While autism was described almost simultaneously by Leo Kanner and Hans Asperger in the 1940s, Kanner seemed to see it as an unmitigated disaster, where Asperger felt that it might have certain positive or compensating features—a "particular originality of thought and experience, which may well lead to exceptional achievements in later life."

It is clear even in these first accounts that there is a wide range of phenomena and symptoms in autism—and many more can be added to those that Kanner and Asperger listed. A majority of Kanner-type children are retarded, often severely; a significant proportion have seizures and may have "soft" neurological signs and symptoms—a whole range of repetitive or automatic movements, such as spasms, tics, rocking, spinning, finger play, or flapping of the hands; problems of coordination and balance; peculiar difficulties, sometimes, in initiating movements, akin to what is seen in parkinsonism. There may also be, very prominently, a large range of abnormal (and often "paradoxical") sensory responses, with some sensations being heightened and even intolerable, others (which may include pain perception) being diminished or apparently absent. There may be, if language develops, odd and complex language disorders—a tendency to verbosity, empty chatter, cliché-ridden and formulaic speech; the psychologist Doris Allen describes this aspect of their autism as a "semantic-pragmatic deficit." In contrast, Asperger-type children are often of normal (and sometimes very superior) intelligence and generally have fewer neurological problems.

Kanner and Asperger looked at autism clinically, providing descriptions of such fullness and accuracy that even now, fifty years later, they can hardly be bettered. But it was not until the 1970s that Beate Hermelin and Neil O'Connor and their colleagues in London, trained in the new discipline of cognitive psychology, focused on the mental structure of autism in a more systematic way. Their work (and that of Lorna Wing, in particular) suggests that in all autistic individuals there is a
core problem, a consistent triad of impairments: impairment of social interaction with others, impairment of verbal and nonverbal communication, and impairment of play and imaginative activities. The appearance of these three together, they feel, is not fortuitous; all are expressive of a single, fundamental developmental disturbance. Autistic people, they suggest, have no true concept of, or feeling for, other minds, or even their own; they have, in the jargon of cognitive psychology, no "theory of mind." However, this is only one hypothesis among many; no theory, as yet, encompasses the whole range of phenomena to be seen in autism. Kanner and Asperger were still, in the 1970s, pondering the syndromes they had delineated more than thirty years earlier, and the foremost workers of today have all spent twenty years or more considering them. Autism as a subject touches on the deepest questions of ontology, for it involves a radical deviation in the development of brain and mind. Our insight is advancing, but tantalizingly slowly. The ultimate understanding of autism may demand both technical advances and conceptual ones beyond anything we can now even dream of.

The picture of "classical infantile autism" is a formidable one. Most people [and, indeed, most physicians], if asked about autism, summon up a picture of a profoundly disabled child, with stereotyped movements, perhaps head-banging; rudimentary language; almost inaccessible: a creature for whom very little future lies in store.

Indeed, in a strange way, most people speak only of autistic children and never of autistic adults, as if the children somehow just vanished from the earth. But though there may indeed be a devastating picture at the age of three, some autistic youngsters, contrary to expectations, may go on to develop fair language, a modicum of social skills, and even high intellectual achievements; they may develop into autonomous human beings, capable of a life that may at least appear full and normal—even though, beneath it, there may remain a persistent, and even profound, autistic singularity. Asperger had a clearer idea of this possibility than Kanner; hence we now speak of such "high-functioning" autistic individuals as having Asperger's syndrome. The ultimate difference, perhaps, is this: people with Asperger's syndrome can tell us of their experiences, their inner feelings and states, whereas those with classical autism cannot. With classical autism, there is no window, and we can only infer. With Asperger's syndrome there is self-consciousness and at least some power to introspect and report.

Whether Asperger's syndrome is radically different from classical infantile autism [in a child of three, all forms of autism may look the same] or whether there is a continuum from the severest cases of infantile autism [accompanied, perhaps, by retardation and various neurological problems] to the most gifted, high-functioning individuals, is a matter of dispute. [Isabelle Rapin, a neurologist who specializes in autism, stresses that the two conditions may be separate at the biological level even if they are sometimes similar at the behavioral level.] It is also unclear whether this continuum should be extended to include the possession of isolated "autistic traits"—peculiar, intense preoccupations and fixations, often combined with relative social withdrawal or remoteness—such as one encounters in any number of people conventionally called "normal" or seen, at most, as a little odd, eccentric, pedantic, or reclusive.

The cause of autism has also been a matter of dispute. Its incidence is about one in a thousand, and it occurs throughout the world, its features remarkably consistent even in extremely different cultures. It is often not recognized in the first year of life, but tends to become obvious in the second or third year. Though Asperger regarded it as a biological defect of affective contact—innate, inborn, analogous to a physical or intellectual defect—Kanner tended to view it as a psychogenic disorder, a reflection of bad parenting, and most especially of a chillingly remote, often professional, "refrigerator mother." At this time, autism was often regarded as "defensive" in nature, or confused with childhood schizophrenia. A whole generation of parents—mothers, particularly—were made to feel
The television show "20/20" has reported on a town in Massachusetts with a very high incidence of autism, especially in the neighborhood of a former plastics factory—but the question of whether autism can be caused by exposure to toxic agents has yet to be fully studied.

The most recent and controversial of these methods is facilitated communication. PC (originally used with children with cerebral palsy) is based on the notion that if the hand or arm of a nonverbal autistic child is supported by a facilitator, the child may then be able to communicate by typing or by using an electronic communicator or letter board. The underlying thought is that such children may have a difficulty in initiating movements [akin to that of parkinsonism], and that a light contact with another person may allow them to overcome this and achieve a normal motor facility [as may occur with touching, or even visual contact, in some parkinsonian patients—I discuss this in Awakenings, footnote 43]. The hope is that there may be, in at least some otherwise inaccessible patients, a rich but "imprisoned" world of thought and feeling that may now be released by this simple tactic.

The reported range of effects is very great, from minor releases of simple communications in some patients to entire autobiographies seemingly emanating from previously mute children. These reports have been the subject of almost evangelistic enthusiasm, among many parents and teachers of autistic children on the one hand; and of wholesale dismissal by the medical profession, on the other. It has been difficult to arrive at a calm judgment in the overcharged atmosphere of claims and dismissals, while some instances of PC have been shown to be entirely fictitious—the result of unconscious suggestion by the facilitator—and others must be suspect, there remains a nucleus of apparently bona fide phenomena that deserve a careful and openminded scrutiny.
No two people with autism are the same; its precise form or expression is different in every case. Moreover, there may be a most intricate (and potentially creative) interaction between the autistic traits and the other qualities of the individual. So, while a single glance may suffice for clinical diagnosis, if we hope to understand the autistic individual, nothing less than a total biography will do.

My own first experience with the autistic was in a grim ward in a state hospital in the mid-sixties. Many of these patients, perhaps a majority, were also retarded; many had seizures; many had violent self-abusive behaviors, such as head-banging; many had other neurological problems. These worst-off patients tended to be multiply handicapped in addition to their autism (and several had been traumatized by abuse). And yet, even in this population, there were sometimes “islands of ability,” occasionally spectacular talents, shining through the devastation, precisely as Kanner and Asperger had described—remarkable numerical or graphic powers, for instance. It was these special talents, apparently isolated from the rest of the mind and personality, and maintained by a passionate, intensely focused fixation or motivation—these savant syndromes—that engaged my special interest and that I explored most deeply at the time. And even in this population of the seemingly hopeless, there were some who responded to individual attention. One young patient, nonverbal, responded to music and danced; another, after some weeks, started to play pool with me and later, in the botanical garden, said his first word—“dandelion.” Many of these patients, born in the 1940s or early 1950s, had not even been diagnosed as autistic when young, but had been lumped together indiscriminately with the retarded and psychotic and warehoused in huge institutions since early childhood. This is probably how the severely autistic have been treated for centuries. It has only been in the last two decades or so that the picture for such youngsters has decisively changed, with increasing medical and educational awareness of their special strengths and problems, and the widespread introduction of special schools and camps for autistic children.

Visiting a few of these during August, I had seen a variety of children, some intelligent, some mildly retarded, some outgoing, some timid, all with their own individual personalities. At one such school, as I approached, I had seen some children in the playground, swinging and playing ball. How normal, I thought—but when I got closer I saw one child swinging obsessively in terrifying semicircles, as high as the swing would go, another throwing a small ball monotonously from hand to hand, another spinning on a roundabout, around and around, another not building with bricks but lining them up endlessly, in neat, monotonous rows. All were engaged in solitary, repetitive activities; none was really playing, or playing with any of the others. Some of the children inside, when not in classes, would rock back and forth; some would flap their hands or jabber unintelligibly. Occasionally, one of the teachers told me, a few of the children would have sudden panics or rages and scream or hit out uncontrollably. Some of the children would echo any words that were spoken to them. One boy apparently had an entire television show by heart and would “replay” it all day, complete with all the voices and gestures, and even sounds of applause. At Camp Winston, an attractive six-year-old boy had been given a pair of scissors and was cutting minute “H”s, a fraction of an inch high, each perfect, from a piece of paper. Most of the children looked physically normal—it was their remoteness, their inaccessibility, that were so uncanny.

Some, in adolescence, were starting to emerge—to speak fluently, to learn social skills (much more difficult for such children than any academic learning), to create social surfaces they could present to the world.

Without special schooling—schooling that for many had

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3 A pioneer here was Mira Rothenberg, who formed the Blueberry Treatment Centers in 1958, an early experience she describes in her book, Children with Emerald Eyes.
started in the nursery or at home—these autistic youngsters, despite their often good intelligence and background, might have remained profoundly isolated and disabled. They had certainly learned, many of them, to “operate” after a fashion, to show at least a formal or external recognition of social conventions—and yet the very formality or externality of their behavior was itself disconcerting. I felt this especially at one school I visited, where children would stick out rigid hands and say in loud, unmodulated voices, “Good morning my name is Peter . . . I am very well thank you how are you” without any punctuation or intonation, affect or tone, in a sort of litany. Would any of them, I wondered, ever achieve true autonomy? Use their social automatisms pragmatically, as a way of functioning in the world, but, beyond this, achieve a true inwardness of their own, perhaps a profoundly different inner life, of an autistic sort—perhaps an inner life known or shown only to a few others?

Uta Frith has written, in her book Autism: Explaining the Enigma, “Autism . . . does not go away . . . Nevertheless, autistic people can, and often do, compensate for their handicap to a remarkable degree. [But] there remains a persistent deficit . . . something that cannot be corrected or substituted.” She also implies, in a speculative mood, that there may be a reverse side to this “something,” a sort of moral or intellectual intensity or purity, so far removed from the normal as to seem noble, ridiculous, or fearful to the rest of us. She wonders, in this regard, about the blessed fools of old Russia, about the ingenious Brother Juniper, an early follower of Saint Francis, and, interestingly, about Sherlock Holmes, with his oddness, his peculiar fixations—his “little monograph on the ashes of 140 different varieties of pipe, cigar and cigarette tobacco,” his “clear powers of observation and deduction, unclouded by the everyday emotions of ordinary people,” and the extreme unconventionality that often allows him to solve a case that the police, with their more conventional minds, are unable to solve. Asperger himself wrote of “autistic intelligence” and saw it as a sort of intelligence scarcely touched by tradition and culture—unconventional, unorthodox, strangely “pure” and original, akin to the intelligence of true creativity.

Dr. Frith, when we met in London, expanded on these themes and said I must be sure to visit one of the most remarkable autistic people she knew—to see her at work and at home, to spend time with her. “Go see Temple,” Dr. Frith said as I left her office.

I had, of course, heard of Temple Grandin—everyone interested in autism has heard of her—and had read her autobiography, Emergence: Labeled Autistic, when it came out, in 1986. When I first read the book, I could not help being suspicious of it: the autistic mind, it was supposed at that time, was incapable of self-understanding and understanding others and therefore of authentic introspection and retrospection. How could an autistic person write an autobiography? It seemed a contradiction in terms. When I observed that the book had been written in collaboration with a journalist, I wondered whether some of its fine and unexpected qualities—its coherence, its poignancy, its often “normal” tone—might in fact be due to her. Such suspicions have continued to be voiced, in regard to Grandin’s book and to autistic autobiographies in general, but as I read Temple’s papers (and her many autobiographical articles) I found a detail and consistency, a directness, that changed my mind.4

Reading her autobiography and her articles, one gets a feeling of how strange, how different, she was as a child, how far

4 What one does see in Temple’s writings (and in the writings of other very able autistic adults, not excluding some with marked literary gifts) are peculiar narrative gaps and discontinuities, sudden, perplexing changes of topic, brought about (so Francesca Happe suggests in a recent essay on the subject) by Temple’s failure “to appreciate that her reader does not share the important background information that she possesses.” In more general terms, autistic writers seem to get “out of tune” with their readers, fail to realize their own or their readers’ states of mind.
campus. Downstairs was comfortable, with the usual amenities—a sofa, armchairs, a television, pictures on the wall—but I had the sense that it was rarely used. There was an immense sepia print of her grandfather’s farm in Grandin, North Dakota, in 1880; her other grandfather, she told me, had invented the automatic pilot for planes. These two were the progenitors, she feels, of her agricultural and engineering talents. Upstairs was her study, with her typewriter [but no word processor], absolutely bursting with manuscripts and books—books everywhere, spilling out of the study into every room in the house. [My own little house was once described as “a machine for working,” and I had a somewhat similar impression of Temple’s.] On one wall was a large cowhide with a huge collection of identity badges and caps, from the hundreds of conferences she has lectured at. I was amused to see, side by side, an I.D. from the American Meat Institute and one from the American Psychiatric Association. Temple has published more than a hundred papers, divided between those on animal behavior and facilities management and those on autism. The intimate blending of the two was epitomized by the medley of badges side by side.

Finally, without diffidence or embarrassment [emotions unknown to her], Temple showed me her bedroom, an austere room with whitewashed walls and a single bed and, next to the bed, a very large, strange-looking object. “What is that?” I asked.

“That’s my squeeze machine,” Temple replied. “Some people call it my hug machine.”

The device had two heavy, slanting wooden sides, perhaps four by three feet each, pleasantly upholstered with a thick, soft padding. They were joined by hinges to a long, narrow bottom board to create a V-shaped, body-sized trough. There was a complex control box at one end, with heavy-duty tubes leading off to another device, in a closet. Temple showed me this as well. “It’s an industrial compressor,” she said, “the kind they use for filling tires.”

“What does this do?”

“It exerts a firm but comfortable pressure on the body, from the shoulders to the knees,” Temple said. “Either a steady pressure or a variable one or a pulsating one, as you wish,” she added. “You crawl into it—I’ll show you—and turn the compressor on, and you have all the controls in your hand, here, right in front of you.”

When I asked her why one should seek to submit oneself to such pressure, she told me. When she was a little girl, she said, she had longed to be hugged but had at the same time been terrified of all contact. When she was hugged, especially by a favorite [but vast] aunt, she felt overwhelmed, overcome by sensation; she had a sense of peacefulness and pleasure, but also of terror and engulfment. She started to have daydreams—she was just five at the time—of a magic machine that could squeeze her powerfully but gently, in a huglike way, and in a way entirely commanded and controlled by her. Years later, as an adolescent, she had seen a picture of a squeeze chute designed to hold or restrain calves and realized that that was it: a little modification to make it suitable for human use, and it could be her magic machine. She had considered other devices—inflatable suits, which could exert an even pressure all over the body—but the squeeze chute, in its simplicity, was quite irresistible.

Being of a practical turn of mind, she soon made her fantasy come true. The early models were crude, with some snags and glitches, but she eventually evolved a totally comfortable, predictable system, capable of administering a “hug” with whatever parameters she desired. Her squeeze machine had worked exactly as she hoped, yielding the very sense of calmness and pleasure she had dreamed of since childhood. She could not have gone through the stormy days of college without her squeeze machine, she said. She could not turn to human beings for solace and comfort, but she could turn to it. The machine, which she neither exhibited nor concealed but kept openly in her room at college, excited derision and suspicion and was seen by psychiatrists as a “regression” or “fixation”—something that needed to be psychoanalyzed and
resolved. With her characteristic stubbornness, tenacity, single-mindedness, and bravery—along with a complete absence of inhibition or hesitation—Temple ignored all these comments and reactions and determined to find a scientific "validation" of her feelings.

Both before and after writing her doctoral thesis, she made a systematic investigation of the effects of deep pressure on autistic people, college students, and animals, and recently a paper of hers on this was published in the *Journal of Child and Adolescent Psychopharmacology*. Today, her squeeze machine, variously modified, is receiving extensive clinical trials. She has also become the world's foremost designer of squeeze chutes for cattle and has published, in the meat-industry and veterinary literature, many articles on the theory and practice of humane restraint and gentle holding.

While telling me this, Temple knelt down, then eased herself, facedown and at full length, into the "V," turned on the compressor (it took a minute for the master cylinder to fill), and twisted the controls. The sides converged, clapping her firmly, and then, as she made a small adjustment, relaxed their grip slightly. It was the most bizarre thing I had ever seen, and yet, for all its oddness, it was moving and simple. Certainly there was no doubt of its effect. Temple's voice, often loud and hard, became softer and gentler as she lay in her machine. "I concentrate on how gently I can do it," she said, and then spoke of the necessity of "totally giving in to it . . . I'm getting real relaxed now," she added quietly. "I guess others get this through relation with other people."

It is not just pleasure or relaxation that Temple gets from the machine but, she maintains, a feeling for others. As she lies in her machine, she says, her thoughts often turn to her mother, her favorite aunt, her teachers. She feels their love for her, and hers for them. She feels that the machine opens a door into an otherwise closed emotional world and allows her, almost teaches her, to feel empathy for others.

After twenty minutes or so, she emerged, visibly calmer, emotionally less rigid (she says that a cat can easily sense the difference in her at these times), and asked me if I would care to try the machine.

Indeed, I was curious and scrambled into it, feeling a little foolish and self-conscious—but less so than I might have been, because Temple herself was so wholly lacking in self-consciousness. She turned the compressor on again and filled the master cylinder, and I experimented gingerly with the controls. It was indeed a sweet, calming feeling—one that reminded me of my deep-diving days long ago, when I felt the pressure of the water on my diving suit as a whole-body embrace.

After my own trial in the squeeze machine, and with both of us suitably relaxed, we drove out to the university's experimental farm, where Temple does much of her basic fieldwork. I had earlier thought there might be a separation, even a gulf, between the personal—and, so to speak, private—realm of her autism and the public realm of her professional expertise. But it was becoming increasingly clear to me that they were hardly separated at all; for her, the personal and the professional, the inward and the outward, were completely fused.

"Cattle are disturbed by the same sorts of sounds as autistic people—high-pitched sounds, air hissing, or sudden loud noises, they cannot adapt to these," Temple told me. "But they are not bothered by low-pitched, rumbling noises. They are disturbed by high visual contrasts, shadows or sudden movements. A light touch will make them pull away, a firm touch calms them. The way I would pull away from being touched is the way a wild cow will pull away—getting me used to being touched is very similar to taming a wild cow." It was precisely her sense of the common ground (in terms of basic sensations and feelings) between animals and people that allowed her to show such sensitivity to animals, and to insist so forcefully on their humane management.

She had been primed to this knowledge, she felt, partly through the experience of her own autism and partly because
she came from a long line of farmers and, as a child, had spent much of her time on farms. And her own mode of thinking allowed her no escape from these realities. "If you're a visual thinker, it's easier to identify with animals," she said as we drove to the farm. "If all your thought processes are in language, how could you imagine that cattle think? But if you think in pictures ..."

Temple has always been a powerful visualizer. She was astonished when she discovered that her own near-hallucinatory power of visual imagery was not universal—that there were others who, apparently, had other ways to think. She is still very puzzled by this. "How do you think?" she kept asking me. But she had no sense that she could draw, make blueprints, until she was twenty-eight, when she met a draftsman and watched him drawing plans. "I saw how he did it," she told me. "I went and got exactly the same instruments and pencils as he used—a point-five-millimeter HB Pentel—and then I started pretending I was him. The drawing did itself, and when it was all done I couldn't believe I'd done it. I didn't have to learn how to draw or design, I pretended I was David—I appropriated him, drawing and all."  

Temple constantly runs "simulations," as she calls them, in her head: "I visualize the animal entering the chute, from different angles, different distances, zooming in or wide angle, even from a helicopter view—or I turn myself into an animal, and feel what it would feel entering the chute."

But if one thinks only in pictures, I could not help reflecting, one might not understand what nonvisual thinking was like, and one would miss the richness and ambiguity, the cultural presuppositions, the depth, of language. All autistics, Temple had said earlier, were intensely visual thinkers, like her. If this was true, was it, I wondered, more than a coincidence? Was Temple's intense visuality a vital clue to her autism?

A cattle farm, even a large one, is often a quiet place, but when we arrived we could hear a great tumult of bellowing. "They must have separated the calves from the cows this morning," Temple said, and, indeed, this was what had happened. We saw one cow outside the stockade, roaming, looking for her calf, and bellowing. "That's not a happy cow," Temple said. "That's one sad, unhappy, upset cow. She wants her baby. Bellowing for it, hunting for it. She'll forget for a while, then start again. It's like grieving, mourning—not much written about it. People don't like to allow them thoughts or feelings. Skinner wouldn't allow them."

As an undergraduate in New Hampshire, she had written to B. F. Skinner, the great behaviorist, and finally she had visited him. "It was like having an audience with God," she said. "It was a letdown. He was just a regular human being. He said, 'We don't have to know how the brain works—it's just a matter of conditioned reflexes.' No way I could believe it was just stimulus-response." The Skinner era, Temple concluded, was one that denied feelings to animals and rationalized regarding them as automata; it was an era of exceptional cruelty, both in

\[ Somebody Somewhere \] describes how she "adopted" two personas, Carol and Willie, and thought and spoke through them, in the many years when she had only a rudimentary identity herself.
animal experimentation and in the management of farms and slaughterhouses. She had read somewhere that behaviorism was an uncaring science, and this was exactly how she herself felt about it. Her own aspiration was to bring a vivid sense of animals' feelings back into husbandry.

Seeing the grieving cow and hearing the bereft bellows angered Temple and turned her mind toward inhumanities in slaughter. She had nothing to do with chickens, she said, but the killing of chickens was particularly loathsome. "When it's time for chickens to go to McNuggetland, they pick 'em up, hang 'em upside down, cut their throats." A similar shackling of cattle, and hanging them upside down so that the blood rushes to their heads before their throats are cut, is a common sight in old kosher slaughterhouses, she said. "Sometimes their legs get broken, they scream in pain and terror." Mercifully, such practices are now starting to change. Properly performed, "slaughter is more humane than nature," she went on. "Eight seconds after the throat's cut, endorphins are released; the animal dies without pain. It is similar in nature, after sheep have been ripped up by coyotes. Nature has done this to ease the pain of a dying animal." What is terrible, the more so because it is avoidable, she feels, is pain and cruelty, the introduction of fear and stress before the lethal cutting; and it is this that she is most concerned to prevent. "I want to reform the meat industry. The activists want to shut it down," she said, and added, "I don't like radical anything, left or right. I have a radical dislike of radicals."

Away from the bellowing of the separated calves and mothers, whose distress Temple seemed to feel in her bones, we found a calm, quiet area of the farm, where cattle were browsing placidly. Temple knelt and held out some hay, and a cow came over to her and took the hay, nudging her hand with its soft muzzle. A soft, happy look came over Temple's face. "Now I'm at home," she said. "When I'm with cattle, it's not at all cognitive. I know what the cow's feeling."

The cattle seemed to sense this, sensed her calm, her confidence, and came up to her hand. They did not come up to me, sensing, perhaps, the unease of the city dweller, who, living mostly in a world of cultural conventions and signals, is unsure how to behave with huge, nonverbal animals.

"It's different with people," she went on, repeating her earlier remark about feeling like an anthropologist on Mars. "Studying the people there, trying to figure out the natives. But I don't feel like that with animals."

I was struck by the enormous difference, the gulf, between Temple's immediate, intuitive recognition of animal moods and signs and her extraordinary difficulties understanding human beings, their codes and signals, the way they conduct themselves. One cannot say that she is devoid of feeling or has a fundamental lack of sympathy. On the contrary, her sense of animals' moods and feelings is so strong that these almost take possession of her, overwhelm her at times. She feels she can have sympathy for what is physical or physiological—for an animal's pain or terror—but lacks empathy for people's states of mind and perspectives. When she was younger, she was hardly able to interpret even the simplest expressions of emotion, she learned to "decode" them later, without necessarily feeling them. [Similarly, Dr. Hermelin, in London, had told me a story about an intelligent autistic girl of twelve who came to her and said, of another student, "Joanie is making a funny noise." Upon going to investigate, Hermelin found Joanie crying bitterly. The meaning of weeping had been completely missed by the autistic girl: she had merely registered it as something physical, "a funny noise." I was reminded, too,

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7 She was deeply affected, physically shocked, when, during our talk, I imitated a young man with extremely severe Tourette's syndrome—how, with violent tics, he had put out his own eyes. Expressions of raw impulse, violence, pain, she perceived, reacted to, straightaway. I was reminded of how, in a completely benign way, Shani, with his Tourette's, had got through to the autistic children at Camp Winston, at a level of emotion and animal sympathy, a level more elemental, more directly conveyable, than that of complex states of mind and perspectives.
of Jessy Park, and how she was fascinated by the fact that onions could make one weep but was totally unable to comprehend that one could also weep for joy.*

"I can tell if a human being is angry," she told me, "or if he's smiling." At the level of the sensorimotor, the concrete, the unmediated, the animal, Temple has no difficulty. But what about children, I asked her. Were they not intermediate between animals and adults? On the contrary, Temple said, she had great difficulties with children—trying to talk with them, to join in their games (she could not even play peekaboo with a baby, she said, because she would get the timing all wrong)—as she had had such difficulties herself as a child. Children, she feels, are already far advanced, by the age of three or four, along a path that she, as an autistic person, has never advanced far on. Little children, she feels, already "understand" other human beings in a way she can never hope to.

What is it, then, I pressed her further, that goes on between normal people, from which she feels herself excluded? It has to do, she has inferred, with an implicit knowledge of social conventions and codes, of cultural presuppositions of every sort. This implicit knowledge, which every normal person accumulates and generates throughout life on the basis of experience and encounters with others, Temple seems to be largely devoid of. Lacking it, she has instead to "compute" others' intentions and states of mind, to try to make algorithmic, explicit, what for the rest of us is second nature. She herself, she infers, may never have had the normal social experiences from which a normal social knowledge is constructed.

And it may be from this, too, that her difficulties with gesture and language stem—difficulties that were devastating when she was a near-speechless child, and also in the early days of speech, when she mixed all her pronouns up, not able to grasp the different meanings of "you" and "I," depending on context.

It is extraordinary to hear Temple speak of this time, or to read of it in her book. When she was three, as an outside chance, although her family did not have much belief in its promise, she was sent to a special nursery school for disturbed and handicapped children, and a trial of speech therapy was suggested. Somehow, the school and the speech therapist got through to Temple, rescued her (she later came to feel) from the abyss, and started her on her slow emergence. She remained clearly autistic, but her new powers of language and communication now gave her an anchor, some ability to master what had been total chaos before. Her sensory system, with its violent oscillations of oversensitivity and undersensitivity, started to stabilize a little. There were many periods of backsliding and regression, but it is clear that by the age of six she had achieved fair language and, with this, had crossed the Rubicon that divides high-functioning people like her from low-functioning ones, who never achieve proper language or autonomy. With the access of language, the terrible triad of impairments—social, communicative, and imaginative—began to yield somewhat. Temple started having some contact with others, especially one or two teachers who could appreciate her intelligence, her specialness, and could withstand her pathology—her now-incessant talking and questioning, her strange fixations, her rages. No less crucial was the emergence of some genuine playfulness and creativity—painting, drawing, making cardboard models and sculptures, as well as "unique and creative ways of being naughty." At eight, Temple was starting to achieve the pretend-play that normal children achieve as toddlers, but the lower-functioning autistic child never achieves at all.

Her mother, an aunt, and several teachers were crucial, but also crucial, on the long journey up, was the slow develop-

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* Some autistic people keep dogs, as blind or deaf people may do, to assist their perceptions—in this case, social perceptions. They may use dogs to "read" the minds and intentions of visitors, which they may feel unable to do themselves. I know two autistic people who regard their dogs as having "telepathic" abilities, but of course the abilities of their dogs are merely normal canine ones—and indeed normal human ones—which they themselves lack.
ment that many autistics show; autism, being a developmental disorder, tends to become less extreme as one grows older, and one may learn to cope with it better.

Temple had longed for friends at school and would have been totally, fiercely loyal to a friend (for two or three years, she had an imaginary friend), but there was something about the way she talked, the way she acted, that seemed to alienate others, so that, while they admired her intelligence, they never accepted her as part of their community. "I couldn't figure out what I was doing wrong. I had an odd lack of awareness that I was different. I thought the other kids were different. I could never figure out why I didn't fit in." Something was going on between the other kids, something swift, subtle, constantly changing—an exchange of meanings, a negotiation, a swiftness of understanding so remarkable that sometimes she wondered if they were all telepathic. She is now aware of the existence of these social signals. She can infer them, she says, but she herself cannot perceive them, cannot participate in this magical communication directly, or conceive the many-leveled kaleidoscopic states of mind behind it. Knowing this intellectually, she does her best to compensate, bringing immense intellectual effort and computational power to bear on matters that others understand with unthinking ease. This is why she often feels excluded, an alien.

A crucial event occurred when she was fifteen. She had become fascinated with the squeeze chutes used to hold cattle. A science teacher took her fixation seriously, instead of scoffing, and suggested she actually build her own squeeze chute. From this beginning, he guided her from particular considerations of farm animals and machinery to a general interest in biology and all science. And here Temple, still quite abnormal in her understanding of ordinary or social language—she still missed allusions, presuppositions, irony, metaphors, jokes—found the language of science and technology a huge relief. It was much clearer, much more explicit, with far less depending on unstated assumptions. Technical language was as easy for her as social language was difficult, and it now provided her with an entry into science.

But if there was a resolution at this level, with the focusing of much of her intellectual and emotional energy on science, other tensions, anxieties—even agonies—remained. With the onset of adolescence, Temple started to confront the realization that she might never lead a "normal" life, or enjoy the "normal" satisfactions—love and friendship, recreation and society—that went with it. This realization may be devastating for gifted young autistic people at this stage and has been a cause of depression in some and even of suicide on occasion. Temple dealt with this realization partly by renunciation and dedication: she would be celibate, she decided, and would make science her whole life.

Adolescence also taught her that not only her emotional state but her whole mental and physical being were very finely tuned and could easily be thrown out of balance by certain sensory stimuli, stress, exhaustion, or conflict. The hormonal turbulences of adolescence, in particular, threw her up and down. But there was also a passion, an intensity, at this turbulent time, and it was only when she had finished college and was launched on her career, she said, that she could afford to calm down. Indeed, she felt she had to, otherwise her body would destroy itself. At this point, she started on a small dose of imipramine, a drug marketed as an antidepressant. In her book, Temple speaks of the pros and cons of this:

Gone are the frenzied searches for the basic meaning of life. I no longer fixate on one thing since I am no longer driven. During the last four years I have written very few entries in my diary because the anti-depressant has taken away much of the fervor. With the passion subdued, my career and ... business is going well. Since I am more re-

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9 The provocative stimuli may be very different from one person to another: one autistic person will be intolerant of high-pitched noises, another of low-pitched noises, one of a fan, another of a washing machine. There may also be various visual, tactile, and olfactory idiosyncracies.
laxed, I get along better with people, and stress-related health problems, such as colitis, are gone. Yet if medication had been prescribed for me in my early twenties, I might not have accomplished as much as I have. The “nerves” and the fixations were great motivators until they tore my body apart with stress-related health problems.

I was reminded, reading this, of what Robert Lowell once told me about being on lithium for his manic-depressive disorder: “I feel much ‘better,’ in a way, calmer, stabler—but my poetry has lost much of its force.” While Temple, too, is well aware of the cost of being calmed down, she feels, at this point in her life, that it is well worth paying. Yet she sometimes misses the emotions, the frenzies, she once felt.

The other side of a much-retarded development may be a continuing ability to develop social skills and perceptions throughout life, and the last twenty years have indeed been years of continuing development for Temple. Ten years ago, when she first started lecturing, I had been told, she often seemed not to be addressing the audience—she would have no eye contact and might actually be facing in another direction—and she could not take questions after the lecture. Now she spends almost 90 percent of her time on the road, lecturing around the world, sometimes about autism, sometimes about animal behavior. She has become much more fluent in her lecturing style, has more eye contact with the audience, and may even add humorous asides and improvisations; she answers—and, if need be, parries—questions easily. In her social life, she seems also to have developed, so that most recently, Temple told me, she has been able to enjoy spending time with two or three friends. But achieving genuine friendship, appreciating other people for their otherness, for their own minds, may be the most difficult of all achievements for an autistic person. Uta Frith, in *Autism and Asperger Syndrome*, writes, “Asperger syndrome individuals . . . do not seem to possess the knack of entering and maintaining intimate two-way personal relationships, whereas routine social interactions are well within their grasp.” Her colleague Peter Hobson writes of an intelligent but autistic man who could not comprehend the meaning of “a friend.” Yet it seemed to me, as I listened to her, that Temple, now in her forties, had grasped at least something of the nature of friendship.

On this note—we had been walking and talking for almost two hours—we finished our visit to the university farm and took a break for lunch. Temple, it seemed to me, was happy to stop talking, stop thinking for a while; there had been an almost ferocious intensity in the self-examination I had forced on her (although it was not unlike the self-examination she forces on herself daily, struggling, as always, to understand and live with autism in a nonautistic world). “Normality” had been revealed more and more, as we spoke, as a sort of front, or façade, for her, albeit a brave and often brilliant front, behind which she remained, in some ways, as far “outside,” as unconnected, as ever. “I can really relate to Data,” she said as we drove away from the farm. She is a “Star Trek” fan, as I am, and her favorite character is Data, an android who, for all his emotionlessness, has a great curiosity, a wistfulness, about being human. He observes human behavior minutely, and sometimes impersonates it, but longs, above all, to be human. A surprising number of people with autism identify with Data, or with his predecessor, Mr. Spock.

This was the case with the B.’s, the autistic family I had visited in California—the older son, like the parents, with Asperger’s syndrome, the younger with classical autism. When I first arrived at their house, the whole atmosphere was so “normal” that I wondered if I had been misinformed, or if I had not, perhaps, ended up at the wrong house, for there was nothing obviously “autistic” about them or it. It was only after I had settled down that I noticed the well-used trampoline,
where the whole family, at times, likes to jump and flap their arms; the huge library of science fiction, the strange cartoons pinned to the bathroom wall; and the ludicrously explicit directions, pinned up in the kitchen—for cooking, laying the table, and washing up—suggesting that these had to be performed in a fixed, formulaic way (this, I learned later, was an autistic in-joke). Mrs. B. spoke of herself, at one point, as "bordering on normality," but then made clear what such "bordering" meant: "We know the rules and conventions of the 'normal,' but there is no actual transit. You act normal, you learn the rules, and obey them, but . . ."

"You learn to ape human behavior," her husband interpolated. "I still don't understand what's behind the social conventions. You observe the front—but . . ."

The B.'s, then, had learned a front of normality, which was necessary, given their professional lives, their living in the suburbs and driving a car, their having a son in regular school, and so on. But they had no illusions about themselves. They recognized their own autism, and they had recognized each other's, at college, with a sense of such affinity and delight that it was inevitable they would marry. "It was as if we had known each other for a million years," Mrs. B. said. While they were well aware of many of the problems of their autism, they had a respect for their differentness, even a pride. Indeed, in some autistic people this sense of radical and ineradicable
differentness is so profound as to lead them to regard themselves, half jokingly, almost as members of another species ("They beamed us down on the transporter together," as the B.'s liked to say), and to feel that autism, while it may be seen as a medical condition, and pathologized as a syndrome, must also be seen as a whole mode of being, a deeply different mode or identity, one that needs to be conscious (and proud) of itself.

Temple's attitudes seem similar to this: she is very aware (if only intellectually, inferentially) of what she is missing in life, but equally (and directly) aware of her strengths, too—her concentration, her intensity of thought, her single-mindedness, her tenacity, her incapacity for dissembling, her directness, her honesty. She suspects—and I, too, was coming more and more to suspect—that these strengths, the positive aspects of her autism, go with the negative ones. And yet there are times when she needs to forget that she is autistic, to feel at one with others, not outside, not different.

Having spent the morning among beef cattle, and planning to visit a slaughterhouse (or "meat-packing plant," in the industry's euphemism) in the afternoon, we found ourselves a little averse to meat and had a Mexican meal of rice and beans. After lunch, we drove to the airport and took a tiny commuter plane, then drove out to the plant. Temple was proud of its layout and wanted to show me how it looked. Such plants are closed to the public and maintain a high degree of security. Temple had designed the facilities a couple of years earlier and still had her overalls and I.D. with the plant's insignia. But I was a problem: What was to be done with me? Temple had thought of this in the morning and had selected from her hat collection a sanitary engineer's bright-yellow hard hat. She handed it to me, saying, "That'll do. You look good in it. It goes with your khaki pants and shirt. You look exactly like a sanitary engineer." (I blushed; no one had ever told me this before.) "Now all you have to do is behave like one, think like one." I was astounded at this, for autistic peo-
ple, it is said, have no pretend-play, and here Temple had, very coolly, and without the slightest hesitation, determined on a subterfuge and was all set to smuggle me into the plant.

Our entry, in the event, went off without trouble. Temple drove through the gate with a sublime air of confidence, waved cheerily to the security guard, and was as cheerily waved in. “Keep the hard hat on,” she said to me when we parked. “Keep it on the whole time. You’re a sanitary engineer here.”

We stopped to lean over the fence where the cattle are corralled outside the large plant building and then followed the path that the cattle follow when they go on their last journey, up and up a curving ramp leading into the main plant building—“the stairway to Heaven,” Temple called it. Here, again, I was puzzled. The autistic have difficulty with metaphor, it is said, and never use irony. But, looking at Temple’s straight, serious expression, I was not sure that, for her, this was metaphor or irony. She had heard the phrase—perhaps it seemed to her literally true. She describes in her autobiography a similar literalization of a symbol when, as an adolescent, she heard a minister quote John 10:9—“I am the door: by me if any man enter in, he shall be saved”—and the minister added, “Before each of you there is a door opening into Heaven. Open it and be saved.” Temple writes:

Like many autistic children, everything was literal to me. My mind centered on one thing. Door. A door opening to Heaven.... I had to find that door.... The closet door, the bathroom door, the front door, the stable door—all were scrutinized and rejected as the door. Then one day.... I noticed that an addition to our dorm was being constructed.... A small platform extended out from the building and I climbed on it. And there was the door! It was a little wooden door that opened out onto the roof.... A feeling of relief flooded me.... A feeling of love and joy.... I'd found it! The door to my Heaven.

Later, Temple told me that she believed in some sort of existence after death (even if it was only as “an energy impression” in the universe). Intensely conscious of animals’ emotions, their “humanity,” she had to grant them some sort of immortality, too.

We walked slowly up by the side of the gently curving, high-walled ramp, where cattle walk in single file, blithely unconscious of what is to come, up to the stunner, with its lethal bolt. Temple has been a pioneer in the design of such ramps, and her name is associated, in the trade, with the introduction of curved chutes. As we ascended the catwalk, looking over the chute’s walls, Temple told me of their special virtues, how curved chutes prevented the animals from seeing what was at the other end of the ramp until they were almost there (thus preventing any apprehension) and, at the same time, took advantage of the cow’s natural tendency to circle. The high walls prevented upsetting distractions and served to concentrate the animals on their walk.

At the top of the ramp, inside the building, the animals found themselves moved, almost insensibly, onto a conveyor belt running under their bellies. [This “double-rail restrainer” was another innovation of Temple’s.] A few seconds later, the animal is instantly killed by a bolt shot by compressed air through the brain. A very similar system, Temple told me, might be used for hogs as well, though typically these would be killed by electrical stunning, not a bolt. She added an interesting gloss: “An electroshock machine”—such as is used in some psychiatric facilities—“and a hog stunner have almost exactly the same parameters: around one ampere, at three hundred volts.” A slight misplacement of the leads, she added, and the patient would be killed, stunned, like a hog. She was a bit shocked, she allowed, when she realized this.

I got a sense of horror as Temple showed me the stunner, but the cattle, she assured me, had no intimation, no apprehension, of what was to happen to them; her whole effort, indeed, was to remove anything that could frighten or stress the
animals, so that they could go peacefully, gently, unknowingly, to their death. But I still felt queasy about the whole thing. How did she feel, how did others feel, working in such places?

Temple has explored this and has written a classic paper on the subject.11 Some employees in slaughterhouses, she notes, rapidly develop a protective hardness and start killing animals in a purely mechanical way: “The person doing the killing approaches his job as if he was stapling boxes moving along a conveyor belt. He has no emotions about his act.” Others, she reveals, “start to enjoy killing and . . . torment the animals on purpose.” Speaking of these attitudes turned Temple’s mind to a parallel: “I find a very high correlation,” she said, “between the way animals are treated and the handicapped . . . Georgia is a snake pit—they treat [handicapped people] worse than animals. . . . Capital-punishment states are the worst animal states and the worst for the handicapped.”

All this makes Temple passionately angry, and passionately concerned for humane reform: she wants to reform the treatment of the handicapped, especially the autistic, as she wants to reform the treatment of cattle in the meat industry. (The only fitting approach to killing animals, the only one that shows respect for the animal, Temple feels, is the ritual or “sacred” one.)

It was an enormous relief getting out of the slaughter plant, away from the hideous smell, which seemed to permeate every inch of the place and had made me hold my stomach and my breath sometimes in an effort not to puke; an enormous relief, once we were outside, to breathe the sharp, clear air, untainted with the smell of blood and offal; an enormous relief, morally, to get away from the idea of killing. I asked Temple about this as we drove away. “Nobody should kill an-

memory, for her—it seemed to play itself in her mind with extraordinary detail—and by its unwavering quality. It was as if the original scene, its perception [with all its attendant feelings], was reproduced, replayed, with virtually no modification. This quality of memory [so akin to Stephen Wiltshire’s, in a way] seemed to me both prodigious and pathological—prodigious in its detail and pathological in its fixity, more akin to a computer record than to anything else. Such computational analogies, indeed, are frequently brought up by Temple herself: “My mind is like a CD-ROM in a computer—like a quick-access videotape. But once I get there, I have to play that whole part.” She could not just focus, for instance, on the cradling of an animal in its last moments; she had to play in memory, the entire scene, from the animal entering the chute and progressing steadily (“no fast-forward, it takes about two minutes”) until the death of the animal and its collapse, after

12 The psychologist Frederic Bartlett writes of remembering as “reconstruction,” but for Temple [as for Stephen], seemingly, this does not occur, or occurs to a much smaller extent than usual. Nor is memory, for her, entirely internalized as part of the self—thus her frequent allusions to “videotapes” and “computer records,” and other external forms of memory storage.

Temple’s self-description here is intriguingly at odds with some of the current formulations of imagery and memory, as conceived by Damasio, Edelman, and others. Thus Damasio writes, in Descartes’ Error:

Images are not stored as facsimile pictures of things, or events, or words, or sentences. The brain does not file Polaroid pictures of people, objects, landscapes, nor does it store audiotapes of music and speech; it does not store films of scenes in our lives. In brief, there seems to be no permanently held pictures of anything, even miniaturized, no microfiches or microfilms, no hard copies.

Yet this, Damasio emphasizes, “must be reconciled with the sensation... that we can conjure up” such reproductions or facsimile images. One must wonder, if this is the case, whether Temple—and also Franco and Stephen (and Luria’s Mnemonist)—are merely, like the rest of us, susceptible to an illusion of reproduction, or whether in fact [as Jerome Bruner suggests] there may be in them some failure of integration of perceptual systems with higher integrative ones, and with concepts of self, so that relatively unprocessed, uninterpreted, unrevised images persist.

its throat has been cut. “I can do anything the computers in Jurassic Park do,” she continued. “I can do all that stuff in my head... I actually have that machine in my head. I run it in my mind. I play the tape—it’s a slow method of thinking.” But an ideal sort of thinking for much of her work. She designs the most elaborate facilities in her mind, visualizing every component of the system, juxtaposing them in different ways, viewing them from different angles, from near and far. Once the design is complete, she will “run a simulation” in her mind—that is, imagine the entire plant in operation. This simulation may show an unexpected problem, and when this happens she will pinpoint the problem, modify the design, do another simulation—several simulations, if need be—until the design is perfect. Only now, when all is clear in her mind, does she make an actual blueprint of it. No more attention is needed at this point; the rest is mechanical. “Once I get the basic thing laid out, I just put it on paper. I can listen to the TV. There’s no emotion in it. I just turn on my Sun workstation and do it.”

But this sort of simulation or concrete imagery is much less appropriate when she has to do other kinds of thinking—symbolic or conceptual or abstract thinking. To understand the proverb “A rolling stone gathers no moss,” she said, “I have to run a video of the rock rolling and getting the moss off before I can think of what it means.” She has to concretize before she can generalize. At school, she could not understand the Lord’s Prayer until she “saw” it in concrete images. “The power and the glory” were high-tension electric wires and a blazing sun; the word ‘trespass’ . . . a ‘No Trespassing’ sign on a tree.”

In her autobiography, and, more concisely, in a thirty-page

12 When Temple lectures, she often uses very odd slides, mixed in with the usual diagrams and charts—slides that might bear no discernible relation to her theme and might convey nothing to her audience, since in fact they are designed not for them but for her, private jottings or mnemonics for her own trains of thought. For instance, a joke slide of a roll of toilet paper made from sandpaper reminds her to speak about tactile sensitivity in autism.
article published a little before the book—"My Experiences as an Autistic Child," which appeared in the *Journal of Orthomolecular Psychiatry* in 1984—Temple indicates how, even as a child, she scored at the top of the recorded norms in spatial tests and visual tests but did rather badly in abstract and sequential tasks. (Such "profiles" are characteristic of autistic people: they tend to show "scatter," or extreme unevenness, on so-called intelligence tests.) In some cases, Temple writes, the scores were misleading, because tasks that might have been very difficult for her if she had done them in the "normal" way were easy because she did them in an idiosyncratic, visual way: thus sentences and poems, and strings of numbers, instantly generated visual images, and these were what she remembered, not the words or numbers as such. Complex calculations, impossible for her in the normal way, might become possible if she transformed them into visual images.14

Visual thinking in itself is not abnormal, and Temple was quick to point out that she knows several non autistic people—engineers, designers—who seem able to "see" what they need to do, to make designs in their mind and test them in simulations, just as she does.15 Indeed, she often gets on very well with such people, especially her friend Tom. He is a powerful, creative visualizer, like her, and is also, like her, unorthodox, roguish, fond of pranks. "I get on the same wavelength as Tom," Temple said, "though it's a childish wavelength." But, above all, she enjoys working with Tom—this, too, is "childish," but a form of childishness that is essentially creative. "Tom and I are little children," she said. "Concrete is grown-up mud, steel is grown-up cardboard, building is grown-up play."

I was moved by Temple's words, with their lovely analogizing of creativity and child's play, and thought what a healthy development this had been in her. And moved, too, when she spoke of her relation to Tom. I wondered whether indeed she loved him and had ever thought of a sexual relationship or marriage with him. I asked her about this—asked whether she had ever had sexual relationships, or dated, or fallen in love.

No, she said. She was celibate. Nor had she ever dated. She found such interactions completely baffling and too complex to deal with; she was never sure what was being said, or implied, or asked, or expected. She did not know, at such times, where people were coming from, or their assumptions or presuppositions, or intentions. This was common with autistic people, she said, and one reason why, though they had sexual feelings, they rarely succeeded in dating or having sexual relationships.

But the problem was not just in actual dating or relating. "I have never fallen in love," she told me. "I don't know what it's like to rapturously fall in love."

"What do you imagine 'falling in love' is like?" I asked.

"Maybe it's like swooning—if not that, I don't know."

I thought the phrase "falling in love," with its suggestion of overwhelming feeling or transports, might be the wrong term to use. I amended my question to "What is 'loving'?

14 As Temple described this and gave examples, I was reminded of the Mnemonist described by A. R. Luria in *The Mind of a Mnemonist* and of his bizarre, purely visual way of transforming words and numbers into images. The Mnemonist, indeed, thought exclusively in images—and sometimes overwhelmingly; hundreds of these might be generated in the course of listening to a single paragraph or a short poem. Thinking in images gave him great strength—provided, in Luria's words, "a powerful basis on which to operate, allowing him to carry out in his mind manipulations which others could only perform with objects." But such thinking also created strange difficulties, sometimes preposterous ones, when it could not be replaced by verbal-logical thought. Luria's Mnemonist was not in the least autistic, but his visual thought processes—his concrete imagery, at least—were remarkably close to Temple's and perhaps shared a similar physiological basis. She was fascinated when I told her of the Mnemonist and felt that her thinking was indeed very similar to his.

15 Precisely such a mode of mind was possessed by the great inventor Nikola Tesla: "When I get an idea I start at once building it up in my imagination. I change the construction, make improvements and operate the device in my mind. It is absolutely immaterial to me whether I run my turbine in my thought or test it in my shop. I even note if it is out of balance."
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“Caring for somebody else . . . I think gentleness would have something to do with it.”

“Have you cared for somebody else?” I asked her.

She hesitated for a moment before answering. “I think lots of times there are things that are missing from my life.”

“Is this painful?”

“Yeah . . . I guess.” Then she added, “When I started holding the cattle, I thought, What’s happening to me? Wondered if that was what love is . . . it wasn’t intellectual anymore.”

She is wistful about love, in a sense, but cannot actually imagine how it might be to feel passion for another person. “I couldn’t understand how my roommate would swoon over our science teacher,” she recalled. “She was overwhelmed with emotion. I thought, He’s nice, I can see why she likes him. But there was no more than that.”

The capacity to “swoon,” to experience a passionate emotional response, seems diminished in other areas, too—not merely in relation to other people. For, after speaking of her roommate, Temple immediately said, “It’s similar with music—I don’t swoon.” She has absolute pitch, she added (this is normally very rare, but is relatively common in people with autism), and a precise and tenacious musical memory, but, on the whole, music fails to move her. She finds it “pretty,” but it evokes nothing deep in her, only literal associations: “Whenever I hear that Fantasia music, I see those stupid dancing hippos.” It doesn’t seem to “call” her. She doesn’t “get” music, she said—doesn’t see what it is “about.” One might suppose that Temple is simply not “musical,” despite her absolute pitch and her ear. But her inability to respond deeply, emotionally, subjectively, is not confined to music. There is a similar poverty of emotional or aesthetic response to most visual scenes: she can describe them with great accuracy but they do not seem to correspond to or evoke any strongly felt states of mind.

Temple’s own explanation of this is a simple mechanical one: “The emotion circuit’s not hooked up—that’s what’s wrong.” For the same reason, she does not have an un-
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bench, saying that he could no longer enter sympathetically into the motives of anyone concerned, and that since justice involved feeling, and not merely thinking, he felt that his injury totally disqualified him. 16

Such cases show us how the whole affective basis of life can be undercut by neurological damage. But there is something much more selective about the affective problems in autism: there is by no means an overall flatness or blandness, despite Temple’s comments about the “emotion circuit” or amygdala. An autistic person can have violent passions, intensely charged fixations and fascinations, or, like Temple, an almost overwhelming tenderness and concern in certain areas. In autism, it is not affect in general that is faulty but affect in relation to complex human experiences, social ones predominantly, but perhaps allied ones—aesthetic, poetic, symbolic, etc. No one, indeed, brings this out more clearly than Temple herself.

Both as a person struggling to understand herself and as a scientist exploring animal behavior, Temple is constantly exercised by her own autism, constantly seeks models or similes to understand it. She feels that there is something mechanical about her mind, and she often compares it to a computer, with many elements in parallel [a parallel-distributed processor, to use the technical term], seeing her own thinking as “computation” and her memory as computer files. She surmises that her mind is lacking some of the “subjectivity,” the inwardness, that others seem to have. She sees the elements of her thoughts as concrete and visual images, to be permuted or associated in different ways. 17 She believes that the visual parts

of her brain and those concerned with processing a great mass of data simultaneously are very highly developed, and that this is generally so in autistic people, and she believes that the verbal parts of her brain, and those designed for sequential processing, are comparatively underdeveloped, and that this, too, is very common in autistic people. 18 She is conscious of the “stickiness” of attention in herself, so that there is great tenacity on the one hand but a lack of agility and pliability on the other; she ascribes this to a defect in her cerebellum, the fact that [as an MRI has shown] it is below normal size in her. She believes such cerebellar defects are significant in autism, though scientific opinion is divided on this.

She feels that there are usually genetic determinants in autism; she suspects that her own father, who was remote, pedantic, and socially inept, had Asperger’s—or, at least, autistic traits—and that such traits occur with significant frequency in the parents and grandparents of autistic children. 19 Though she feels early environment [in pigs or people] plays a crucial role in psychic development, she does not hold [as Bruno Bettelheim did] that parental behavior is responsible for autism; it is more likely, she thinks, that autism itself presents barriers to contact and communication that parents may be unable to penetrate, so that the entire range of sensory and social experiences [especially holding and deep pressure] becomes severely impoverished.

Fancy [in Coleridge’s sense], may also dispose against Imagination [as he calls it, in contrast], which “dissolves, diffuses, dissipates, in order to recreate.” The creation, or re-creation, of the Imagination entails a letting go of fixities and definites in order to revise and reconstruct—and it is just this that seems so difficult in the overprecise and rigid mind of an autistic person.

16 The founding of reason on feeling is the central theme of Antonio Damasio’s book, Descartes’ Error.

17 Temple’s self-description here made me think of Coleridge’s delineation of Fancy: “[It] has no other counters to play with, but fixities and definites... . [It] must receive all its materials ready made from the law of association.” I think that the overwhelming tendency to fixed, concrete, perceptual images, and their quasi-mechanical association, permutation and play—which one sees in autism and sometimes Tourette’s syndrome—while it may dispose to vivid and active

18 Russell Hurlburt, at the University of Nevada, has studied the ways in which individuals report or represent their inner experiences, their streams of thought. He has found that whereas normal [and neurotic or schizophrenic] subjects seem to utilize a combination of different modes—inner speech and hearing, feelings, bodily sensations, as well as visual images—subjects with Asperger’s syndrome seem to use visual images exclusively or predominantly.

19 That this is indeed the case has recently been shown by Ed and Riva Ritvo of UCLA.
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Temple's own formulations and explanations generally correspond with the range of existing scientific ones, except that her emphasis on the necessity of early hugging and deep pressure is very much her own—and, of course, has been a mainspring in directing her thoughts and actions from the age of five. But she thinks that there has been too much emphasis on the negative aspects of autism and insufficient attention, or respect, paid to the positive ones. She believes that, if some parts of the brain are faulty or defective, others are very highly developed—spectacularly so in those who have savant syndromes, but to some degree, in different ways, in all individuals with autism. She thinks that she and other autistic people, though they unquestionably have great problems in some areas, may have extraordinary, and socially valuable, powers in others—provided that they are allowed to be themselves, autistic.

Moved by her own perception of what she possesses so abundantly and lacks so conspicuously, Temple inclines to a modular view of the brain, the sense that it has a multiplicity of separate, autonomous computational powers or "intelligences"—much as the psychologist Howard Gardner proposes in his book Frames of Mind. He feels that while the visual and musical and logical intelligences, for instance, may be highly developed in autism, the "personal intelligences," as he calls them—the ability to perceive one's own and others' states of mind—lag grossly behind.

Temple is impelled by two drives: a theorizing part of herself, which makes her want to find some general explanation of autism, some key that will be applicable to all of its phenomena and to every case; and a practical, empirical part of herself, which constantly faces the range and irreducible complexity and unpredictability of her own disorder, and the great range of phenomena in other autistic people, too. She is fascinated by the cognitive and existential aspects of autism and their possible biological basis, even though she is intensely aware that they are only part of the syndrome. She herself faces, almost every day, extreme variations, from overresponse to nonresponse, in her own sensory system, which cannot be explained, she feels, in terms of "theory of mind." She herself was already asocial at the age of six months and stiffened in her mother's arms at this time, and such reactions, common in autism, she also finds inexplicable in terms of theory of mind. [No one supposes that even normal children develop a theory of mind much before the age of three or four.] And yet, given these reservations, she is strongly attracted by Frith and other cognitive theorists; by Hobson and others who see autism as foremost a disorder of affect, of empathy, and by Gardner and his theory of multiple intelligences. Perhaps, indeed, all these theories, despite their different emphases, hover about the same point.

Temple has dipped into the chemical and physiological and brain-imaging researches on autism and emerged with the sense that they are still, at this point, fragmentary and inconclusive. But she holds to her notion of impaired "emotion circuits" in the brain, and she imagines these serve to link the phylogenetically ancient, emotional parts of the brain—the amygdala and the limbic system—with the most recently evolved, specifically human parts of the prefrontal cortex. Such circuits, she accepts, may be necessary to allow a new, "higher" form of consciousness, an explicit concept of one's self, one's own mind, and of other people's—precisely what is deficient in autism.20

At a recent lecture, Temple ended by saying, "If I could snap my fingers and be nonautistic, I would not—because then I wouldn't be me. Autism is part of who I am." And because

20 That the amygdala do play a crucial role in empathy and social perception has only been confirmed very recently, by Damasio and others, through the examination of a young woman who, by an extraordinary chance, had suffered an isolated destruction of the amygdala on both sides in consequence of Urbach-Wiethe disease. Although otherwise intact, she showed specific deficiencies of social perception and social behavior (Adolphs et al., 1994) and an inability to form conditioned autonomic responses to visual or auditory stimuli, though she could appreciate them intellectually (Bechara et al., 1995). Her responses, indeed, are like Temple's in this regard—though she is in no sense autistic.