

ANNALS OF SCIENCE

A silent childhood Part I.

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A SILENT CHILDHOOD-I

SOMETIME in the late seventh century B.C., it occurred to Psamtik I, the first of the Saitic kings of Egypt, to wonder which might be the original language of the world. Psamtik was, by all accounts, a forward-looking ruler. He was the first to open his country to large-scale immigration, receiving thereby a substantial infusion of Hellenic culture, and also, not incidentally, the Hellenic mercenaries with which he secured his reign against the claims of eleven rivals and against the Scythian, Ethiopian, and Assyrian armies on his frontiers. Considering that he undertook his scholarship between perennial military campaigns, it is not surprising that his interest in the language question had territorial overtones: the country possessed of the *lingua mundi* would own an indisputable hegemonic legitimacy. Yet he pursued his question with an unbiased rigor and a devotion to the scientific method which could be seen as admirably unsentimental, if not downright brutal.

As recounted by Herodotus two hundred years later, Psamtik's experiment was a simple one: two infants were taken from their mothers at birth and placed in the isolation of a shepherd's hut. The shepherd was instructed not to speak to them. They were reared on a diet of goats' milk and silence until one day two years later when, the shepherd returning to his hut, the pair accosted him with their first utterance. The word they had developed was "bekos," which, after semantic inquiry on the part of the King, was determined to mean "bread" in the language of the Phrygians, an Indo-European people of Asia Minor. With the shepherd's account in front of him, Psamtik was objective enough to abandon his nationalistic hopes and stand by the results of his research. He announced that Phrygian was the protolanguage, and thus established himself as the protolinguist, the earliest practitioner of an enduring scientific pursuit.

Sadly—or perhaps fortunately, since except for the word *bekos* and a few texts and inscriptions little remains to



us of the Phrygian language—Psamtik's research has not stood the test of time. He has been accused of a certain methodological informality. There was no way of ascertaining, for instance, whether or not the children had a natural grasp of many languages and were merely expressing an innate preference for Phrygian baked goods. Historians are satisfied that Phrygia was the birthplace of the flute and the Dionysian orgy but probably not of human speech, and Psamtik is remembered by science mainly for his errors.

Nevertheless, in nearly every college primer on linguistics and in innumerable late-night conversations among practicing linguists, he is remembered. One such text, Vivien Tarter's 1986 "Language Processes," has a two-sentence "Conclusion" that reads, "We still have a long way to go to understand language and its processing, and many exciting years of research ahead. But we have come a long way since Psammetichos!" The King's inclusion in the book, like his general durability, is evidence to the contrary. Psamtik is very much with us. While his experiment was flawed in fulfilling its declared intention, it was in other ways brilliant—an incisive bit of scientific prescience. It em-

bodied both the theoretical questions and the practical quandaries that still bedevil the discipline. Beyond the arid statistics and the arcane analysis that characterize modern linguistics looms a philosophical question: What makes us special as a species? What part of our essential humanity is expressed in our ability to communicate with language? It is in that light that his scientific sin—his experimentation on children—takes on the import that continues to subtly trouble the science. For his sin was of the essence: in investigating one piece of the human charter, Psamtik, by his lack of compassion, did violence to another.

The science initiated by the Egyptian king has been revised and reinvented many times over the millennia, most recently in a Horn & Hardart on Woodland Avenue in Philadelphia, where Noam Chomsky began working out a set of ideas so revolutionary that their publication, in 1957, is known among linguists as the Event. To its credit as a human endeavor, the science of linguistics has maintained through its generations a certain wistful indecision about its ambitions. Only a stalwart linguist—or an especially myopic one—can avoid the temptation to look up from the voluminous tabulations of syntax and phonemics for an occasional glance into the heart of human nature, much the way astronomers look through the silica lens at the origins of time. Linguistics and astronomy constitute an unlikely sisterhood, for they are both constrained to be more observational than experimental—astronomy because its subjects are too distant to be experimented on, and linguistics because its subjects are too human. No longer are children impressed from the crib to serve as guinea pigs. But the revelations about how we acquire language still come from children: wild children, who have grown up with beasts as their only companions; abused or neglected children whose family histories replicate the isolation in the shepherd's hut, sometimes with far more attendant horror. The cases are exceedingly rare and mostly fleeting. They become the

property of whichever researcher is fortunate enough to be present at whichever dark hour. In that regard, no subject has ever fallen into the lap of science out of a more incomprehensible world than the little girl who limped through the doors of a Los Angeles County welfare office in the fall of 1970, accompanied by her nearly blind and almost equally traumatized mother.

TEMPLE CITY, California, is in many ways a typical town of the San Gabriel Valley, and Golden West Avenue, which runs due north through it, is a typical Valley residential street. It is as straight as a surveyor's rod, and you might suppose that its intended destination is the San Gabriel Mountains, whose shadowed canyons and snow-panelled peaks rise above the grid of suburban Valley streets like the promise of a wider world. But Golden West Avenue never reaches the San Gabriels, near as they are. It ends in the more prosperous reaches of Arcadia, and the San Gabriels remain a taunting vision, as distant in their way as the affluent hills of Hollywood, fifteen miles to the west.

Heading up Golden West Avenue from Las Tunas Drive, Temple City's main drag, you pass the parklike acreage of the civic center and, a block farther on, the steepled Church of Christ. Then the public places are behind you, and you enter an orderly regime of small houses—bungalows, for the most part—which become more modest and insular block by block. Each house has a driveway and a yard, and a number of the yards are separated from one another by chain-link fences. Toward the Arcadia town line, five royal palms nearly a hundred feet high float above the avenue like an incongruous apparition. They are the neighborhood's only aristocratic flourish. For here there are no rolling estates, no guarded gates, no Armed Response medallions such as dot the curbs of Bel Air and Mulholland Drive. The equation of prominence and privacy

that prevails in the wealthy precincts of Los Angeles is here turned on its head: security lies in a respectful anonymity—an injunction, in a land of compact privacies, to mind one's own business. People don't come to Temple City to be discovered, they come to be left alone. Golden West Avenue is above all a quiet street of quiet families. Before the disruption of that quiet in November of 1970, the residents of one small house behind the row of palms were known to their neighbors as the quietest family of all.

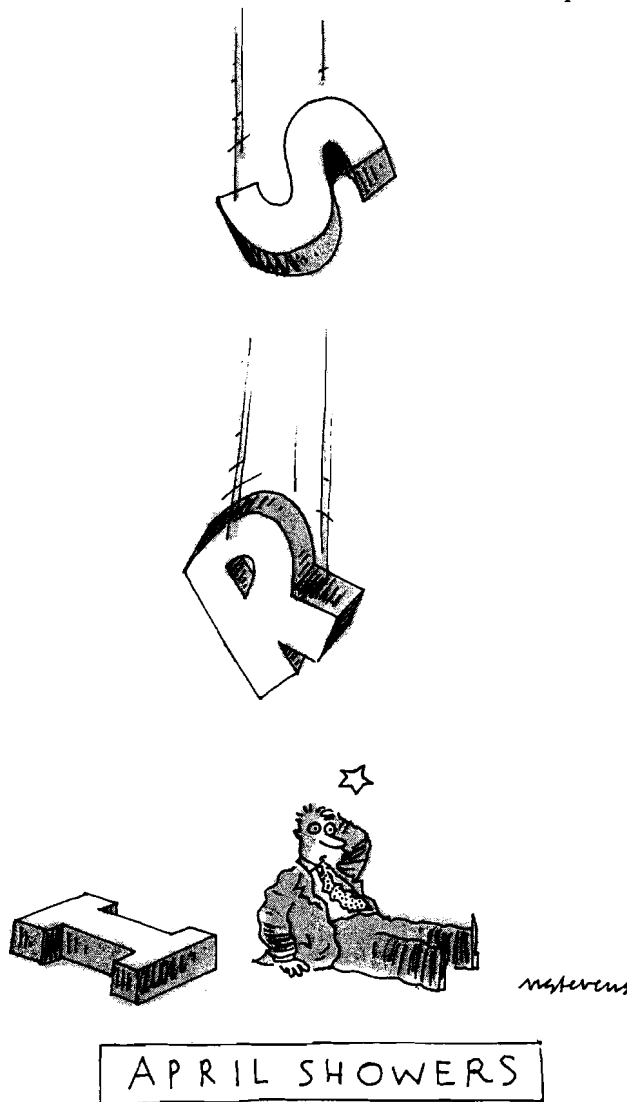
The disruption was spectacular—enough so to earn a week's worth of stories in the *Los Angeles Times*, sandwiched between accounts of the trial of Charles Manson, the policies of Governor Ronald Reagan, and the bombing of Hanoi. "GIRL, 13, PRISONER SINCE INFANCY, DEPUTIES CHARGE; PARENTS JAILED," the headline on November 17th read. The following day, a story headed "MYSTERY SHROUDS HOME OF ALLEGED CHILD PRISONER"

featured a photograph of two men standing in a driveway: the girl's elderly, bespectacled father, clothed in rumpled khakis and a rumpled hat, one hand in his pocket and the other loosely holding a cigarette; and her brother, a tall teen-ager dressed in black, his arms folded and his face wadded in belligerent distress.

But it was another photograph that inflamed the public imagination and brought the curious cruising along Golden West Avenue in a slow, neck-craning procession that lasted the better part of a week. The photograph is of a girl's face, smooth, olive-shaped, pretty. A strand of dark hair has escaped from behind her ear to hang across her forehead. Her head is turned with an attentive tilt toward the camera, but her eyes do not meet the lens. She looks above us, as though some object of interest were hovering over the photographer's shoulder. Her expression gives nothing away. It is composed but not self-conscious, withdrawn

but with no trace of sullenness. Her mouth, its full lower lip closed against the serrated curve of the upper in a perfect Cupid's bow, turns up at the ends in what might be the beginning of a smile, except that she is otherwise so serious, so pensive and watchful. The energy in her face is all in her eyes. Without beseeching, they attract. If her face has an adult's earnestness, her eyes have the straightforward curiosity of a toddler, unburdened by any evident capacity for prejudice or appraisal. Her innocence is incongruous with the report of the epic abuse she suffered.

That her condition was cause for concern had been immediately apparent to the social worker who received her and her mother in the welfare office one morning in early November. Like much else in the child's history, her arrival there was a fluke. The mother had come seeking help not for the child but for herself; three weeks earlier, she had finally managed to flee an abusive marriage, and was living nearby with her parents, who were all but desti-

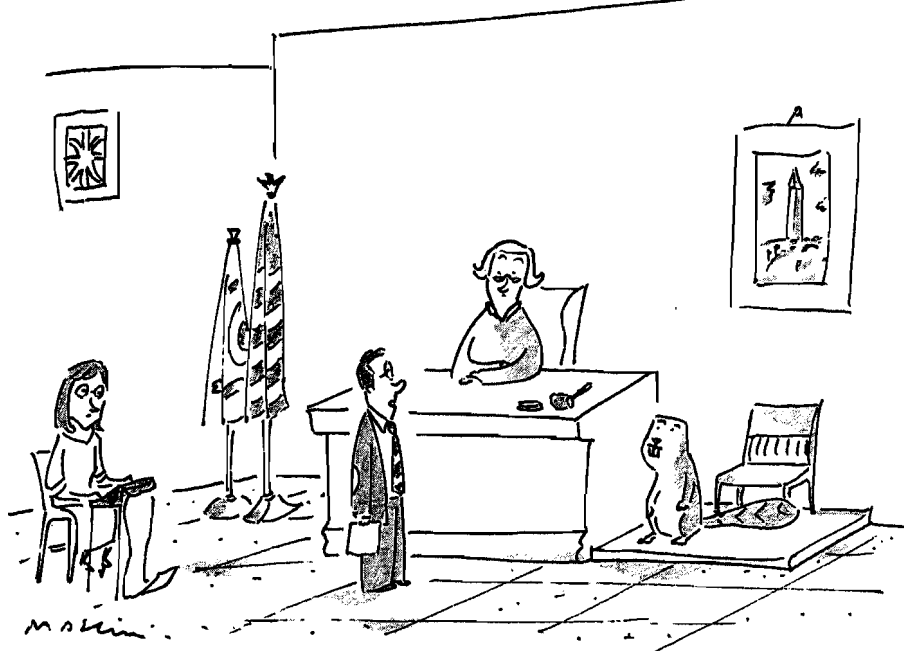


tute. Cataracts and a detached retina had rendered her ninety per cent blind in her left eye and totally blind in the right. She was searching for the services for the blind. But, leading her daughter by one hand and her aged mother by the other, she had stumbled mistakenly into the general social-services office. The eligibility worker whom she approached was transfixed by the child, a small, withered girl with a halting gait and a curious posture—unnaturally stooped, hands held up as though resting on an invisible rail. The worker alerted her supervisor to what she thought was an unreported case of autism in a child she estimated to be six or seven years old.

The supervisor did not confirm the autism diagnosis but agreed that something was amiss. The ensuing inquiries found the girl to be a teen-ager, though she weighed only fifty-nine pounds and was only fifty-four inches tall. She was in much worse physical shape than at first suspected: she was incontinent, could not chew solid food and could hardly swallow, could not focus her eyes beyond twelve feet, and, according to some accounts, could not cry. She salivated constantly, spat indiscriminately. She had a ring of hard callus around her buttocks, and she had two nearly complete sets of teeth. Her hair was thin. She could not hop, skip, climb, or do anything requiring the full extension of her limbs. She showed no perception of heat or cold.

Of most interest to the scientists who were to become her constant companions was that she could not talk. What the social worker had mistaken for an autistic's abstention from verbal communication was in fact a complete inability. Her vocabulary comprised only a few words—probably fewer than twenty. She understood "red," "blue," "green," and "brown"; "Mother" and some other names; the verbs "walk" and "go"; and assorted nouns, among them "door," "jewelry box," and "bunny." Her productive vocabulary—those words she could utter—was even more limited. She seemed able to say only "Stopit" and "Nomore," and a couple of shorter negatives. The social worker paid a visit to the child's home and convinced the mother that her daughter needed attention. She was admitted to Childrens Hospital of Los Angeles, for treatment of extreme malnutrition.

An explanation for the child's state



"I ask that the record show that the witness does not presume to speak for the animal kingdom but is testifying here strictly in his capacity as a beaver."

was eventually pieced together, thanks to the efforts of the Temple City police in the days following her discovery and to the persistent elaborations of scientists over the next several years. A doctoral dissertation on the child, written by Susan Curtiss, a graduate student at the University of California at Los Angeles and the linguist who was to spend the most time with her, begins, "To understand this case history, one must understand [the] family background." And, indeed, every scientist involved with the unfortunate child would be drawn again and again through that background, much as the rubbernecker had been drawn down Golden West Avenue—hoping to find in the neighborhood, the house, and the story of the household some answer.

Like most personal histories, the child's preceded her by years. Her parents migrated to the Los Angeles area from different parts of the country but from similarly impoverished circumstances. Clark, her father, was a native of the Pacific Northwest, and Irene, her mother, was from Oklahoma. Irene's family had moved west to escape the dust bowl. Like other real-life Joads, they ran out of continent before reaching the promised land, and the children approached maturity

with little prospect except the assurance of a restricted future. When Irene was in her early twenties, she found a traditional solution for her predicament (and, traditionally, her parents opposed it): like her mother, she married a man twenty years her senior.

Clark had a good job as a machinist in the aircraft industry, and was good at it. He bet moderately on the horses at nearby Santa Anita racetrack. In a photograph taken during their early years together, Irene and Clark appear to be a happy couple, even a bit glamorous. They are leaning against a shining black sedan; Clark's crisp fedora is tipped onto the back of his head as he and his wife turn to each other with broad smiles. But the felicities were all on the surface; Irene had run headlong out of a confining upbringing into a confining marriage. She would later say that her life came to an end on her wedding day.

Prominent among Clark's restrictions was his express desire not to have any children. For one thing, they were noisy. Late in Irene's first pregnancy, five years into their marriage, Clark beat her severely. In the hospital for treatment of her injuries, Irene went into labor and gave birth to a healthy daughter. The infant's crying infuriated

ated Clark, and she was placed in the garage, where, at the age of two and a half months, she died. Irene later protested that the girl had been put there only to spare her the noise while the linoleum was being removed from the kitchen floor, and that once in the garage she had been struck with "quick pneumonia." The likelihood is that behind the euphemism was a case of death by exposure. A subsequent infant was more literally a victim of the couple's incompatibility: it died of Rh blood poisoning soon after birth. Irene's third pregnancy produced a healthy son. He survived infancy, but his development was stifled by an approximation of the neglect that had killed his oldest sibling. He was slow to walk, and at three years of age was not yet toilet-trained, but he was saved by the intercession of his paternal grandmother, who took him in and kept him for several months, long enough to get him back on track. In April of 1957, Clark and Irene had their fourth child, a girl. She, too, had Rh blood poisoning, but she was given a transfusion soon after birth. She went on to suffer the same developmental fate as her older brother, but this time there was no paternal grandmother to rescue her at the critical moment.

Clark had an extraordinary attachment to his mother, surprising in the light of his upbringing: he had spent most of his early years in orphanages and foster homes, and few with her. She was a flamboyant woman—at one time, she had managed a brothel—and was given to travelling armed. It is said that she thought her son intolerably straitlaced. But straitlaced or not, he was slavishly devoted to her, to the point where Irene never became more than a secondary allegiance in his life. In December of 1958, Clark's mother was struck by a car and killed as she crossed the street with her grandson to buy an ice-cream cone. Clark arrived soon after the accident to find his mother's body still in the road and no sign of the vehicle that had hit her. A teenager was arrested the next day and charged with hit-and-run and drunken driving. He received a probationary sentence. The court's leniency fuelled Clark's fury. He decided that a world without his mother, a world that did not care enough to punish her murder

adequately, was a world he could best do without. He quit his job and moved his family into his mother's two-bedroom house, on Golden West Avenue, where he would live out the last decade of his life as a recluse, with his family as virtual prisoners.

Irene's world closed in on her severely at this time. Her encroaching blindness made her almost completely dependent on her tormentor. Their son was allowed out of the house to attend school or to play with a neighbor but for little else, and within the house he was effectively a hostage. He slept on the living-room floor; his parents also slept in the living room—his mother on a couch and Clark in an easy chair in front of a defunct television set, sometimes with a gun in his lap. The main bedroom, according to some accounts, was kept as a shrine to Clark's mother. But it was the daughter—twenty months old when the family moved—who bore the brunt of Clark's renunciation. "In essence, Clark appointed himself a guardian to his family," Jay Shurley, a professor of psychiatry and behavioral science at the University of Oklahoma, who became involved with the case, explained to me recently. "His delusion was that his daughter was retarded and was going to be very vulnerable to exploitation. He dreaded the idea of people taking advantage of her."

After one of the child's rare early medical examinations, a pediatrician noted on her records that she was "slow," and pronounced her a "retarded little girl with kernicterus"—a condition that sometimes results from a botched transfusion for Rh incompatibility. "Clark amplified that to delusional intensity—that this girl was profoundly retarded," Shurley told me. "He was convinced that she would need his protection from the evil of the world, and that no one was better prepared than he to recognize its evil. He didn't reckon, of course, on his own evil. These people never do."

Clark's idea of protective custody is described in Susan Curtiss's doctoral dissertation, which was published as a book—"Genie: A Psycholinguistic Study of a Modern-Day 'Wild Child'"—in 1977, by Academic Press. In both the dissertation and the book, the girl is referred to not by her real name but

by her scientific alias, Genie—the name used in the symposium papers, the psychology magazines, and the textbooks, and contrived in order to protect the child's identity. Curtiss's account agrees with that of other investigators. She wrote:

In the house Genie was confined to a small bedroom, harnessed to an infant's potty seat. Genie's father sewed the harness, himself; unclad except for the harness, Genie was left to sit on that chair. Unable to move anything except her fingers and hands, feet and toes, Genie was left to sit, tied-up, hour after hour, often into the night, day after day, month after month, year after year. At night, when Genie was not forgotten, she was removed from her harness only to be placed into another restraining garment—a sleeping bag which her father had fashioned to hold Genie's arms stationary (allegedly to prevent her from taking it off). In effect, it was a straitjacket. Therein constrained, Genie was put into an infant's crib with wire mesh sides and a wire mesh cover overhead. Caged by night, harnessed by day, Genie was left to somehow endure the hours and years of her life.

There was little for her to listen to; there was no TV or radio in the house. Genie's bedroom was in the back of the house next to [the master] bedroom and a bathroom. . . . The father had an intolerance for noise, so what little conversation there was between family members in the rest of the house was kept at a low volume. Except for moments of anger, when her father swore, Genie did not hear any language outside her door, and thus received practically no auditory stimulation of any kind, aside from bathroom noises. There were two windows in her room, and one of them was kept open several inches. She may, therefore, have occasionally heard an airplane overhead or some other traffic or environmental noises; but set in the back of the house, Genie would not have heard much noise from the street.

Hungry and forgotten, Genie would sometimes attempt to attract attention by making noise. Angered, her father would often beat her for doing so. In fact, there was a large piece of wood left in the corner of Genie's room which her father used solely to beat her whenever she made any sound. Genie learned to keep silent and to suppress all vocalization. . . .

Just as there was little to listen to, there was not much for Genie to touch or look at. The only pieces of furniture in her room were the crib and the potty seat. There was no carpet on the floor, no pictures on the walls. There were two windows, but they were covered up except for a few inches at the top out of which Genie could see the sky from one and the side of a neighboring house from the other. There was one dim, bare ceiling light bulb, a wall of closets, and another wall with the bedroom door. The room was a dirty salmon color. Occasionally, two plastic raincoats, one clear and one yellow, hung outside the closet in the room, and once in a while Genie was allowed to "play" with them. In addition, Genie was sometimes given "partly edited" copies of the TV log, with pictures that her father considered too suggestive removed (like women advertising swimming pools, etc.). She was also given an occasional empty cottage-cheese container, empty thread



spools, and the like. These were Genie's toys; and together with the floor, her harness, and her body, they were her primary sources of visual and tactile stimulation.

Genie's diet was equally limited. She was given baby foods, cereals, an occasional soft-boiled egg. Under pressure from the father to keep contact with Genie to a minimum, she was fed hurriedly, usually by having food stuffed into her mouth. Should Genie choke and spit out some of her food, she would have her face rubbed in it. . . .

Genie's father was convinced that Genie would die. He was positive that she would not live past the age of twelve. He was so convinced of this that he promised his wife that if the child did live beyond twelve, the mother could seek help for Genie. But age twelve came and went; Genie survived, but the father reneged on his promise. The mother, too blind to even dial the phone and forbidden under threat of death to contact her own parents (who lived in the area), felt helpless to do anything.

Finally, when Genie was 13½ years old, Genie's mother, after a violent argument with her husband in which she threatened to leave unless he called her parents, succeeded in getting her husband to telephone her mother. Later that day Genie's mother took Genie and left her home and her husband.

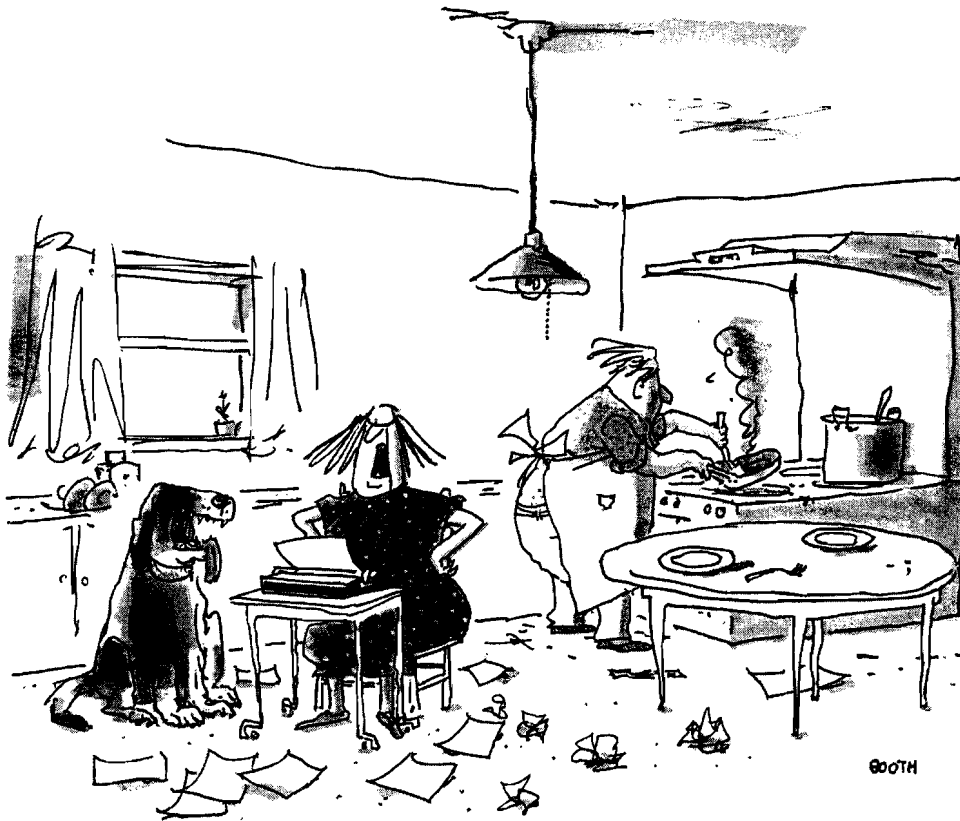
Curtiss went on to relate the girl's discovery: how she was taken into custody by the police; how the parents were arrested and charged with child abuse; how the child was admitted to the hospital. The family history is wrapped up, like Little Dorrit's, with a breath of exultation: "She had been discovered, at last."

But the real epitaph to the era was written by Clark himself. On the morning of November 20, 1970—the morning that he and his wife were to appear in court on charges of willful abuse or injury to the person or health of a minor—he spread out a blanket and a sheet of cellophane on the living-room floor and shot himself through the right temple with a .38-calibre revolver. He was seventy years old. He left two notes, scrawled with a ballpoint pen. One was for the police and read, in part, "My son . . . is out in front with friends. He hasn't the slightest idea of what is going to happen." The second was to his son, and included these instructions:

Don't take that shirt back. It's for my funeral. You know where my blue shirt is? Underwear in hall closet. . . . I love you. Goodbye and be good.

—Dad

Clark did not leave a note for his wife or his daughter, but he did in-



"This is definitely the last time for Chapter Seventeen!"

clude in his farewells a sentence that seemed addressed to the public at large: to the press that had exposed his family's disarray; to the people in the automobiles, whose finger-pointing parade had distressed him tremendously; to the scientists and doctors who had taken his daughter and renamed her. He wrote, "The world will never understand."

Already in court that morning, Irene had heard her counsel enter a plea of not guilty, on the ground that she had been forced into her role by an abusive husband. Then the judge received a message and summoned the lawyers into chambers. Irene's counsel returned to tell her that her husband was dead. She was visibly shaken, the lawyer later recalled, but did not break down. "She just sat there, silent," he said. Her plea was accepted.

The suicide—reported, like the parents' arrest, on network news—did nothing to lessen interest in the case. The press had set up camp on the lawn of Childrens Hospital, where Genie was now residing. Childrens was, and is, one of the most prominent, expensive, and up-to-date pediatric facilities

on the West Coast, and one accustomed to security concerns, since among its clientele are a number of the children of Hollywood celebrities. Freed from her little room and placed in the most competent of professional hands, Genie was, in the view of the doctors and psychologists and others who were now becoming involved with her progress, liberated. If such a thing was possible, she was to be given a chance at a new life, with new surroundings, a new future—even a new mission—to go along with her new name.

BY the summer of 1988, when Susan Curtiss and I first met, Curtiss had become an associate professor of linguistics at U.C.L.A. She was sharing a small office in Campbell Hall with two of her graduate students. Her desk was crammed into a far corner of the room, and over it were several pictures, tacked to an orange room divider. There were photographs of her two daughters, aged five and one, and there was a drawing of Curtiss herself, done by Genie almost fifteen years earlier. The drawing was a stick figure, made with a series of quick

crayon strokes. It wasn't easy to decide whether the rendering was immature for an artist in her middle teens or, in a primitivist way, accomplished, for its portrayal of its subject was accurate: Curtiss is painfully thin, and as nervous as summer lightning. She is also extraordinarily focussed, in the iron-clad manner of one who has long done battle with the hectoring distractions of the academic world.

In 1971, when Genie entered her life, Curtiss was twenty-two years old and a first-year graduate student in the Linguistics Department. "I was one of the few linguists on campus studying language acquisition in children," she told me. "It seemed to me that once we came to understand language acquisition, we would have answers to most of the central questions of linguistics. Besides, I love children. It seemed as if it would be fun to have them be my source of data."

Her interests had put her in the right place at the right time. She remembers the spring afternoon when she was summoned into the office of her faculty adviser, Victoria Fromkin. Fromkin, who is now a professor emeritus, began discussing developments in a case of an abused and linguistically deprived child. Curtiss had already heard of the case, but now she was being invited in on the ground floor. "As a new student, I found myself presented with an opportunity that changed my life in every way," she told me. "Personally as well as academically. Because the case is an important one, it shaped my future research, right down to today. I was just starting on the core curriculum then. I hadn't been exposed to many of the issues that Genie presented to me. I wasn't even aware of the critical-period hypothesis."

In 1971, the science of linguistics was perplexing to some of its old hands as well. The critical-period hypothesis—the idea that there are certain distinct periods in a person's development during which skills like a first language can be learned—was just one of a host of new contentions. As the questions changed rapidly, there was also a shift in who was asking them. Curtiss's field—the acquisition of language by children—had previously been the carefully guarded purview of psychology departments.

Linguistics is arguably the most hotly contested property in the academic realm. It is soaked with the blood of poets, theologians, philosophers, philologists, psychologists, biologists, and neurologists, along with whatever blood can be got out of grammarians. Each discipline has at one time or another set its flag in the territory, knowing that its internal orthodoxies would be partly determined by whoever owned the language question. Susan Curtiss was in the vanguard of the newest of a hundred raiding parties.

Until the High Renaissance, European philosophers had related the language question, along with most other questions, to the Bible. Then Descartes made a heretical attempt to prove the complete independence of the soul from the body, and thereby helped to establish the science of biology. There was impressive historical testimony in favor of including language in this new, naturalist science. In the third century B.C., Epicurus, the first Greek philosopher to address the origins of language, felt that it was the creation not of God or of man's intellect but of a far less interested party: nature. Language, he said, was a biological function, like vision or digestion. But his view was anathema to the tenor of later times, when language was considered an integral part—perhaps the keystone—of man's soul, or (less likely) man's reason. Or both: in the late seventeenth century, Leibniz proclaimed language ability to be a gift of God, with its form of expression determined by natural instinct—except for Chinese, which, he suggested, was the invention of a wise man. Thus linguistics was left standing with one foot on the theological dock and the other in the naturalist boat.

The discomfort was relieved somewhat by the rise of the social sciences, at the end of the eighteenth century. If language was somewhere between theology and biology, then perchance it could be considered a problem for anthropologists, with linguists playing a backup role. The voyages of exploration and colonization had shaped the public imagination the way the Crusades had in earlier times, but with a more utilitarian grail. Comparative linguists quit worrying about the questions of the Vulgate text and got busy cataloguing new languages. But by the



late nineteenth century the bulk of the questions concerning the relationship of language and man had disappeared into psychology—a discipline that the questions helped create. And that's where they stayed until the Event—the publication of Noam Chomsky's "Syntactic Structures," in 1957, the year of Genie's birth.

The galvanic effect of Chomsky's innovation was described to me by Catherine Snow, a professor of human development and psychology at Harvard University. "There was a barrenness in the study of language acquisition through the nineteen-forties and most of the fifties," she said. "Until 1957, linguists believed that all there was to think about was vocabulary. Then Chomsky made syntax central, and for the first time the questions became compelling, interesting. It was like driving across a prairie and all of a sudden seeing the Rocky Mountains jump out at you."

Chomsky and his adherents found that the complex variety of syntactic structures within a language could be distilled into a small set of core principles. Though the grammars of different languages differ widely, the principles applied equally to all. This suggested an astounding unity: according to Chomsky, sentences of diverse languages—of Japanese, with its inverted phrases; of Finnish, which expresses cases the way Latin does; of Lithuanian, among modern languages the one closest to Sanskrit; of Spanish, in which the subject of a sentence is commonly omitted—are not fundamentally different from English sentences. Some linguists have speculated, basing their hypothesis chiefly on similarities of vocabulary and pronunciation, that all languages derived from a common ancestor. Chomsky doesn't think so. On the syntactical level that Chomsky is concerned with, languages don't just have similarities—they are identical. The source of such uniformity, Chomsky argues, must be sought closer to home than an ancient protolanguage. It must be contained within us—within the species. The rules of language are either the product of an unparalleled achievement of human cognition or ingrained on a level more basic than thought. The question is no longer "How is language designed?" but "How does language reflect the way we are designed?"

The pervasiveness of Chomsky's

influence on modern linguistics has brought him detractors as well as disciples. Every working linguist carries, involuntarily and sometimes unfairly, a vest-pocket vita summarizing his life's work as "pro-Chomskian" or "anti-Chomskian." There are those who object to Chomsky because of his prominence in the field, and those who object to his prominence out of it, in endeavors such as politics and philosophy. But most of the contention centers on theory. The school of linguistics associated with his ideas—a school described, variously, as "nativist," "generative," "innatist," and "rationalist"—quickly met with heated opposition from the school of "environmentalists" or "empiricists," who hold that a child learns language from its interaction with the world and from the speech of its parents. Both schools have since fragmented, and their ideas and observations have mingled over the years, and these days the contest looks decidedly esoteric from the outside. "I love the pro- and anti-Chomsky debate," the filmmaker Gene Searchinger told me not long ago. "It reminds me of the joke where the guy says, 'I don't like So-and-So. He's a Communist.' And the other guy says, 'He's not a Communist, he's an anti-Communist.' And the first guy says, 'I don't care what kind of a Communist he is, I still don't like him.' Truth is, most of these people are operating on Chomskian precepts, even when they disagree with him on the details." Searchinger has spent the last five or six years making a series of films about linguistics—a project so extensive that it seems to some people as though the language question were now being taken over by filmmakers.

Since the mid-nineteen-fifties, Chomsky has taught at the Massachusetts Institute of Technology. I caught up with him there one day, in a steeply pitched lecture hall—a kind of theatre, whose orchestra pit was lined with movable blackboards. He was sitting in the front row, speaking into one of Gene Searchinger's movie cameras. "Recently, this rather common auditorium was filled with many young linguists debating the central issues of the science," he said. "Thirty years ago, the number of people who could even have conceived of these questions was virtually nil."

camera went dead. Chomsky, a shy matchstick of a man, crumpled back into his chair and began chatting with Searchinger while the crew adjusted the lights. Searchinger had the appearance of a stockbroker on two telephones.

Grip (to Searchinger, yelling): "Is that good?"

Searchinger: "Yes. No. Move it up."

Chomsky (to Searchinger): "What's more sacrilegious than religion?" (Grip raises lights.)

Cameraman (to Searchinger): "The chair back is lit. Is that what you want?"

Searchinger: "That's O.K."

Chomsky (to Searchinger): "... but perfection? There's no such thing, unless you're religious."

Cameraman (to Searchinger): "He's got a halo. Is that O.K.?"

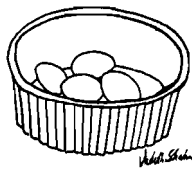
Searchinger: "That's O.K., too."

Finally, Searchinger said "Sticks," a slate marked "Take 5" was held in front of Chomsky's face and snapped shut, and Chomsky returned to the subject of his life's work and Searchinger's film.

"Language is a tool," he said. "The tool has no limits—in the sense that we commonly create and understand sentences that we have never heard before. How do we do it? Language is like a hammer: it can be used in many ways, and what it does depends on the person using it. Nevertheless, it is a system with a structure. Anything with structure has to have limits. It must; otherwise, it wouldn't work. If a hammer were an amorphous blob, it would not be useful.

"The problem arises when you look carefully at that structure—when you start to take language seriously. . . . If you have succeeded in finding some structure, you've just begun. You're ready to ask new questions of the world. There was a basic assumption of the study of language and human behavior in the nineteen-fifties—that we should concentrate on what people do and produce. There is a major new perspective: a shift in focus to the inner mechanisms of mind that account for behaviors. What are the inner mechanisms?"

"Now, I'm enough of a materialist to think that language is in the brain. If you cut off someone's foot, he can still speak. In fact, it is useful to think of language as an organ of the mind."



Walter Schick

Searchinger yelled "Cut!" and the

The brain is like every other system in the biological world: it has specialized structures with specialized functions, and language is one of these. But did we invent language because we were sentient? No more than we invented our circulatory system. What seems to be true about language is that its basic design is in the genes. The genes determine the structure and design of language. As far as we know, it is plausible to say that there is no variation in the computational system—in the principles that determine the organization of the series of noises that makes sense to us. All this happens in a very rigid manner, as rigid as the computation in your personal computer.”

“No, no,” Searchinger objected. “Would you start that again? It sounds too wordy.”

Chomsky looked momentarily baffled. “It’s comparable to walking,” Searchinger prompted him.

“Well, take, for example, the facility of walking,” Chomsky went on. “If a child is raised by a bird, does he end up flying? No. Or if a dog is raised by a person, does it end up walking on its hind legs? No. That we are designed to walk is uncontroversial. That we are taught to walk is highly implausible.”

Listening to the explanation unfold, I was reminded of why different disciplines have wished so fervently to keep hold of the language question: it is a hard one to divide up and share. Chomsky started out talking about language, and pretty soon he was talking about the nature of man. He had already gored a sacred precept: motherhood. According to Chomsky’s innatists, children weren’t learning language from their mothers, or from anyone else in their environment. They were bringing language with them.

The contention affronted common sense, and though it is now widely accepted it still draws fire. “The innatists think that language is acquired very fast, very easily, and that it’s very much the child’s responsibility,” Catherine Snow, who considers herself a non-Chomskian, explained to me. “They also see language as one large problem. We on the other side think that learning language is a long slog, which requires from the child a lot of work. And the child is working as hard as he can, fifteen, sixteen hours a day. We think it requires a relation-

ship with an adult, and a whole set of cognitive abilities. We also think that the child is refining one little bit of the language system at a time. People who are inclined to fall back on innatist explanations are falling back on a metaphor. It’s an exciting metaphor. The image that transfixed them was that of the child as linguist: in his every utterance, he is the perfect speaker of an exotic, weird language. But even the most rabid innatist cannot point to a gene or a cell for language. And even the most rabid environmentalist must concede that language doesn’t get learned by every species, and that if too much of the brain is missing you won’t learn language. The solution lies somewhere in the middle. The problem is taking it out of the realm of mystery. The Princeton psycholinguist George Miller said, ‘The trouble with language acquisition is that the nativists have proved that it’s a mystery and the environmentalists have proved that it’s impossible.’”

In the M.I.T. lecture hall, Noam Chomsky and Gene Searchinger were finding it impossible to proceed with the filming: a scheduled class was arriving, and a professor had come in and nodded timidly in Chomsky’s direction before turning and writing “Developing Amphibian Oocytes” on the blackboard.

“Suppose that a child hears no language at all,” Chomsky was saying. “There are two possibilities: he can have no language, or he can invent a new one. If you were to put prelinguistic children on an island, the chances are good that their language facility would soon produce a language. Maybe not in the first generation. And that when they did so, it would resemble the languages we know. You can’t do the experiment, because you can’t subject a child to that experience.”

The lights flashed off, and the film crew began hurriedly packing up cables and microphones. “Of course,” Chomsky commented to Searchinger as the two pushed against an incoming tide of undergraduates and headed for the M.I.T. quad, “there are natural experiments.”

THE luck that befell Susan Curtiss when she was invited into the Genie case by Victoria Fromkin was

greater than she at first knew, for the competition for access to Genie was fierce. Even by early May of 1971, six months after the girl’s discovery, there was no assurance that any linguists would be included among her scientific observers. And the scientists weren’t the only ones trying to gain entry. “Immediately, there was such interest in Genie, such publicity,” Howard Hansen, who was then the head of the Psychiatry Division of Childrens Hospital, told me. “We had calls from all over the world—press, doctors, do-gooders, kooks. We tried for anonymity. But we had to keep her in the hospital. She was a ward of the court at that point. If we had discharged her, she would have gone to Juvenile Hall, and that would not have been right. So David got active on a research design, and we put together a little money.”

“David” was David Rigler, a professor of pediatrics and psychology at the University of Southern California and the chief psychologist in the hospital’s Psychiatry Division. He had been with Childrens a year, having worked previously as an evaluator of grant applications for the National Institute of Mental Health, in Bethesda, Maryland. His experience proved useful in helping the hospital secure initial funding for research on Genie from two foundations and, in February of 1971, a contract with the N.I.M.H. itself for twenty-one thousand five hundred dollars. The N.I.M.H. contract would run until the following September, during which time a number of consultants were to be invited in for preliminary research and a conference was to be mounted to debate long-range plans. Hansen and Rigler acted as gatekeepers for the process, with help from another hospital psychologist, James Kent. Kent’s presence, especially, seemed to bode well for Genie. He was an authority on child abuse—a phenomenon all too familiar now but not often acknowledged twenty years ago—and in 1972 he would be appointed to a White House commission studying the problem.

Kent was the doctor originally in charge of following Genie’s case. “I was supposed to give Genie therapy,” he recalls. “But mostly that entailed watching her improvement, documenting her progress. I became more her



Boswell than her therapist." The day after her admission to Childrens Hospital, he paid her a visit. She had arrived in diapers, and was having them changed when he walked in. When she had been successfully outfitted in a new set of pajamas, she got out of bed and shuffled toward him, apparently attracted by what he had brought with him: a magazine, drawing paper, crayons, and a Denver kit—a set of toys used to gauge the developmental level of young children. He was amazed at the skill with which she flipped through the magazine. It seemed that all her dexterity was in her fingertips, for tests had shown her to have, in general, the motor skills of a two-year-old. As Kent removed items from the Denver kit—a bell, a block, a small doll—she took each one and held it momentarily to her cheek but then laid it aside. She made good eye contact with him, seemed very curious about her environment, and was attentive to sounds, moving about the room to determine the source of each. This Kent found promising. But his overall assessment was bleak. "As far as I'm concerned, Genie was the most profoundly damaged child I've ever seen," he told me. "There has been nothing in other cases to approach it. It was orders of magnitude worse. Genie's life was a wasteland."

The question for Kent—and, eventually, for Susan Curtiss—was what this damage meant for Genie's emotional and intellectual state. Because she couldn't talk, testing her intellect was almost impossible. But she was expressive of emotion: Kent noticed her fear when he pulled a puppet from the Denver kit. Genie started, yanked the puppet from his hand, and threw it on the floor. Kent feigned a horrified concern and said, "We have to get him back." To his astonishment, the child repeated the word "back" and gave a shrill, nervous laugh. Encouraged, Kent began a slapstick pantomime, picking up the puppet and letting Genie throw it again, which she did with bursts of laughter. She was playing, and was quick to enjoy his reciprocating play.

She showed little beyond this, and Kent reported in a 1972 symposium paper that "apart from the peculiar laugh, frustration was the only other clear affective behavior we could discern." The frustration was just as peculiar. She would scowl, tear paper,

THE SKELETON OF A TROUT IN SHALLOW WATER

wedged between two stones
near the bank of a rushing stream
started the old man with the shock
of white hair who uncovered it
while stooping to pick watercress.
For a long time he examined the skeleton—
skull, ribs, and spine polished clean—
before dislodging it with his cane
and watching it spin away
into the fast current
and disappear through the shadows
of the overhanging trees.
Then, with the sun beating down
on his head and bleaching
the fields that stretched away
to the mountains, he released
the dripping clump of watercress
he had been clutching all that time
and watched it float away, too,
dark and tangled in the clear water.

—NICHOLAS CHRISTOPHER

or scratch objects with her fingernails. When she was very angry, she would scratch her face, blow her nose violently into her clothes, and urinate. But she would not make a sound, and she would not turn her anger outward, toward another person. Her usual comportment, Kent noted, was a "sombre detachment." If not deliberately engaged, she drifted around in her new physical world, walking with bent elbows in her strange "bunny walk," spitting into her clothing or into a curtain hem, far more aware of the room than of the people in it. In fact, she seemed hardly able to differentiate between various visitors. Some observers referred to her as "ghostlike."

Among the first of the consultants to fly in was Jay Shurley. "That first trip, I paid my own way," he recalled. "I spent a week with her, examining her clinically. I determined for myself that she was the genuine article—that she had suffered the most extreme long-duration social isolation of any child that had been described in any literature I could find."

Shurley had sent the bulk of his luggage overland—six hundred pounds of state-of-the-art equipment for investigating brain activity. For three nights running, on three of his early visits, he wired Genie to an array of meters, measuring her brain waves while she slept, looking for any anomalies that would imply abnormal brain development. "Genie was about the

richest source of information you can imagine," he said. "I responded to this, because I'm an investigator on a fundamental level. There were all kinds of questions that I felt she might shed some light on. Naturalistic cases of intense isolation don't come along often—not with a period of isolation as extensive as that."

Shurley had a charter interest in the isolation question; he had grown up unusual, in a hardscrabble Texas farm family. "I was a black sheep," he told me. "My family are all ranchers. I'm the first one that wanted to go to college and become an academic." After graduating from the University of Texas Medical Branch, at Galveston, Shurley went to Pennsylvania Hospital, in Philadelphia, for his psychiatric training. After a brief stint of private practice in Austin, he was drafted into the Army, where he taught psychiatrists who were accompanying the troops to Korea. After this tour of duty, he became the chief of the Adult Psychiatric Branch of the N.I.M.H.; there he spent his off-hours helping to develop the warm-water sensory-deprivation chambers that eventually made their way from science to parapsychology. Through the late nineteen-fifties and early nineteen-sixties, first at the N.I.M.H. and then at the Veterans Administration hospital in Oklahoma City, he used the tanks to experiment on himself, floating in their null environment until he experienced the

vivid hallucinatory state of the disembodied mind. Some of these dream states reminded him of reports he had heard in the military—the accounts of test pilots who flew the new reconnaissance jets so high that they could see neither clouds nor horizon and so fast that they escaped the sound of their own engines. The Air Force denied that its pilots were hallucinating in flight, but the pilots themselves had a name for the point at which they seemed to depart from reality and enter the dream state—"the breakoff." Similar dislocations were reported by soldiers stationed at lonely DEW-line outposts, and by released American P.O.W.s returning from North Korea, where they had been kept in solitary confinement. Shurley realized that what he was experiencing in the tanks was really a combination of two phenomena, which he wished to tease apart. "You cannot achieve sensory isolation without social isolation," he explained. "For an intact, developed human being, the richest source of sensory contact is input from a fellow human being."

To study the effects of social isolation independent of the sensory, Shurley went to places where there were few human beings. He studied seamen on small ships, and in the sixties spent three summers in Antarctica, recording the metabolism, sleep patterns, and psychosocial behavior of scientists and work crews sent there for thirteen-month stints by the National Science Foundation. He became such a fixture on that continent that the National Geodetic Survey named a mountain in the Pensacola Range Shurley Ridge. Students at the University of Oklahoma named his graduate course the Twenty-Foot Stare in the Ten-Foot Room. The equipment he hooked up to Genie was stickered with bills of lading from the South Pole.

Of his first visit with the child, Shurley remembers that she treated everything, including people, as objects. "If you gave her a toy, she would reach out and touch it, hold it, caress it with her fingertips, as though she didn't trust her eyes," he told me. "She would rub it against her cheek to feel it. So when I met her and she began to notice me standing beside her bed, I held my hand out and she reached out and took my hand and carefully felt my thumb and fingers individually, and then put my hand against her

cheek." His clinical experience provided a context for this odd behavior. "She was exactly like a blind child," he said. "She didn't integrate tactile and visual information. Even the bunny walk—hands in front. It's what we call a blindness. It's what people do when they do not entirely believe their eyes."

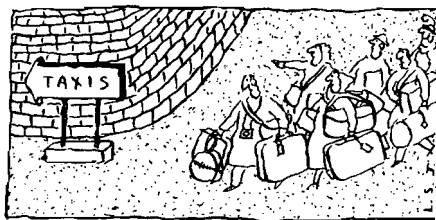
Shurley arrived on the scene in time to note some of Genie's initial progress. "When I saw her first, there was pendant flesh hanging around her buttocks where the hole of the chair had been. It was bruised black. There's no record of this except in my memory. Three weeks later, it had been reabsorbed, and the bruises had gone from blue to yellow." When he returned some two months later, he noted other, less encouraging transformations. "From being a totally neglected waif at the time I did my consultation, by the time I came back Genie had become a prize," he told me. "There was a contest about who was going to investigate her, and how—about where to go with the treatment and research. You can't go everywhere. There were several leads, and after my initial sleep study I was trying to figure out where I wanted to go. Language acquisition was part of what I was interested in, but not a predominant part. Victoria Fromkin had declared an interest in the cognitive area, but if Genie turned out to be a mentally retarded child—genetically or because of her diet—she wouldn't be a good case for study of cognitive development. The potential for cognitive development would not be there; there would not be a flowering. This girl had lived on gruel and on milk from nursing bottles. I thought it would be easy to investigate whether her brain had suffered deprivation nutritionally, informationally, socially. I wanted to know what the effect was on her growing brain and, secondly, on her growing personality. I was more interested in the socioemotional aspects than in the cognitive. An issue that I thought could really be explored was whether she could be reattached to a

maternal figure. I thought it important to put her in contact with someone she could bond with. This case was something that was not duplicable. It was important that it be exploited fully and properly—and I don't mean exploitation in a pejorative sense."

To Shurley, the prospects for a proper handling of the case seemed dim. "It was a politics-ridden situation, a matter of internecine warfare, almost from the word go," he said. "Childrens Hospital was an extraordinary location for pursuing a process that should be quiet and calm. It's supported by the celebrity community. There was a glitz factor. Anything that happened there was tainted by who was going to get the publicity, who was going to benefit—more than in any other pediatrics hospital I know of. And so, very soon, that engendered this breakdown—this conflict between doctor and hospital, between teacher, school, psychiatry, psychology. It became almost an armed camp, very quickly."

Genie, for one, seemed oblivious of the battles behind the scenes. For the first time in her life she was being treated relatively the same as other children, and was, relatively, thriving. Her mental and physical development had begun almost immediately on her admission to the hospital. By her third day, she was helping to dress herself and was voluntarily using the toilet, though her incontinence problems were to persist. After two weeks, she seemed ready for another expansion of her world, and was released into the hospital's Rehabilitation Center, a single-story building with a yard and a play school, set apart from the hospital proper. There she was free to wander or watch, or to join in playing games and using arts-and-crafts materials alongside much younger patients. While they learned creative discipline, she learned freedom. She discovered that when she dropped things, even things that broke, she was not admonished, and might, in fact, be encouraged to repeat the action. Her response to this license was what James Kent called "the most spontaneous and sustained" of her affective reactions.

"She entered quickly into a ritual play," he reported in his 1972 symposium paper, "during which she would eventually destroy the object. The nervous, tense laughter first associated with these episodes gradually changed to a relaxed and infectious laugh that



would sometimes double her up and bring tears to her eyes. She would often accompany her own actions with cries of 'Stop it'—burst out laughing and repeat the action." Despite the disapproval of some on the staff, who feared that Genie would go too far in this atmosphere of permissiveness (as she indeed seemed to do one day when she gleefully jumped all over her new eyeglasses and threw them onto the roof), Kent condoned her small orgies of destruction, seeing them as "attempts at active mastery of formerly traumatic situations."

Actions that would have earned a normal child a spanking seemed in Genie to be healthy signs of emergence. One day in early spring, she made hitting gestures at a new girl in the Rehabilitation Center, much to the surprise and pleasure of her observers. Previously, her rage had been directed inward. Susan Curtiss wrote in her dissertation, "Genie would erupt and have a raging tantrum, flailing about, scratching, spitting, blowing her nose, and frantically rubbing her face and hair with her own mucus, all the time trying to gouge or otherwise inflict pain on herself—all in silence. Unable to vocalize, Genie would use objects and parts of her body to make noise and help express her frenzy: a chair scratching against the floor, her fingers scratching against a balloon, furniture falling, objects thrown or slammed against other objects, her feet shuffling. These were Genie's noises during her sobless, silent tantrum. At long last, physically exhausted, her rage would subside, and Genie would silently return to her undemonstrative self."

Now, finally, Genie had turned some anger outward, aiming it at a source of frustration. She was upset with the new girl because she was wearing a dress from the hospital laundry which Genie had formerly worn; the episode was the first indication that Genie was developing a sense of self.

She already had a sense of possession; she hoarded found objects—books, paper cups, and anything made of plastic. Gradually, she showed signs of extending that possessiveness to people. From the start, her routine had included daily walks around the grounds with James Kent, and, on most days, a drive with him to a local store or park. As was her habit, she seemed curious about him and glad to see him

when he arrived but did not show in any way that she distinguished him from anyone else or mourned his absences. A month passed before a fleeting facial expression indicated that she registered his departures; finally, after another month, she reached over one day and took his hand to detain him. From then on, she would pull him back down to sit beside her when it was time for him to go. She cared not at all for other children; her attachments were to adults—especially to men who, like Kent and Shurley but unlike her father, wore beards.

She made friends with women as well—particularly with a woman named Jean Butler (“Miss Butler” to the children, a title Genie abbreviated to “Mibbi”), who administered the special-education program at the Rehabilitation Center, under the aegis of the Los Angeles Public School District. Genie also befriended the center’s handyman and a couple of the cooks, and it was to the latter that she turned early one morning when an earthquake hit Los Angeles. Running into the kitchen, she began verbalizing so profusely that one of the cooks commented later that if there had been one more tremor Genie would have achieved normal speech on the spot. And she was achieving speech, if not quite on the spot. Her curiosity about her new surroundings sent her on a constant quest for the names of things. She would lead one or another of her caretakers around, using their fingers to touch or point to objects, while they said the corresponding words. “Hungry to learn the words for all the new items filling her senses,” Susan Curtiss wrote, “she would at times point to the whole outdoors and become frustrated and angry when someone failed to immediately identify the particular object she was focused on.”

Yet, although Genie’s vocabulary increased, her speech stayed limited to a few short utterances; it soon became clear that she was understanding more than she could produce. During a class at the Rehabilitation Center one day in May, Jean Butler asked a boy who was holding a couple of balloons how many balloons he had. “Three,” the child said, and Genie, looking startled, handed him the extra balloon he needed to make his answer correct. Intelligence tests were now being administered to her, and she was showing remarkable progress, gaining in some

areas a year in development every few months. She showed what experts in child development refer to as scatter: on some skills—in the performance of such routine tasks as bathing herself, for instance—she scored the same as an average nine-year-old; on others, such as her almost complete inability to chew food, she scored as a toddler. Within the scatter, language remained near the bottom.

She was, at any rate, exceeding expectations, and in May her progress suddenly accelerated. Her vocabulary quest became more assertive, and her spontaneous (if largely incoherent) verbalizing more frequent. She gained confidence in her movements, and began actively engaging in horseplay. She wanted to be carried piggyback, or to be swung around in the air like a whirligig. She was thrilled when someone holding her pretended to let her drop. “A great change from the child we saw at admission who shrank from most physical contact,” Kent noted in his symposium paper.

MAY of 1971 was also decision time, when, under the terms of the N.I.M.H. contract, the consultants who had been observing Genie were scheduled to convene to consider her future. Several less formal meetings had been held, but this was the official one, on which the decisions about therapy and research and the application for a long-term grant would be based. David Rigler and Howard Hansen sent out the invitations; participants were booked into the Hollywood Plaza Hotel, on Vine Street. The first evening—Sunday, May 2nd—they were invited to Hansen’s house “for drinks and chatter.” The next morning, the chatter over, the discussion began in earnest, in the boardroom of Childrens Hospital.

The stakes were clearly high. From time to time, closet children (as imprisonment cases like Genie’s have been called) and wild children (children abandoned as infants in the wilderness) have surfaced, and they have traditionally given rise to very visible science. Visible, difficult, and usually, in the long run, dubious.

The first feral child to come to the attention of what might be called modern science was Victor, the Wild Boy of Aveyron, a pitiable creature discovered in January of 1800 lurking naked in front of a tanner’s cottage in

the Languedoc region of southern France. He was almost completely wild, having reached an age of approximately twelve in a state of independent savagery, living in the woods and eating acorns and pilfered potatoes. He had no language; his last human contact seemed to have been with whoever had cut his throat and left him to die when he was little more than a toddler. "Rescued," he was brought to Paris, to the Institut National des Sourds-Muets, there to be observed, taught, tormented, and loved by a young physician named Jean-Marc-Gaspard Itard. So varied and fruitful was Itard's career that it gives an impression of professional profligacy; he has been called the father of child psychology and the father of the study of ear, nose, and throat disorders. Victor was his most celebrated and most frustrating subject.

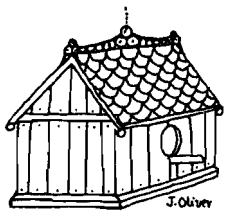
The emotional connection between the ambitious teacher and his strange student is apparent from Itard's notes. Itard tells of the remorse he felt when his pressuring induced quiet tears or sobbing tantrums, of how he would sit immobile for minutes while Victor sat before him fondly caressing and kissing the teacher's knees. Even so, Itard could not refrain from using the boy's affection as a tool—challenging his trust by terrorizing him with a Leyden jar (a sort of battery that can deliver a shock), and unfairly punishing him over his lessons to test his sense of justice. Victor knew enough about justice to be outraged, and Itard found the outrage edifying. Under Itard's aggressive instruction (he once dangled the boy from a fifth-story window to frighten him out of his recalcitrance), Victor made some hard-won headway. He learned to spell the French word for milk, and on visits to a neighbor's home would take along the appropriate letters from the institute's metal teaching alphabet so that he could spell out "LAIT" while downing a glass of it. But he never learned to talk.

He was nonetheless influential. In 1912, the Italian educator Maria Montessori called Itard's work "practically the first attempts at experimental psychology," and she based some of her innovations on his experience with Victor. The metal cutouts of letters and shapes still common in Montessori classrooms are descendants of the ones that Victor used. In other ways, too,

the world is different for Victor's having come under scientific scrutiny by men who understood methodology and the merits of objective observation. Even so—as Thierry Gineste, the reigning expert on the Wild Boy, contends in his book "Victor de l'Aveyron: Dernier Enfant Sauvage, Premier Enfant Fou"—the useful knowledge arising from the case was limited by how little was learned about the boy's past and about his potential. He remained, finally, an enigma.

Among the wild children discovered over the last seven centuries, more than fifty have been documented. The list includes the Hesse wolf-child; the Irish sheep-child; Kaspar Hauser; the first Lithuanian bear-child; Peter of Hanover; the second Lithuanian bear-child; the third; the Karpfen bear-girl; Tomko of Zips; the Salzburg sow-girl; Clemens, the Overdyke pig-child; Dina Sanichar of Sekandra; the Indian panther-child; the Justedal snow-hen; the Mauretanian gazelle-child; the Teheran ape-child; Lucas, the South African baboon-child; and Edith of Ohio. Investigations of these cases were generally marred by an excess of enthusiasm and a lack of methodology on the part of those who could have turned the children's misfortunes into revelation; by Genie's advent, a sorry pattern of missed opportunities had been established. "When an experiment like this comes along, there is intense excitement, and intense pressure," Jay Shurley remarked to me. "People tend to operate in these situations much more with their thalamus than with their cortex."

On the first day of the conference, Shurley gave the results of his sleep studies. Genie's brain waves, he said, had shown a large number of what are called sleep spindles—artifacts that may indicate retardation. Others' observations were more subjective, less technical. Jean Butler reported that Genie was euphoric on holidays and weekends, when she got to leave the Rehabilitation Center on chaperoned trips; that she often said "No" but didn't mean it; that she called people "peepa"; that "dert" meant "doctor." She had had no problem with urine soiling since Christmas. She had been afraid of some boys who one day came past the classroom windows carrying rifles. She was ter-



rified of big dogs, and of all men wearing khakis. She thought that singing was exclusively for her benefit. Videotapes were shown of Genie in the Rehabilitation Center, and Rigler described a party that had been held there to celebrate her fourteenth birthday. It had overwhelmed her, he said, and her anxiety had mounted with each present opened, until at last she had to leave the room and sit in a corner holding Rigler's hand while she calmed down.

The second day was reserved for "deliberations of the consultant panel," meaning that it did not include those people seen only as caretakers, like Butler and the Rehabilitation Center cooks, who had been invited to participate on Monday. ("So Genie responds well to your intrasupportive initiatives?" a scientist had asked one of the cooks. "I just gives her love," the cook had replied.) Tuesday was for scientists only; besides Shurley, Rigler, Hansen, Kent, and Fromkin, there were some fifteen psychologists and neurologists from all over the country. When they convened, their discussion was shaped as much by an event of the evening before as by the first day's testimony.

It is one of the resonant curiosities of Genie's story that her discovery coincided with the Los Angeles premiere of François Truffaut's "The Wild Child," a movie that tells the story of Itard and Victor, *l'enfant sauvage de l'Aveyron*. Between the newspaper accounts of Genie's rescue on page 1 and the cinema ads in the entertainment section, art and life seemed to be doing a do-si-do. At four-thirty Monday afternoon, the day's testimony on Genie finished, the symposium members adjourned to a movie theatre a few blocks from the hospital for a private screening of "The Wild Child."

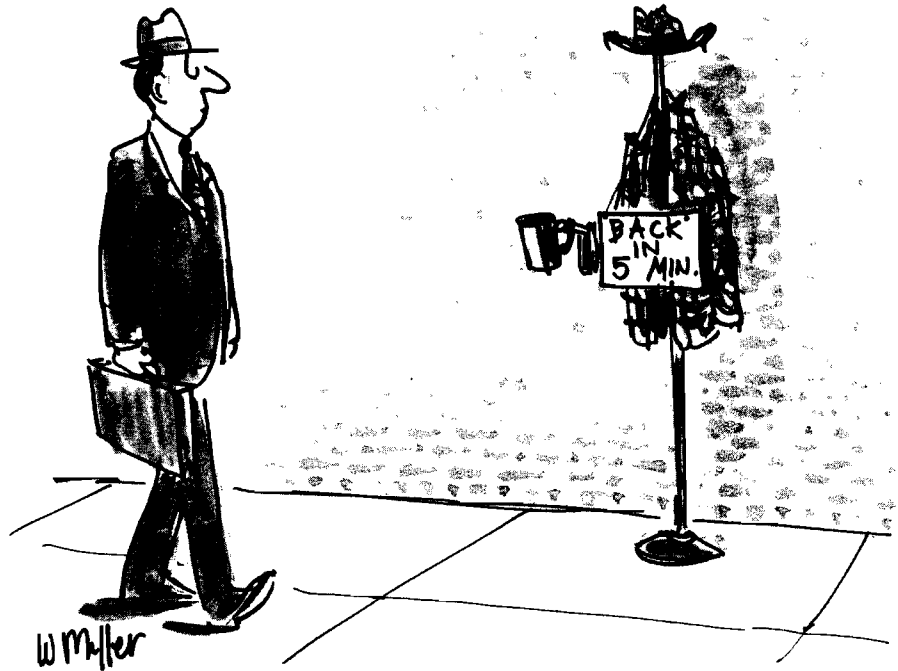
"No one had seen it before," Shurley recalled. "I hadn't seen it. The impact on the whole group was stunning. At first, there was silence. It was very moving—no one could say anything. Once people overcame the shock, the questions began to flow." The questions flowed through dinner and into the next morning's session, but anyone who may have hoped that the film would promote accord among the attendees was quickly disabused.

"There were so many things commented on," Shurley said. "All of us saw in the movie what we were prepared to see to confirm our own biases."

The biases concerned two areas: what Genie could best reveal to science and what, in the course of that revealing, science could ethically ask of Genie. Shurley's handwritten notes of the Tuesday meeting include the sentence "Rigler talked on second day on constraints on research, legal and moral." After the movie, even more than before, moral concerns seemed to be on everyone's mind.

"My pitch was—and some others agreed—that the interests of the girl, in terms of therapy, would have to be uppermost, and that anything we might learn from her should be a secondary consideration, and should be done within the context of her therapy," Shurley told me. "Others said that this was too great a scientific opportunity—that research had to be primary." Three months after the conference, Rigler elegantly expressed the interdependence of the two themes in a letter to Jean Butler. "Justification for these [N.I.M.H.] funds was the scientific importance associated with the study of this child, study that was based essentially upon successful rehabilitation," he wrote. "Theories of child development hold that there are essential experiences for achievement of normal psychological and physical growth. If this child can be assisted to develop in cognitive, linguistic and social, and other areas, this provides useful information regarding the critical role of early experience which is of potential benefit to other deprived children. The research interest inherently rests upon successful achievement of rehabilitative efforts. The research goals thus coincide with [Genie's] own welfare and happiness. Conversely, if our research methods were to interfere with [her] development, they would defeat the very purpose of the research."

In Shurley's recollection of the conference, science was already interfering. "Dr. Rigler and others argued for the primacy of research—couched, of course, in ethically sensitive terms," he told me. The meeting ended in what one conferee called "some considerable confusion." Rigler was left with the chore of digesting all the debate and deciding the nature of the final N.I.M.H.-grant proposal—what



kind of work the grant should fund and who should do it. The advice he had received was, perhaps, more than he had bargained for. "He looked like a man who's thirsty for a sip of water and is handed a fire hose," Shurley recalled. In a post-conference letter, Rigler and Hansen thanked the conferees for an "enriching exchange," and solicited their reactions to the proceedings.

Those reactions soon rolled in, and some had a warning tone. David Elkind, a professor of psychology at the University of Rochester, wrote, "Although language is not my area, I would like to reinforce the words of caution I expressed at the meeting. Too much emphasis on language could be detrimental if the child came to feel that love, attention, and acceptance were primarily dependent upon her speech." David A. Freedman, a professor of psychiatry at Baylor College of Medicine, in Houston, argued that the acquisition of speech might be dependent on what he, like Elkind and the cook, called love. He rejoiced in the evidence of Genie's progress which was presented in the videotapes, noting the "very dramatic . . . change in her appearance from apathy, to a wan and pitiable appearance, to an at times animated and involved little girl, which seemed to correlate with the passage of time." But his clinical experience with other unfortunate children had taught him to be cautious of the varnish that

videotape and optimism can apply to such cases. He was unconvinced by surfaces. He was looking for a thaw at the center, and a visit he had had with Genie had disquieted him:

When I arrived she was having her breakfast. Although she sat at the table with two other children who were engaged in fairly typical childish conversation and play, she had nothing to do with them. It is difficult to put into words the feeling I had about what she did. I don't think it would be accurate to say she actively ignored or rejected them. Rather it seemed to me that it was as though for her they were no different from the walls and furniture in the room. . . . The question becomes how to go about inducing in this child the ability to be aware of both herself and others and feel an interest in and need for others. My prejudices say that if this goal can be achieved she stands a chance of leading a relatively normal life; if [it] can't, she will remain an automaton. My prejudices also say that to achieve this goal it will be necessary for Genie to establish a particularly close relation with some one person whose care for her will include the provision of a good deal of body pleasure. I'm referring to something analogous to what any good mother automatically and unconsciously provides her infant as she bathes, feeds, and diapers it. Obviously this won't be easy to do for a fourteen-year-old. Yet, I believe a necessary precursor to any effective educative process would be her development of an intense, dependent attachment to some one person whom she would be interested both in identifying herself with and pleasing. . . .

Without the creation of such an attachment, and all it implies with regard to Genie's need to attempt to maintain it, I doubt whether she will have the equipment to integrate whatever skills she develops. I believe something along this line was implicit in the sense of the group when we were all in accord that it would not be indicated to attempt to train

Genie in talking. . . . She should be, in my view, bathed, clothed, toileted, massaged, kissed, cuddled, and fondled all by one person. Other people should be available but in a distinctly secondary role. Out of such an intense relation should grow both an awareness of herself and of whoever it is who is caring for her. Such an awareness, to reiterate, seems to me to be the necessary first step in her education.

Later that summer, Rigler made his grant decision, and its focus was on language acquisition—not teaching Genie language so much as watching how she learned it. The main beneficiary was the scientist whom Shurley remembers as having had the least to say at the May session. “It was a surprise when I learned that Victoria Fromkin initiated a major study,” he told me. “But Rigler thought a language study was a good idea—though he later came to doubt it.”

Shurley fully understood why the case might be perplexing. “At first, confronted with this child, we didn’t know what questions to ask her,” he told me. “Genie was an absolutely beautiful example of a process: when confronted with nature—human nature—in the raw, you stumble around and come up with one or two questions to ask. If they are the right questions—which is to say, if they are the relevant questions—then you get around to the content, and you begin to read what was written there all along. The questions come out of your culture. The Wild Boy of Aveyron—Victor—came along when all the questions of the Enlightenment were being asked. And they were asked of him. But he didn’t answer them.”

STRUCK though Shurley and the other conferees were by Truffaut’s movie, they could not have imagined, as they sat in the otherwise empty movie theatre, how deep would run the parallels between the two so distant cases—the boy abandoned to the forests of revolutionary France and the girl trapped in a twentieth-century American suburban bedroom—or how insistently the similarities would surface. Indeed, simply by viewing the movie the committee was aligning the case in hand with the one on the screen: in 1800, the scientists deciding the fate of the Wild Boy had also sought counsel from popular entertainment. They attended a play, then the rage in Paris, about a fictitious *enfant sauvage*. The melodrama was called

“The Forest’s Child,” and Victor was named after its protagonist.

Like Genie, Victor seemed on discovery to be impervious to heat and cold: he pulled potatoes out of the fire with his bare hands, and he cavorted naked in the snow. Like Genie, he seemed not to make distinctions between what could best be perceived by feel and what by sight, suffering from what one attending scientist termed “a dissonance of vision and touch.” Like Genie, he was substantially oblivious of the existence of anyone but himself. (“I am dismayed to see the natural man so egotistical,” reported J.-J. Virey, one of Victor’s first observers.) As would be the case more than a century and a half later, the egotism seemed, at least on the surface, gradually to melt. Like Genie in the Rehabilitation Center, Victor adopted as a favorite activity the setting of the table. One day, he set a place for the just deceased husband of his loving caretaker, Mme. Guérin, and her tears astonished him; it was his first encounter with human grief. He put the place setting in the cupboard and never brought it out again.

As with Genie, Victor’s discovery occasioned a sideshow, though on something of a grander scale. His arrival in Paris from the departmental capital of Rodez—the trip, by coach, had taken a week, during which the boy was kept on a leash—created a public furor. Rumors flowed through the crowd surrounding the institute grounds that he was perhaps the long-lost Louis XVII, who, like some premonitory Anastasia, had survived the execution of his royal parents and was said to have fled into the forest; however, the foundling’s age seemed wrong. Oddsmakers set up shop, taking bets on whether the boy would ever talk, ever be civilized. Newspapers carried the betting charts. Itard sequestered Victor from the more indiscriminate attentions; later, however, he acted as Victor’s chaperon among the perils of Parisian high society. When the two accepted a summons to dine with Mme. Récamier, the ravishing young socialite whose attentions conferred social beatification in the capital, Victor left the table and ran into the yard, tore off his clothes, and climbed a tree; he was not invited back. On another occasion, he met the Marquis de Sade—an encounter that the official history of the Institut describes as “*vraiment un rendez-vous manqué.*”

The public's interest in Victor was not just morbid. Modern children who are abused or neglected draw our attention because we see them, usually, as disturbing exceptions, albeit symptomatic ones, to society's prevailing order. In France in 1800, order was not presumed; the Committee of Public Safety and the Reign of Terror had taken care of that. Even in the prevailing order of earlier, calmer eras, children did not enjoy their current cosseted status. The Enlightenment's emphasis on the worth of the individual had been extended to individual children, but in a grudging sort of way, and the expedience of leaving them—at least, the unwanted ones—to die in the woods was not unheard of and not altogether shocking. The boy found naked in the tanner's doorway was interesting to his country's citizens not because his brutal history astonished them but because the Enlightenment and the Terror had honed an appreciation of certain questions that the boy might be able to address—questions about the nature of man. Strange as it seems in an age in which philosophy is a thing apart from pop culture, the betting sheets in the *journaux* of Paris were a street referendum on the ideas of Montaigne, Rousseau, Descartes, Condillac, and Locke.

Whatever its more general effects, the Revolution seemed to have worked to Victor's advantage. Foremost among its courtesies was its timely end, which permitted a renewal of interest in things scientific. During the preceding decade, Paris had not been a happy place for scientists, among others. Intellectual independence had been considered almost as subversive as priestly piety. The Society of Observers of Man, the anthropological organization that initiated the research on Victor, was only a month old when he was discovered. Ten years earlier, the Revolutionary government had sanctioned the institute where he was to live, adding "National" to its name and supporting it from state coffers. The deaf had been considered subhuman, before the school's successful efforts to teach them sign language, and had been locked away in the purgatory of the Bicêtre asylum, with criminals, epileptics, and the insane. For the government, the new ability of deaf people to communicate was a symbolic resurrection, a metaphorical promise to the voiceless of all kinds. The government had also

appointed a doctor, Philippe Pinel, to run Bicêtre, instead of the usual policeman. Pinel would become known as the father of psychiatry. Like Abbé Sicard, the director of the Institut National, he played a role in Victor's education: the two proclaimed him unsalvageable, a true and irremediable idiot. After that harsh dismissal, the boy languished for months in a limbo of neglect, until Itard, disagreeing with Sicard, his mentor, took on the task of proving Victor's potential.

Like bronze, French science is a useful amalgam of two slightly softer elements. Descartes set out the basic scientific method, rooting it in a rigorous adherence to what can logically be inferred; he trusted the corporeal senses the way a Bedouin trusts the shimmer of silver in distant sands. A century later, the philosopher Étienne Bonnot de Condillac adopted a more generous opinion of outward experience. Taking his cue from the empiricism of John Locke, Condillac contended that our minds are blank slates at birth and are tutored entirely by our surroundings. The world lived in Descartes; Condillac lived in the world.

Much scientific endeavor of the eighteenth century was aimed at determining the physical distinctions between man and beast. It had long been held by some that the physiological feature most innately human was the fanny, or perhaps the calf—or, at least, the upright posture that had created both of them. But then the voyages of exploration reached Borneo, where Europeans encountered upright and eminently fanned orangutans, and the distinction collapsed. Articulation of vocal sounds was another promising criterion, except that magpies could also do it pretty well, and New World parrots marvellously. And the ability to express emotions was the property of any pet. So hotly contested was the border between men and animals that the Indians discovered in the West by Columbus were not accepted as human until they were conclusively decreed to be so by a papal bull, in 1537. In Condillac's time, the orangutan's possible humanity was so seriously contemplated that it was proposed that one be mated with a prostitute to see what progeny would ensue.

Clearly, some defining event was needed. The scientists of the age, like physical anthropologists of a later day,

sought a missing link—in this case, a living one, someone or something perched squarely on the species' frontier. By their orthodoxy, that would have to be either a talking ape or a human being reared without human contact, like an animal in the wild. So distinct from humanity were feral children considered that Linnaeus, in his "Systema Naturae," accorded them status as a separate species, *Homo ferus*.

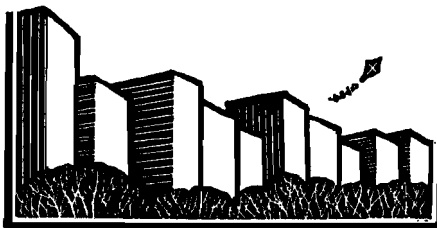
Victor, even before he reached Paris, was debunking some of the prominent theories. To the dismay of the upright-stance advocates, he was seen, during one of his several escape attempts, to cross a field on all fours, running close to the ground, like an animal. J.-J. Virey found no sign of another "innate" human trait: "Is our young Aveyronnais capable of pity?" he asked. "Personally, I venture to believe that if this young man could . . . bring some interest to bear on the things around him, then he would be inclined to commiserate as much as children ordinarily are." Like Genie, Victor hoarded what he cherished, and he refused to share. Like Genie, he warmed only slowly to adults and not at all to other children. Having given the lie to physical rectitude and empathic feeling as defining characteristics, the boy, like Genie, was called to preside over a grander mystery—the mystery near the center of the web.

Montaigne said, in an essay of 1580, "I believe that a child brought up in complete solitude, far from all intercourse (which would be a difficult experiment to carry out), would have some kind of speech to express his ideas," and he implied that the inherent enigma was still that of Psamtik: Which language would the child speak? The Enlightenment tortured new subtleties out of that question. Was our native language that of the soul, of society, or of the intellect? Did thought lead to language, and language to society? Some inverted the progression: society was our most innate characteristic, they said; it

enabled language; language enabled thought. Did the child in the woods not think, then? Was it possible to think with something other than language? Was it impossible to think alone? Or was thinking alone the necessary precursor to all else? The questions outlived the age. By the end of the nineteenth century, the German philologist Heymann Steinthal had concluded that language was not meant solely for communication. "Language is self-awareness," he said. "That is, understanding oneself . . . as one is understood by another. One understands oneself: that is the beginning of language."

For Victor, all this distilled into a make-or-break equation: no matter whether he crawled or crept, if he could talk he would be judged human. The equation was different, but hardly less compelling, for Jean-Marc-Gaspard Itard. If he could resurrect the boy from savagery, he would provide what he termed "concrete proof" of Condillac's theories. He would demonstrate that man brings nothing with him, that education is all.

However, for the young teacher and his young charge the beginnings of language were difficult to locate. In the drafty apartments of the Institut National, the two suffered together through one or another draconian teaching scheme for two years before Itard finally developed a system that showed some promise. He trained the boy to recognize certain written words and to connect those words with individual objects—the word *chaussure*, for instance, with a particular shoe. This accomplishment led to a game—a combination of flash cards and hide-and-seek, in which Itard wrote a word and Victor ran around their chambers seeking its correlate. Then Itard took the game a step further, depriving Victor of the specific shoe and making him seek others, thus forcing him to form a generalized notion of the word's meaning. For a while, the boy was off on a rocket ride of comprehension. He learned not only to find an object if he was presented with its written name but also to write the name when he was shown the object. And not just objects: he learned adjectives and verbs as well, with which he could both comprehend and concoct written sentences. Interestingly, even a little bit of language seemed to open up new ways of thinking for him. The boy



who had been completely adrift could concentrate. Chores he had performed mechanically were suddenly imbued with spontaneity and imagination. He even seemed better able to imagine the needs of others.

The triumphant note at the end of Truffaut's movie marks the point of Itard's First Report, presented in 1801, when Victor had made a certain amount of frail early progress and seemed on the verge of much more. Five years later, Itard offered the Society of Observers of Man his Second Report, and it is markedly different. There had been progress, true, but Itard had come to appreciate the limits, rather than the potential, of his young student's mind. The boy was clearly capable of hearing and producing the necessary sounds, but he had shown that he would never learn to speak. His writing skills could proceed only so far. And his progress had been obstructed by the debilitating "crisis" of puberty, which drove the boy into torments and distractions that he was even less able to control or understand than other boys his age. Itard bled him to relieve his hormonal storms and recommended stopping the experiment.

In 1811, when Victor was in his early twenties, he was evicted from the Institut. He went to live with his caretaker, Mme. Guérin, in a small house in the Impasse de Feuillantines, a few blocks away. He received a small state pension, but he was otherwise forgotten by the government and the public, and even by Itard, his former champion. Itard was on the way to being famous: in 1814, he received the Medal of the Legion of Honor; in 1821, he was elected to the Academy of Medicine. He continued to work at the Institut, but he never walked over to visit his onetime pupil. Victor died in 1828. His obscurity in his later years was not just the result of the failure of Itard's experiment; the times had changed. The questions of the Enlightenment had lost their urgency. When a new wild child was discovered in the provinces some years later, the provincial authorities notified the government in Paris, and the Parisians replied, "You keep him."

IF the questions of the Enlightenment went underground, they didn't go far. Just when we think we have moved on to more modern perils in the Age of Deconstruction, they recur.

When Noam Chomsky professes the innate nature of language, citing the inadequacy of the input the child receives from its encompassing world, and when Catherine Snow responds that she is sure the child must glean most of its language from its surroundings, they are donning Cartesian and Lockean robes. Genie intruded into that argument, and fell into a wonderland of ancient rivalries. Her Hansens and Kents were children of Pinel, her Jean Butlers descendants of Itard. Condillac attended, his ghost guiding those who hoped that education would determine the remainder of Genie's life. Condillac is the patron, and Descartes the hobgoblin, of social workers everywhere.

Unlike most of the known wild children, both Victor of Aveyron and Genie of Temple City arrived to expectant audiences. Victor's debut was timed roughly to the questions of Condillac and precisely to the creation of the Society of Observers of Man. In 1971, Genie had the services of a different advance team. As David Elkind, one of her early observers, puts it, "Chomsky was new then, and linguistics was hot—there was a new theory coming out every day." Her arrival was even more precisely timed to the advent of one of those theories.

The study of language acquisition in children turns on a single simple idea—one that I heard most succinctly expressed in the keynote speech at the 1989 Stanford Child Language Research Forum. The address was delivered by Lila Gleitman, a professor of psychology and linguistics at the University of Pennsylvania. In her late fifties, with close-cropped dark-gray hair and wearing an orange-patterned frock and sneakers, she managed to give the impression, as she leaned on the lectern, of a truant leaning against a gymnasium wall smoking a cigarette instead of going to class, and being too cool to care. "Can you hear me?" she barked into the microphone, and then snorted to herself, "Huh! Only too well." The snort, it turned out, was a trademark—the nasal harrumph of a prizefighter, equal parts cynicism and deviant relish. On the movie screen behind her appeared a slide of the front page of a supermarket tabloid, with a headline reading "MOM GIVES BIRTH TO 2-YEAR-OLD BABY," beneath which was the subhead "CHILD WALKS, TALKS IN 3 DAYS."

The audience laughed. The speaker finished arranging her papers and looked up. "As by now you probably know, I'm Lila Gleitman," she said. "And basically what I want to talk about is this." She walked over and hit the screen a sharp one with a pointer. "What took three days?"

What Took Three Days has been Gleitman's obsession for the last several decades, during which she has become, rather despite herself, an ardent Chomskian. "People say, 'That Lila, she's just this crazy rationalist,'" Gleitman told me over lunch the day after her speech. "She thinks everything's innate.' But I started out as a hard-core empiricist, honest! I designed my studies to prove the empiricist position, and I couldn't ignore it when they showed me to be wrong."

One of the experiments she designed was directly inspired by empiricism's patron saint. "Locke said, 'Look at blind people—there should be some things they can't learn,'" she told me. "So we did the experiment. We thought, We'll see how experience guides language learning. But what happened was that the blind children learned things they shouldn't have been able to. They knew the answers to things beyond their ability to experience. That was very upsetting. Well, we were happy at this victory of the human spirit but unhappy at having wasted our time with blind children. I figured the experiment had failed—simple as that! I went to my husband, Henry"—Henry Gleitman was then the chairman of Penn's Psychology Department—"and he said, 'So how *did* the kid learn the answer?' I said, 'Oh, that's not important,' and I went to Cambridge to talk with Chomsky. He was very interested. He said, 'So how *did* the kid learn the answer?' This was a little epiphany to me. I said, 'Oh, boy, I'm in trouble. Chomsky the mad rationalist and Henry Gleitman the mad empiricist agree on this.' So we went back, and the only explanation we could find was that the child was being guided by syntactic rules within the question—rules he already understood. The syntax tells the answer."

To the linguists assembled in the Stanford auditorium Gleitman had said, "I've done everything I could think of to kids to show that they were responding to the world, and not to

some inner quality. We started... testing the effects of good and bad mothers, but they didn't have any effect. So we ripped the ears off of kids—we tested deaf kids. Then we tore their eyes out. Still, you know what? The little bastards learned language. The human child has a massive resistance to conditions, because he is going to learn language no matter what. You take away language, he invents one. We even did a nice study of preemies. They have the same experience in the world as full-term children do, but they're at a different physiological stage. It turns out that the age since conception is better as an indicator of language performance than the age since birth. Now, surely, observation of the world is one source of evidence. You can't take all forms of perception away from children. If you did, they would be falling off ledges and mistaking tigers for kitty cats, and pretty soon there wouldn't be any more children. But children aren't learning language from experience. They learn *words* from experience. They bring the sentence with them."

In the innatism to which Gleitman was a convert, the Three Days question was not "How do children learn language?" but "How does language flower out of the child?" What happens in the mind to permit that burgeoning comprehension? Gleitman had already found a piece of the puzzle: she showed that the Three Day clock is set at conception. But when does the clock run down? Is there a set deadline to language learning? This was the question to which Genie's arrival was so explicitly timed. It burst into prominence in 1967, three years before her discovery, with the publication of a book by the Harvard neuropsychologist Eric Lenneberg called "Biological Foundations of Language." The book was in some ways more revolutionary than Chomsky's of a decade earlier—more revolutionary for being more concrete. Lenneberg played Lenin to Chomsky's Marx, Itard to Chomsky's

Condillac. As Catherine Snow puts it, "Chomsky's brain, the linguist's brain, has no nerves in it; Lenneberg gave it a biologist's brain, with a cortex and lobes and axons and dendrites."

Chapter 4 of "Biological Foundations of Language" presented what has since been called the critical-period hypothesis. It suggested that the brain is able to learn a primary language during a certain early period, and not later on, and it proposed physiological explanations of why this might be so. Lenneberg's innovation lay in those explanations; the idea itself had been around for a while. The Swiss psychologist Jean Piaget had spent his life observing and investigating the stages at which children develop certain capacities. According to Lenneberg, the child's ability to learn its mother tongue effectively ends at the onset of sexuality. If Chapter 4 were to be borne out, it would have the effect of vindicating Chomsky, for how could language be tied to our biological clock if it weren't tied to our biology?

His concreteness notwithstanding, Lenneberg was, like Chomsky, a theoretician. What was needed was a clinician's validation, but the clinician

would need something to work with: a child who had exceeded Lenneberg's deadline—who had passed twelve and hit puberty—but was still embarking on learning language for the first time. After 1967, there was a yearning in the linguistic field for a proper young arbiter—someone who could do for Lenneberg and Chomsky what Victor of Aveyron had been meant to do for Condillac.

THE accounts in Susan Curtiss's dissertation of Genie's progress in the hospital during the spring of 1971 are all secondhand, gleaned from videotapes and interviews. Until after the consultants' conference, in May, the U.C.L.A. graduate student and the subject who would shape her career had not even met. On June 4th, that situation changed: Curtiss accompanied Victoria Fromkin on a visit to the hospital.

She found the setting itself daunting. "I was never a person who thought of being a nurse or doctor," she told me. "I've never been comfortable in the children's ward of a hospital. I'm not good in hospitals. It's not my strong suit. I was also scared—or, at any rate, nervous." And with reason. To an unacclimated sensibility, Genie was a true grotesque. She was barefoot on the morning Curtiss met her, her tininess exaggerated by a dress that was too long, her movements jerky, her teeth jagged and discolored, her hair thin. Curtiss describes her as "pitiful and strange," and something else: pretty. The scientist was enthralled by the softness of the child's manner, her beautiful skin, the blush in her cheeks, "almost as if an artist had painted each one of them carefully and delicately," and her upturned nose, "finely drawn like that of a china doll." She soon learned that Genie's indiscriminate spitting, scratching, nose-blowing, food-filching behavior could be somewhat less appealing. "It was hard," Curtiss said of the early contacts. "She was



"This sounds serious—like something we should go to Maine and work out."

very— She was—hmm—challenging.”

The timing of Curtiss’s arrival made her mission doubly difficult. Genie had not yet been trained into social acceptability, but in other ways she had progressed unfortunately far from her innocence of the autumn before. “In terms of watching Genie learn language,” Curtiss said, “I felt I was arriving a little late.”

Her tardiness was relative. If Curtiss had been at the hospital’s admissions desk on the day Genie arrived, she would have encountered a languaged person, in the sense that all children have some degree of language before they begin making use of it. Genie could not have acquired her meagre store of words if she had not previously mastered one of the most profound early tasks of any language learner: she had learned to separate meaningful sounds from the general cacophony surrounding her. In the words of Lila Gleitman in her address to the Stanford conference, Genie had “bootstrapped.”

“The child has no passwords,” Gleitman said on that occasion. “He doesn’t know he’s in the U.S. He doesn’t know he’s learning English.

His mom shows him this room”—she waved a hand out over the audience— “and describes it. What does she say? ‘Bahbahbahbahbahbahbahbah.’ That’s what she says. She could have said that the lady in back there is wearing blue, but what she really said, as far as the child knows, is ‘Bahbahbahbahbahbahbah.’ The question is: How does he figure out what his mother is saying about the room? O.K.? That’s the story. That’s bootstrapping.”

What Gleitman calls bootstrapping is called other things by other linguists, depending on their academic orientation. But the mystery is the same: How does the child divide a stream of sound into syllables and sentences that he can begin to make sense of? It is easy to understand the child’s bafflement. One has only to listen to an animated conversation in an unfamiliar language: our own language is built of discrete blocks, everyone else’s of quicksilver. It seems as hard to grab a word out of a foreign tongue as to clutch a fistful of water from a pond. Yet the child, for whom all tongues are foreign, does just that.

Scientists are not yet sure whether

the young listener first grabs phonemes—that is, individual speech sounds—or syllables, which can be made up of one or more phonemes. In normal conversation, nine hundred phonemes race by each minute, and there is attached to most of them no meaning to indicate their significance. Words have meaning, but their variations in length and form are countless, their boundaries indistinct. In normal speech, we break words up and slur adjacent words together; sometimes we pause within words. And if words are devious, sentences are even more so.

Here, as elsewhere, babies seem to know more than linguists can explain. Babies are born with some feeling for or understanding of language on both the phoneme and the sentence level. Among the hundreds of phonemes used in the world’s known languages, only forty are found in English. Newborns in English-speaking families display a preference for those forty, possibly from having heard them in the womb. They respond to their mother’s native tongue. As the child ages, that discrimination becomes more pronounced;

the child becomes more and more of a specialist. An adult speaker of English cannot accurately hear the phonemes peculiar to Chinese or French, much less replicate them in speech, without intensive training. Interestingly, it appears that the newborn doesn't so much develop his predilection for his mother tongue as let his perception of "foreign" phonemes atrophy. A Chinese baby is born with a developing bent for his native "r"-less language, but he can hear and pronounce "r"s. An American baby can do the same for all the French vowel sounds.

An equally astonishing ability applies to sentences. In the mid-nineteen-eighties, Kathy Hirsh-Pasek, who studied at the knee of Lila Gleitman and now teaches at Temple University, was frustrated by one of the standard constraints of linguistics research: most testing is done verbally, and therefore only children who already have language are tested. What, she asked, did the prelinguistic child know? She and two colleagues devised methods to measure the responses of very young subjects. They played tape recordings of sentences to nine-month-olds and observed eye movements for telltale indications of recognition. When the sentence ended at the proper place, the child acknowledged it. When the sentence ended improperly, the child did not recognize it as language. The incorrect sentence was received in the same way as arbitrary noise. Hirsh-Pasek has applied this method to younger and younger children. She professes surprise at the further results. Infants of four and a half months can tell correct from incorrect sentences, and what's more, they can do so for sentences both in Polish and English. The tests suggest that the ability that the nine-month-old has in its mother tongue the infant may have in any language. It has not yet let languish the grammars it will not use.

Though Genie had embarked on language learning before Curtiss met her, she hadn't acquired enough to make her available to the standardized tests that determine children's linguistic competence. In the summer of 1971, Curtiss and Fromkin faced the task of inventing a completely new set of linguistic examinations, appropriate to her. They eventually devised twenty-six of them. The administration of those tests, along with a battery of

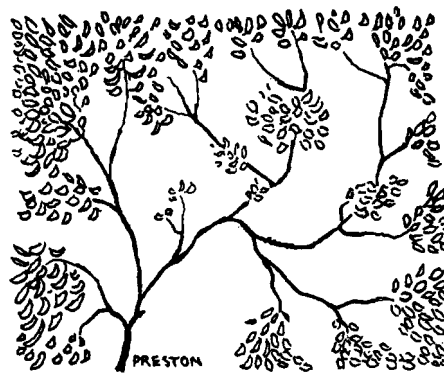
psychological and neurological tests, would within five years make Genie, in David Rigler's words, "perhaps one of the most tested children in history."

Fortunately, the linguistic-research tradition allows for other, less rigid methods. Curtiss began a diary on the day she met Genie, recording everything that Genie said and analyzing it for signs of progress. Even here, Genie was stubbornly enigmatic. Most of the time, she said nothing; her vocalizations were usually whimpers or squeaks. "She had been beaten for vocalizing," Curtiss explained to me. "So when she spoke she was very tense, very breathy and soft. She couldn't be understood. There was a lot of sound distortion, as though she had cerebral palsy, but there was no evidence of muscle or nerve damage. Also, she had a high fundamental pitch. It was so high that we couldn't analyze it on the instruments we use to acoustically analyze human speech. And she was monotonic—high monotone. No pitch variation whatsoever."

Realizing how fruitless any attempt at formal research would be for the moment, Curtiss settled in for a summer of watching—getting to know the child, and trying to gain her confidence. She sat with the patients in the Rehabilitation Center and, usually accompanied by Rigler or James Kent, took Genie on excursions.

"I would go by and take Genie for walks, or take her out to fast-food restaurants," Kent recalled. "At first, a nurse would go along with us. The nurse and I were supposed to be like surrogate parents, giving Genie the feeling of a family structure. We would hear some language from her on these trips, so Susan Curtiss started coming along to hear what Genie said. Genie was soon attached to Susie more than to the nurse who was supposed to be her surrogate mom."

The itineraries gradually expanded:



they went to the zoo; they went for walks in Griffith Park. Especially, they went shopping—an activity Genie liked so much that on the way to the shopping center she would point to every passing building and repeat one of her new words, "Store?" The local Safeway and a Woolworth's were Genie's emporiums of choice, and there she displayed to Curtiss her disconcerting brilliance at both offensive and charming behavior. She would attach herself to strangers whom she found interesting, grabbing their arms, putting her face directly in front of theirs and staring into their eyes. Or she would attach herself with equal fervor to their possessions, from which Curtiss would have to pry her loose.

One piece of merchandise she found irresistible was beach pails. On an outing in mid-June, Kent used Genie's fascination with them to demonstrate a linguistic curiosity to Curtiss—a problem of definitions. He pointed to one plastic pail and asked Genie what it was. "Pail," she said. He pointed to another, and she said "Bucket." There was no discernible difference between the two, but Genie was resolute in her distinction. The pails were located in a section of Woolworth's that Genie found especially enticing—an aisle of bright-colored plastic containers. Along with pails and buckets she coveted plastic necklaces, plastic purses, plastic trash cans—anything made of plastic.

When I asked David Rigler about the preference, the explanation upset him. "I think it was because of the bright colors and the texture," he said. "We learned that during her isolation Genie had had some small plastic toys. She had had a plastic raincoat hanging on the wall across from her potty seat." He paused, and then rushed on. "You visualize this house, and you picture this kid seated in this room, day after day, with very limited stimulation. She's grasping for some kind of stimulation, and the things she can see play a very large role. There's a plastic raincoat on the opposite wall." Rigler bowed his head suddenly, as though dismissing something unbearable. "She liked plastic," he concluded.

For Genie, the excursions were visits to a magic kingdom. Her innocent questing elicited extraordinary responses. A butcher at the Safeway saw how fascinated she was by the shrink-wrapped meat packages. He opened the service window and held out to her

an unwrapped cut of steak, and she fondled, smelled, and studied it. In like fashion, over the months, he offered for her inspection bones, chickens, fish, and turkeys, all wordlessly, as though he and she shared a tacit understanding. Occasionally, when Curtiss reached the checkout counter the cashier would produce a toy or a trinket, with the explanation that "the man ahead of you sensed she wanted this and bought it for her." The gifts were chosen with such uncanny accuracy and were tendered in such silence that Curtiss became convinced that she was witnessing a preternatural communication—an explicit, unvoiced understanding—that her careful notebook analysis was un-equipped to explain.

"Genie was the most powerful nonverbal communicator I've ever come across," Curtiss told me. "The most extreme example of this that comes to mind: Because of her obsession, she would notice and covet anything plastic that anyone had. One day, we were walking—I think we were in Hollywood. I would act like an idiot, sing operatically, to get her to release some of that tension she always had. We reached the corner of this very busy intersection, and the light turned red, and we stopped. Suddenly, I heard the sound—it's a sound you can't mistake—of a purse being spilled. A woman in a car that had stopped at the intersection was emptying her purse, and she got out of the car and ran over and gave it to Genie and then ran back to the car. A plastic purse. Genie hadn't said a word."

Genie's more conventional communication was improving. She still spoke in one-word snippets, but with an enhanced vocabulary. She was catching on to the give-and-take of conversation. She seemed, in fact, to have gained roughly the level that Victor had achieved at the Institut National des Sourds-Muets: she was forming social attachments and had picked up enough crude language (though hers was spoken, while Victor's was written) to express her needs. Great attention had been paid all along, of course, to even the smallest signs of Genie's psychological state. When David Elkind met her, he noticed that she retrieved an item from her dresser drawer. "She had the idea of object

permanence," he told me. "That's a major cognitive step for a child. Does something exist when it is not present to our senses? Children don't get that until after their first year." He also witnessed her attempts to bark like a dog she had heard earlier in the day. "That's a deferred imitation, and the delay is mediated by mental imagery," Elkind said. "So she was into her preoperational period."

"Preoperational period" is the terminology of Piaget, the Swiss psychologist who believed that children have critical periods not just in language acquisition but in general mental development. The mind doesn't expand only by learning, he said. It unfolds naturally from within, going through predictable stages as the child matures.

Preoperational thought is the second of those stages. Piaget saw the growth of language as tied to the growth of thought, as though it were a branch on the cognitive plant. Chomsky is inclined to see language learning and cognitive development as independent plants in a common garden. It was another dispute that Genie might shed light on eventually, but in the meantime Curtiss's evaluation of Genie's mental level concurred with the Piaget scale. The fervent search for names of things placed her at the beginning of preoperational thinking.

By all measurements, then, Genie was equipping herself to break out of her emotional isolation, her egocentrism. There might well be an intermediate step. According to L. S. Vygotsky, a contemporary of Piaget's who applied the Master's theories to language, the name-learning stage is followed by a period in which the child uses its new vocabulary to speak to itself, to encode its inner ideas. Vygotsky's theory embellished Heymann Steintal's old formulation: perhaps, behind her inscrutability, Genie was building self-awareness—understanding herself as she was understood by others, for "that is the beginning of language." Through the summer and on into the fall, Susan Curtiss jotted down Genie's every utterance, all her sporadic, inchoate talk, and waited for the day when she might begin to reveal herself.—RUSS RYMER

(This is the first part of a two-part article.)

