2nd,

I gave her my braille slate to play with, thinking that the mechanical pricking of holes in the paper would amuse her and rest her mind. But what was my astonishment when I found that the little witch was writing letters! ... One day she brought me a sheet that she had punched full of holes, and wanted to put it in an envelope and take it to the post office. She said, "Frank-letter". I asked her what she had written to Frank. She replied,

"Much words. Puppy motherdog-five [a family dog had had five pups]. Baby-cry. Hot. Helen walk-no. Sunfire-bad. Frank-come. Helen-kiss Frank. Strawberries-very good" ... The other night when I went to bed, I found Helen sound asleep with a big book clasped tightly in her arms. She had evidently been reading, and had fallen asleep. When I asked her about it in the morning, she said, "Book-cry", and completed her meaning by shaking and other signs of fear. I taught her the word afraid, and she said: "Helen is not afraid. Book is afraid. Book will sleep with girl". [Note the lack of pronouns.] I told her that book wasn't afraid, and must sleep in its case, and that "girl" mustn't read in bed. She looked very roguish, and apparently understood that I saw through her ruse. (Keller, 1902, p. 324).

By September Helen is embarked on real correspondence:

Helen will write little blind girls a letter Helen and teacher will come to see little blind girls Helen and teacher will go in steam car to boston Helen and blind girls will have fun blind girls can talk on fingers Helen will see Mr anagnos Mr anagnos will love and kiss Helen (Keller, 1902, p. 146).

Barely a year later, the 8-year-old writes in a letter to her aunt Evelina:

My dearest Aunt, I am coming home very soon and I think you and everyone will be very glad to see my teacher and me. I am very happy because I have learned much about many things. I am studying French and German and Latin and Greek. Se agapon is Greek, and it means I love thee. J'ai une bonne petite soeur is French, and it means I have a good little sister. Nous avons un bon pere et une bonne mere means, we have a good father and a good mother. Puer is boy in Latin, and Mutter is mother in German. I will teach Mildred many languages when I come home. (Keller, 1902, pp. 164-165).

One almost has to feel a little apprehension for Mildred. Two years later, the 10-year-old Keller is in full Dickensian high gear, writing to Oliver Wendell Holmes:

I fear that you will think Helen a very troublesome little girl if she writes to you too often; but how is she to help sending you loving and grateful messages, when you do so much to make her glad? I cannot begin to tell you how delighted I was when Mr. Anagnos told me that you had sent him some money to help educate "Baby Tom". Then I knew that you had not forgotten the dear little child, for the gift brought with it the thought of tender sympathy. I am very sorry to say that Tommy has not learned any words yet. But it is pleasant to think that he is happy and playful in his bright new home, and by and by that strange, wonderful thing teacher calls mind, will begin to spread its beautiful wings and fly away in search of knowledge-land. Words are the mind's wings, are they not? ... Did you know that the blind children are going to have their commencement

exercises in Tremont Temple, next Tuesday afternoon? I enclose a ticket, hoping you will come. (Keller, 1902, p. 202)

It is, reading this letter, not difficult to believe that Helen Keller was already supporting herself and others (her father was already "borrowing" heavily from Helen and he used his connection to her to secure a \$15,000 loan from John Spaulding, which he did not repay; he also had plans to make money by "showing" Helen to the public in vaudeville (Lash, 1980, pp. 122, 157-158, 196)). As I have remarked, Keller's narration, in *The story of my life*, is objectivist. Particularly in the account of her life before she had a secure command of language, she is not at pains to distinguish her subjective experience from what she did, as she had learned in good measure from other's accounts. Indeed, Keller's decision, in *Teacher*, to refer to herself as the "Phantom" before she learned a rudimentary vocabulary, and as "Helen" until she had secure sentence-making abilities and the beginnings of an education, and thus the secure narrative sense of "I", personality, and continuity, suggests that, in Keller's view, her personhood and confident sense of self and memory fully begin only when she has full-fledged language. In *Teacher*, she writes: "Phantom had no sense of time, and it was years before she learned of the many exhausting hours which Annie spent trying to bring her under control without breaking her spirit" (Keller, 1955, p. 39). Phantom had no sense of self or others, and no emotions:

Phantom did not seek a solution for her chaos because she knew not what it was. Nor did she seek death because she had no conception of it. All she touched was a blur without wonder or anticipation, curiosity or conscience. Nothing was part of anything, and there blazed up in her frequent, fierce anger which I remember not by the emotion but by a tactual memory of the kick or blow she dealt to the object of that anger. In the same way I remember tears rolling down her cheeks but not the grief. There were no words for that emotion or any other, and consequently they did not register. (Keller, 1955, p. 42)

In *The world I live in*, written some 50 years earlier, Keller had thus insisted:

Before my teacher came to me, I did not know that I am. I lived in a world that was a no-world. I cannot hope to describe adequately that unconscious, yet conscious time of nothingness. I did not know that I knew aught, or that I lived or acted or desired. I had neither will nor intellect. I was carried alone to objects and acts by a certain blind natural impetus ... I can remember all this, not because I knew that it was so, but because I have tactual memory. It enables me to remember that I never contracted my forehead in the act of thinking. I never viewed anything beforehand or chose it. I also recall tactually the fact that never in a start of the body or a heart-beat did I feel that I loved or cared for anything. My inner life, then, was a blank without past, present, or future, without hope or anticipation .... (Keller, 1904/1908, pp. 113-114)

Helen's case, as acutely described and argued by Keller, casts light on the current debate about the relationship between language, thought, sensory experience, and consciousness. Specifically, she anecdotally supports the view that language is essential to consciousness and that consciousness itself is, in Daniel Dennett's happy phrase, "the center of narrative gravity" (Dennett, 1991, p. 410; see also Jaynes, #1976; Leiber, 1991). In a sense her theory and her life are necessarily intertwined; she is her own demonstration. If a person profoundly and pre-lingually deaf and blind can develop thoughtful language and make her way as a force in the narrative, intellectual, social, and political world, this suggests that there may be something profoundly mistaken in an empiricism that sees thoughts as "faint copies" of sensory impressions. Equally it suggests a native cognitive/linguistic apparatus that can be fired up by, and realized within language, without essential dependence on any particular sensory channel:

When I learned the meaning of "I" and "me" and found that I was something, I began to think. Then consciousness first existed for me. Thus it was not the sense of touch that brought me knowledge. It was the awakening of my soul that first rendered my senses their value, their cognizance of objects, names, qualities, and properties. Thought made me conscious of love, joy, and all the emotions. (Keller, 1904/1908, p. 117)

Keller, of course, does not mean to substitute "I" for "w-a-t-e-r"; it is the ready and systematic use of language that counts, and this is no instant, dateable event. Her choice of "I" and "me" is significant, for the pronouns form a system, a framework of consciousness and personhood; the words "girl" and "Helen" had come long before. As one who had to live her whole life with the myth of "w-a-t-e-r", she is aware of how misleading the search for a first instance of consciousness is. She knows, from intimate personal experience, how metaphorical the notion "and then the inner light went on" has to be. We take, and she obviously takes, Anne Sullivan's account of "w-a-t-e-r", and what went on before it and for some time after it, as the best we have got of these early stages. "Phantom" and "Helen" are creatures of the public world, and hence of Sullivan's account as it is the most detailed, convincing and perspicacious; there is no further, definitive account until Keller is both outwardly and hence inwardly articulate. To ask what someone's first impressions were is to ask for a genuine, authoritative, assertion by a full-fledged, language-commanding person. But such a person already has a past, indissolubly woven of furtive memory and assumption and others' assumptions and assertions.

Daniel Dennett argues in *Consciousness explained* that, respecting much of the immediate, swift stuff of consciousness, we cannot, in principle, distinguish between whether something has happened and then been re-written or been suppressed from conscious recognition in the beginning. He suggests replacing the Cartesian theater, in which there is always a truth to this matter no matter whether we can find it out or not, with what he calls the "multiple drafts" model of consciousness, in which "the truth of the matter" is no more than the draft (if any) which eventually commands our warranted assent (or the blur left when we are not called to account or cannot comply). How much more true this must be of accounts of "first

impressions", of one's earliest existence as a conscious person. The more that we feel fully confident about someone's assertion of and characterization of their subjectivity, their consciousness and self-consciousness, the more we will be inclined to insist that the individual in question already has been conscious, self-conscious, and sentient for some considerable time. I commend to you Helen Keller's own account, which she knows in part is reconstructive and second-hand, rather than Gibson's invention, and the truth is in the accounts we can still consult more than in any "mental event" we might imagine took place on April 5th, 1887, or during the next few weeks:

It has often been asked what were my earliest impressions of the world in which I found myself. But one who thinks at all of his first impressions knows what a riddle this is. Our impressions grow and change unnoticed, so that what we suppose we thought as children may be quite different from what we actually experienced in our childhood. I only know that after my education began the world which came within my reach was all alive. (Keller, 1955, p. 119)

Consciousness and personhood are not just the cognitive command of language, someone may say, but also the having of emotions. Here, again, Keller has much to teach us. She claims to have had virtually no emotions before the advent of language. Her comment about "never contracting her forehead" is systematically echoed in Sullivan's observations. *Pace* the movie versions, Phantom was virtually expressionless. With communication and language came smiles and frowns, the panoply of reflective subjectivity. Keller is a firm adherent of the Descartes-James theory that emotions are cognitive recognitions of physiological and behavioral states (Descartes, 1649). Though she had some furtive memories of the physiological and behavioral manifestations of anger and grief that the Phantom displayed, she could not remember anger or grief because she lacked the conceptual apparatus to comprehend, then, what these manifestations meant.

*She*, Helen Keller makes it perfectly clear, did not live through the drama that has come, through *The miracle worker* and its many precursors, to define her for so many. Gibson's account of the disciplinary struggle between Sullivan and the Phantom, which forms most of the content of the drama, is of course derived from Sullivan's account: as Keller remarks, she learned of this struggle only many years later. Helen Keller's own account of her growth into consciousness and personhood, and of the full-fledged subjectivity she enjoyed, rings true. It provides us a most convincing refutation of the age-old metaphor of a light going on inside for the onset and the development of consciousness, thought, and personhood. There was, of course, a miracle—few pre-lingually deaf or blind attain normal levels of linguistic and intellectual competence, let alone the extraordinary accomplishments of Helen Keller—but it was a protracted, even prolix, miracle.

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