

Oliver Sacks, "To See and Not See"

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Early in October of 1991, I got a phone call from a retired minister in the Midwest, who told me about his daughter's fiancé, a fifty-year-old man named Virgil, who had been virtually blind since early childhood. He had thick cataracts and was also said to have *retinitis pigmentosa*, a hereditary condition that slowly but implacably eats away at the retinas. But his fiancée, Amy, who required regular eye checks herself because of diabetes, had recently taken him to see her own ophthalmologist, Dr. Scott Hamlin, and he had given them new hope. Dr. Hamlin, listening carefully to the history, was not so sure that Virgil did have *retinitis pigmentosa*. It was difficult to be certain at this stage, because the retinas could no longer be seen beneath the thick cataracts, but Virgil could still see light and dark, the direction from which light came, and the shadow of a hand moving in front of his eyes, so obviously there was not a total destruction of the retina. And cataract extraction was a relatively simple procedure, done under local anesthesia, with very little surgical risk. There was nothing to lose—and there might be much to gain. Amy and Virgil would be getting married soon—wouldn't it be fantastic if he could see? If, after a near-lifetime of blindness, his first vision could be his bride, the wedding, the minister, the church! Dr. Hamlin had agreed to operate, and the cataract on Virgil's right eye had been removed a fortnight earlier, Amy's father informed me. And, miraculously, the operation had worked. Amy, who began keeping a journal the day after the operation—the day the bandages were removed—wrote in her initial entry: "Virgil can SEE! ... Entire office in tears, first time Virgil has sight for forty years.... Virgil's family so excited, crying, can't believe it!... Miracle of sight restored incredible!" But the following day she remarked problems: "Trying to adjust to being sighted, tough to go from blindness to sighted. Has to think faster, not able to trust vision yet.... Like baby just learning to see, everything new, exciting, scary, unsure of what seeing means." [...]

What would vision be like in such a patient? Would it be "normal" from the moment vision was restored? This is what one might think at first. This is the commonsensical notion—that the eyes will be opened, the scales will fall from them, and (in the words of the New Testament) the blind man will "receive" sight.

But could it be that simple? Was not *experience* necessary to see? Did one not have to learn to see? [...]

Virgil told me later that in this first moment he had no idea what he was seeing. There was light, there was movement, there was color, all mixed up, all meaningless, a blur. Then out of the blur came a voice that said, "Well?" Then, and only then, he said, did he finally realize that this chaos of light and shadow was a face—and, indeed, the face of his surgeon. [...]

The rest of us, born sighted, can scarcely imagine such confusion. For we, born with a full complement of senses, and correlating these, one with the other, create a sight world from the start, a world of visual objects and concepts and meanings. When we open our eyes each morning, it is upon a world we have spent a lifetime *learning* to see. We are not given the world: we make our world through incessant experience, categorization, memory, reconnection. But when Virgil opened his eye, after being blind for forty-five years—having had little more

than an infant's visual experience, and this long forgotten—there were no visual memories to support a perception; there was no world of experience and meaning awaiting him. He saw, but what he saw had no coherence. His retina and optic nerve were active, transmitting impulses, but his brain could make no sense of them; he was, as neurologists say, agnostic.

Everyone, Virgil included, expected something much simpler. A man opens his eyes, light enters and falls on the retina: he sees. It is as simple as that, we imagine. And the surgeon's own experience, like that of most ophthalmologists, had been with the removal of cataracts from patients who had almost always lost their sight late in life—and such patients do indeed, if the surgery is successful, have a virtually immediate recovery of normal vision, for they have in no sense lost their ability to see. And so, though there had been a careful surgical discussion of the operation and of possible postsurgical complications, there was little discussion or preparation for the neurological and psychological difficulties that Virgil might encounter. [...]

Virgil's first formal recognitions when the bandages were taken off had been of letters on the ophthalmologist's eye chart, and we decided to test him, first, on letter recognition. He could not see ordinary newsprint clearly—his acuity was still only about 20/80—but he readily perceived letters that were more than a third of an inch high. Here he did rather well, for the most part, and recognized all the commoner letters (at least, capital letters) easily—as he had been able to do from the moment the bandages were removed. How was it that he had so much difficulty recognizing faces, or the cat, and so much difficulty with shapes generally, and with size and distance, and yet so little difficulty, relatively, recognizing letters? When I asked Virgil about this, he told me that he had learned the alphabet by touch at school, where they had used letter blocks, or cutout letters, for teaching the blind. I was struck by this and reminded of Gregory's patient S.B.: "much to our surprise, he could even tell the time by means of a large clock on the wall. We were so surprised at this that we did not at first believe that he could have been in any sense blind before the operation." But in his blind days S.B. had used a large hunter watch with no glass, telling the time by touching the hands, and he had apparently made an instant "cross-modal" transfer, to use Gregory's term, from touch to vision. Virgil too, it seemed, must have been making just such a transfer. [...]

Further problems became apparent as we spent the day with Virgil. He would pick up details incessantly—an angle, an edge, a color, a movement—but would not be able to synthesize them, to form a complex perception at a glance. This was one reason the cat, visually, was so puzzling: he would see a paw, the nose, the tail, an ear, but could not see all of them together, see the cat as a whole.

Amy had commented in her journal on how even the most "obvious" connections—visually and logically obvious—had to be learned. Thus, she told us, a few days after the operation "he said that trees didn't look like anything on earth," but in her entry for October 21, a month after the operation, she noted, "Virgil finally put a tree together—he now knows that the trunk and leaves go together to form a complete unit." And on another occasion: "Skyscrapers strange, cannot understand how they stay up without collapsing." [...]

As Virgil explored the rooms of his house, investigating, so to speak, the visual construction of the world, I was reminded of an infant moving his hand to and fro before his eyes, wagging his head, turning it this way and that, in his primal

construction of the world. Most of us have no sense of the immensity of this construction, for we perform it seamlessly, unconsciously, thousands of times every day, at a glance. But this is not so for a baby, it was not so for Virgil, and it is not so for, say, an artist who wants to experience his elemental perceptions afresh and anew. Cézanne once wrote, "The same subject seen from a different angle gives a subject for study of the highest interest and so varied that I think I could be occupied for months without changing my place, simply bending more to the right or left."

We achieve perceptual constancy—the correlation of all the different appearances, the transforms of objects—very early, in the first months of life. It constitutes a huge learning task, but is achieved so smoothly, so unconsciously, that its enormous complexity is scarcely realized (though it is an achievement that even the largest supercomputers cannot begin to match). But for Virgil, with half a century of forgetting whatever visual engrams he had constructed, the learning, or relearning, of these transforms required hours of conscious and systematic exploration each day. This first month, then, saw a systematic exploration, by sight and touch, of all the smaller things in the house: fruit, vegetables, bottles, cans, cutlery, flowers, the knickknacks on the mantelpiece—turning them round and round, holding them close to him, then at arm's length, trying to synthesize their varying appearances into a sense of unitary objecthood. [...]

Brain systems in all animals may respond to overwhelming stimulation, or stimulation past a critical point, with a sudden shutdown. Such reactions have nothing to do with the individual or his motives. They are purely local and physiological and can occur even in isolated slices of cerebral cortex: they are a biological defense against neural overload.

Still, perceptual-cognitive processes, while physiological, are also personal—it is not a world that one perceives or constructs but *one's own* world—and they lead to, are linked to, a perceptual self, with a will, an orientation, and a style of its own. This perceptual self may itself collapse with the collapse of perceptual systems, altering the orientation and the very identity of the individual. If this occurs, an individual not only becomes blind but ceases to behave as a visual being, offers no report of any change in inner state, is completely oblivious of his own visuality or lack of it. Such a condition, of total psychic blindness (known as Anton's syndrome), may occur if there is massive damage, as from a stroke, to the visual parts of the brain. But it also seemed to occur, on occasion, with Virgil. At such times, indeed, he might talk of "seeing" while in fact appearing blind and showing no visual behavior whatever. One had to wonder whether the whole basis of visual perception and identity in Virgil was as yet so feeble that under conditions of overload or exhaustion he might go in and out of not merely physical blindness but a total Anton-like psychic blindness. [...]

An infant merely learns. This is a huge, never-ending task, but it is not one charged with irresolvable conflict. A newly sighted adult, by contrast, has to make a radical switch from a sequential to a visual-spatial mode, and such a switch flies in the face of the experience of an entire lifetime. Gregory emphasizes this, pointing out how conflict and crisis are inevitable if "the perceptual habits and strategies of a lifetime" are to be changed. Such conflicts are built into the nature of the nervous system itself, for the early blinded adult who has spent a lifetime adapting and specializing his brain must now ask his brain to reverse all this. (Moreover, the brain of an adult no longer has the plasticity of a child's brain—

that is why learning new languages or new skills becomes more difficult with age. But in the case of a man previously blind, learning to see is not like learning another language; it is, as Diderot puts it, like learning language for the first time.)

In the newly sighted, learning to see demands a radical change in neurological functioning and, with it, a radical change in psychological functioning, in self, in identity. The change may be experienced in literally life-and-death terms. Valvo quotes a patient of his as saying, "One must die as a sighted person to be born again as a blind person," and the op-posite is equally true: one must die as a blind person to be born again as a seeing person. It is the interim, the limbo—"between two worlds, one dead / The other powerless to be born"—that is so terrible. Though blindness may at first be a terrible privation and loss, it may become less so with the passage of time, for a deep adaptation, or reorientation, occurs, by which one reconstitutes, reappropriates, the world in nonvisual terms. It then becomes a *different* condition, a different form of being, one with its own sensibilities and coherence and feeling. John Hull calls this "deep blindness" and sees it as "one of the orders of human being." [...]

This, then, is Virgil's story, the story of a "miraculous" restoration of sight to a blind man, a story basically similar to that of Cheselden's young patient in 1728, and of a handful of others over the past three centuries—but with a bizarre and ironic twist at the end. Gregory's patient, so well adapted to blindness before his operation, was first delighted with seeing, but soon encountered intolerable stresses and difficulties, found the "gift" transformed to a curse, became deeply depressed, and soon after died. Almost all the earlier patients, indeed, after their initial euphoria, were overwhelmed by the enormous difficulties of adapting to a new sense, though a very few, as Valvo stresses, have adapted and done well. Could Virgil have surmounted these difficulties and adapted to seeing where so many others had foundered on the way?

We shall never know, for the business of adaptation—and, indeed, of life as he knew it—was suddenly cut across by a gratuitous blow of fate: an illness that, at a single stroke, deprived him of job, house, health, and independence, leaving him a gravely sick man, unable to fend for himself. For Amy, who incited the surgery in the first place, and who was so passionately invested in Virgil's seeing, it was a miracle that misfired, a calamity. Virgil, for his part, maintains philosophically, "These things happen." But he has been shattered by this blow, has given vent to outbursts of rage: rage at his helplessness and sickness; rage at the smashing of a promise and a dream; and beneath this, most fundamental of all, a rage that had been smoldering in him almost from the beginning—rage at being thrust into a battle he could neither renounce nor win. At the beginning, there was certainly amazement, wonder, and sometimes joy. There was also, of course, great courage. It was an adventure, an excursion into a new world, the like of which is given to few. But then came the problems, the conflicts, of seeing but not seeing, not being able to make a visual world, and at the same time being forced to give up his own. He found himself between two worlds, at home in neither—a torment from which no escape seemed possible. But then, paradoxically, a release was given, in the form of a second and now final blindness—a blindness he received as a gift. Now, at last, Virgil is allowed to not see, allowed to escape from the glaring, confusing world of sight and space, and to return to his own true being, the intimate, concentrated world of the other senses that had been his home for almost fifty years.

<http://www.oliversacks.com/marsex.htm>