It is easy to think of the human voice as inaccessible to deaf people. They do not hear their own voice nor do they hear the voice of others, so it must not be known to them. Indeed, for much of Deaf people’s history, their name for themselves has been “deaf-mutes.” In the 1913 films made by the National Association of the Deaf, the sign DEAF was two signs, the index finger contacting the ear and then contacting the mouth. It has since simplified into a single sign, but the history of the older sign is preserved in the two parts of the modern sign, where the finger still contacts at the ear and the mouth. Not long before the films were made, however, the term “mute” had begun to fall out of favor. In 1889, the American Annals of the Deaf and Dumb, a journal of deaf education, proposed that the title of the journal change, leaving only the simpler term, “deaf.”

The editors believed the term was misleading: deaf people were not entirely mute. Some were hard-of-hearing and could speak reasonably well; yet others had speech training and could use the voice. Deaf people disliked “mute” for a different reason—over the years, the word had come to mean an inability to speak on one’s behalf, a lack of voice. Further, mute and dumb were increasingly being used in the popular literature to mean “lack of intelligence” more often than lack of ability to speak (as in “to be struck dumb”), leading Deaf people to advocate abandoning the descriptors.

In fact, the human voice is an object, a property that Deaf people care about greatly, and through their history, it has been an object for them to “manage.” They have often borrowed the voice of a relative or a friend, and more recently of an employee, to use for communicating with others. It is in this sense that voice can usefully be thought of as a technology: it is not merely a biological quality or a medium of expression, but an entity to be cultivated, managed, and most recently, converted into a commercial commodity. The management of the human voice today has become a multimillion-dollar industry, as Deaf people employ interpreters to translate for them into voice, and telephone companies hire voice operators to communicate for Deaf people over the telephone. The rapid expansion of voice into wireless and web technology has opened up even more ways to manage, shape, redirect, and indeed, profit from human voice for people who do not use it or hear it. As Deaf people have moved from separate lives within their communities, to lives in front of others, their management of voice has changed as well. They use voice to say different things now, to explain themselves and to participate in different ways. The properties of human voice have likewise changed, to become less intimate over the years, as Deaf people “contract” with an interpreter or an operator to voice on their behalf.

For most of its history, Deaf theater or “sign language theater” did not require voice; indeed, it was intended for a signing audience. Today almost all theater with Deaf actors will be accompanied by voice. The history is in part about changing audiences, from within the community to more public arenas. The transition in how voice came to be used in theater, first to “read” the lines, then to “interpret,” and now, as “dual performance,” where sign language and spoken language are presented simultaneously on the same stage, mirrors the transition from private to public forms
of expression. But the change was not without consequence: as Deaf actors blended voice with sign language performance, their style of performing changed. Finding themselves no longer on stage alone, but working with speaking actors, Deaf actors changed how they performed, and they changed their choice of material to perform.

The few films of the Los Angeles Club for the Deaf during the 1940s that have survived featured the style of performance favored at the time: vaudeville shows, short comedy skits, and even dreadful blackface performances, alternating with beauty pageants and awards ceremonies. Other films show poetry, typically translations of the classics, and singing in the form of rhythmic clapping, or dancing to popular tunes like “Yankee Doodle.” In her history of Deaf theater, Dorothy Miles describes community performances as descendants of the early “literary societies” founded at schools for the deaf. She claims that the earliest such society is the Cleric Literary Association of Philadelphia, founded in 1865. Gallaudet College founded its literary society in 1874.

Wolf Bragg was popular for his Deaf club performances through the 1930s when he conceived the idea of mounting full-length play productions under the auspices of the Hebrew Association of the Deaf. Using money pooled from friends and fellow aspiring actors, Wolf produced sign language translations of mainstream plays, including The Monkey’s Paw and Auf Weidershen, both popular with audiences during the years leading up to the Second World War. He rented high school theaters for the evening and printed fliers to distribute at Deaf clubs announcing the place and date of the performances. The plays were wildly popular, filling the theaters with two or three hundred in attendance, in part because Wolf himself was a compelling presence on stage.

Until his departure in 1925, Wolf had attended the New York School for the Deaf at Fanwood and learned the skill of sign storytelling from older students. As in other schools for the deaf at the time, Fanwood had a tradition of performance in the evening hours after classes had ended. Wolf’s strong sense of timing and colorfully vivid style of signing could hold an audience for hours. He would entertain audiences of friends at his home with stories cribbed from the Reader’s Digest, with a favorite being one of a man who at the urging of his wife went on a hiking trip with his best friend, only to find himself the target of a murder planned by his wife and friend, who were having an affair. Without access to movies or to plays, which were not subtitled or captioned in those days, Deaf people were drawn to these informal storytelling events at homes and clubs as well as at plays performed at theaters. Like Yiddish theater aimed at a community both set apart and brought together by its foreign tongue, Deaf theater in New York promised its audience vivid sign language theater, and by all reports, it delivered.

Wolf Bragg’s productions brought in Deaf people with little or no experience in acting, with sets designed on a shoestring on borrowed stages. Miles describes Wolf as a “demanding director” who coaxed performances out of fellow Deaf club members. Just as Yiddish theater responded to the growing demand of Jewish immigrants for entertainment in their own language, Deaf theater was designed for Deaf audiences. There was no voiced English translation of these productions because there was no one who needed to hear it. David Lifson describes Yiddish theater as a respite from the difficult lives that Jewish immigrants experienced, and a powerful reminder of what they had left behind in their homelands. In Deaf theater, the homeland was the community and the schools, brought together for a moment in an expression of drama. In the hands of directors like Wolf Bragg, sign language theater was arresting and satisfying.

During this period, Gallaudet College had an active theater; not only was there a dramatic club, where actors were invited to audition, but the college’s fraternities and sororities mounted their own plays as well, creating a lively theatrical environment on campus.
Many of these productions featured voice interpretation. In 1932, the Saturday Night Dramatic Club presented *The Curse of the Idol*, featuring an “interpreter.” The following year, the club’s production listed a student who “interpreted the play for the benefit of the hearing public in the audience.” In subsequent years, one or two of the hearing faculty would be listed as an “interpreter” or a “reader.”

In the summer of 1941, Eric Malzkuhn was looking for a new production for the Gallaudet Dramatics Club when he read a script of a murder mystery being performed on Broadway, *Arsenic and Old Lace*. Because the rights were not available, Malzkuhn wrote to the producers of the play to ask for an exception. When the producers answered that there could be no simultaneous amateur production while the play was currently on Broadway, Malzkuhn replied that it would not be a simultaneous production because it would be in sign language, and furthermore, it would not be amateur because they were “the best sign language performers in the world.” To Malzkuhn’s surprise, the producers wrote back and invited the club to perform on the Broadway production’s stage during its off-night.⁹

Malzkuhn knew that if he was to bring his production to Broadway, he would need a plan for voicing. He selected two of the college’s teachers, one who taught mathematics and the other classics, and arranged to put them behind a dark screen to one side of the stage. Though hidden from the audience, their voices would accompany the Deaf actors as they reprised in sign language the comedy of two spinster aunts who poison lonely elderly gentlemen looking to rent a room from them. For one night in May 1942, Eric Malzkuhn and the Dramatics Club found themselves performing on a genuine Broadway stage in front of a hearing audience. After the night was over, the students returned to Gallaudet and the historic event became forever inscribed in the folklore of Deaf theater, and in the black-and-white photographs stored in the club’s glass case. For one night, sign language attracted the attention of an almost entirely hearing audience.¹⁰

It hardly seems compelling theater to have two amateur voices for ten different roles, but voice at the time was augmentive, “interpreted . . . for the benefit of the hearing public in the audience,” as the playbill for the *Arsenic and Old Lace* production explained. A few years later, a sign translation of Gilbert and Sullivan’s musical *The Mikado* was performed at Gallaudet College, complete with rented wigs and costumes, and ornate sets. It was the most ambitious production by the football-coach-turned-director Ted Hughes. As with *Arsenic and Old Lace*, two teachers from the college provided voice translation, but they were kept off to the side behind a screen, so their uncostumed bodies would not mar the staging of the musical. Their voices were to supplement the play, to help the few hearing members of the audience follow the lines in case the sign language delivery could not be understood. When voice was used in Deaf theater to fill the silence, it was to explain and translate, but it was restrained in ambition.

Voice was intimate, close by and familiar. When Eric Malzkuhn met with the producers of Broadway’s *Arsenic and Old Lace*, he brought along a fellow student, Archie Stack, to interpret because he had “a lot of hearing” and used his voice well. From 1930 through 1959, Gallaudet College productions relied on a small group of hearing teachers to read or interpret plays: Elizabeth Benson, a hearing daughter of Deaf parents, was the dean of women at the college, and frequently was called on to interpret not only for productions but also for any interpreting need on the campus. Margaret Yoder taught English and fencing at the college, and voiced for a number of productions, as did Joe Youngs, a hearing graduate student who would later become the superintendent of Maine School for the Deaf. A playbill announcing Gallaudet’s production of *Hamlet* in 1958 listed Leonard Siger, on the college’s English faculty, as “Reader.” He also read for the following year’s
production of *Othello*. Voice continued to be off-stage and out of sight, and read by “friends” from within the community.

David Hays, then a well-known Broadway set designer, announced in 1966 that he and a consortium of interested individuals and organizations had received funding from the federal government for a new professional company. After a long history of amateur productions on a local scale, the news of a national theater took the Deaf community by surprise, especially since no one had heard of David Hays before. Himself hearing, Hays had no experience with Deaf actors, indeed he had little contact with Deaf people except for an experience watching Deaf people signing in the streets of New York, which struck him as “an oddity.” Spurred in part by the success of a Broadway play about Helen Keller, *The Miracle Worker*, Hays began to contemplate the possibilities of a sign language theater for hearing audiences. He began to meet regularly with Edna Levine, a psychologist and mother of two deaf children who had contacts in the Department of Health, Education, and Welfare. Soon she had convinced the office to consider awarding funds for this purpose. Knowing no sign language, Hays traveled to Gallaudet College where he saw a production of *Our Town* and found his perspective changed: “I thought the actors . . . were very moving. There was something about sign language. The quiet communication. The sign and the voice together. The quiet way of speaking . . . it was very touching.”

When Bernard Bragg heard plans were afoot to fund a national Deaf theater, he was excited, especially when Edna Levine promised him that she would recommend him to David Hays as someone who could advise him on how to launch this new enterprise. Bernard had grown up in the shadow of his father, Wolf Bragg, and had himself performed in Deaf club theater. As he honed his skills on the stage, he longed for something more. He wanted to perform for larger, even hearing audiences, like the stars he had watched on the stage and on the big screen. He had a difficult relationship with his father who, oddly, did not encourage his ambition to act—instead, he had urged Bernard to go into printing. Bragg wanted to act, but he had ambitions beyond the small and amateur stages of New York Deaf theater.

True to Levine’s promise, David Hays contacted Bernard and invited him to help him conceive of the new national theater. The project would begin with a summer school for prospective actors, since Deaf actors accustomed to the community stage needed to be trained for more professional venues. Bernard knew whom he wanted to recommend to David Hays—he had just brought together a group of Deaf actors for a performance at the California Association of the Deaf state convention and the reception from the audience had been tremendous. He told David Hays he knew who would be the best choices for the company—George Johnston was “the perfect Iago” in Gallaudet College’s production of *Othello*, as was Howard Palmer in the title role. For the female roles, Bragg wanted his good friend Auree Norton. Hays saw a picture of Auree, who had worked briefly as a model, and immediately agreed. Bragg also thought of the husband-and-wife pair of June and Gilbert Eastman, both from Gallaudet. Charles Corey and Joe Velez were favorite actors in comedic Deaf skits and Bragg decided they should also be included.

From the start, David Hays wanted his new enterprise to be a professional theater. Hays had had an illustrious career as set designer, and was himself fully steeped in the Broadway tradition. He would design a theater of the same caliber, with the highest production values. Second, he wanted a sign language theater. In a correspondence with Bragg that began in June 1966, Hays explained: “It is my conviction . . . that the manual language theatre can be developed into a startlingly beautiful medium . . . we must evolve methods of performance which will create an art no longer merely
a way of bringing theatre to the handicapped, but which is a brilliant new form brought to all of us by the deaf.”13 He wanted a company that would perform in sign language for mainstream hearing audiences. Bragg suggested that the new national theater could explore mime as well, as a way to reach out to hearing audiences. He himself was beginning a career in mime, following in the path of Marcel Marceau under whom he trained.

But Hays was adamant that the theater would not do mime. He intensely disliked “mutism” and the themes of Marceau’s continental mime. Hays wanted theater of the kind that he knew best, plays rich in language and dialogue, not mimes trapped in glass boxes and picking flowers in a garden. To him, mime was like puppetry, and his vision of a theater did not include it. To make his vision possible, Hays explained to Bragg that hearing actors would have to be hired as part of the company, to lend their voices to the Deaf actors’ performances, to speak the actors’ lines as the actors signed them. These would have to be professional actors, not simply readers or even interpreters, because his theater would require those trained in voice. David Hays’s vision included hearing actors not disembodied and hidden behind a screen or consigned to the orchestra, but visibly moving across the stage as they voiced the lines of the Deaf actors. Sometimes they would voice in the shadows of Deaf actors; other times they would sign some lines themselves. They would not merely voice the Deaf actors’ lines in English, but would themselves be actors and deliver as powerful a performance in voice as in sign.

Hays’s conscious choice of sign language over mime has marked Deaf theater from that time to the present in the United States. Elsewhere in the world, including in Moscow and Hong Kong, there are Deaf companies that use mime, not sign language, to reach their audiences. The International Visual Theatre in Paris, too, has experimented with mime and sign language presentations, but since David Hays, American Deaf theater has never seriously considered mime as a medium of communication with hearing audiences; instead it has been primarily a sign language theater.

When the first company of Deaf actors arrived at the Eugene O’Neill Center in Waterford, Connecticut, in the summer of 1967, they were unsure of Hays’s novel idea. They considered themselves lucky to be a part of a new professional company, but Deaf theater had never been like this. Deaf theater had always been performed in ASL, and no one had ever come to a Deaf club performance expecting English. When Wolf Bragg staged his sign language production of Auf Wiedersehen about the Nazi occupation of Germany, the audience came because it followed the tradition of performance in deaf schools and Deaf clubs, that of presenting English-language plays in sign language.

David Hays’s idea to put both voice and sign on the stage was remarkable in principle, but as it turned out, fraught with problems. Conflicts quickly arose during the first actors’ workshop in the summer of 1967. From the very start, Hays set out to forge together the language of Deaf theater with hearing theater aesthetics and performance values. There would not be the raucoaus vaudeville that made up amateur Deaf club performances; instead National Theatre of the Deaf (NTD) would be high art. He had some interest in original Deaf productions, but he wanted first to stage well-known plays to prove that his new company could perform them.

To achieve this goal, he brought three New York City directors to Connecticut that summer to work with the Deaf actors: Gene Lasko, who had directed Anne Bancroft in her famous role as Helen Keller’s teacher, Annie Sullivan, in The Miracle Worker; Joe Layton, a choreographer for Barbra Streisand’s Broadway performances; and Joe Chaikin, the director of the radical Open Theatre. There were some Deaf teachers also invited that summer, though not to teach acting or choreography. Instead Robert Panara and
Eric Malzkuhm taught the history of acting, leaving the task of teaching stagecraft to the Broadway directors.

Hays’s idea of having Deaf and hearing actors sharing the same stage immediately presented timing issues. For one thing, the leisurely pace that Bernard Bragg used for what he called his “visual vernacular,” or “sign-mime”—a blending of mimetic aspects from his training as a mime and his father’s vivid sign style—was not suited for the quick tempo that the hearing director, Joe Layton, preferred. In the time that it took Bernard to set up a signed scene, the hearing actor had often finished speaking the line and the stage was left uncomfortably silent. Then as Bernard changed the image, the actor had to quickly chatter through the next line.

Some solutions had to be found. Layton’s solution was to order the Deaf actors to reduce the complicated “wordy” signing so the voice would be paced correctly and more pleasingly. Furthermore, he wanted the Deaf actors to move around the stage more. The feet-in-concrete style of community acting, suited for the Deaf club so the audience could watch the signing comfortably, was replaced by a more rapid, and arguably, visually pleasing choreography. Patrick Graybill remembers how much he struggled to keep up. Layton wanted faster and faster choreography, and Graybill tried to compensate. He knew that a moving body makes signing harder for Deaf audiences to understand, so he tried to time his signing during brief pauses on stage so that it would not be lost in the blur of Layton’s choreographed movements.

Next to change was the intensely expressive and intimate acting style of Deaf actors. The rubbery faces characteristic of Deaf theater—the wide-open eyes, the exaggerated mouth, the distended wagging tongue, the mobile shoulders, and the shaking head—had to go. The signing on the Deaf actors’ hands was “expressive,” but their faces seemed grotesque to Hays and other hearing directors. The actors were told to control and choreograph their faces to show more restraint.

The result of this new signing register is evident in the first production of the company on the NBC television show “An Experiment in Television.”14 In Audree Norton’s lovely and lyrical rendition of Elizabeth Barrett Browning’s “How Do I Love Thee? Let Me Count the Ways,” she is seated on a velvet settee in a spotlight. Her face is tightly controlled, with only tiny movements to register small expressions of adoration and affection. Her mouth barely moves; her head turns slowly and her shoulders are even. Instead her hands show the emotion, rising and falling, and then as she reaches the last line of the poem, “I love thee with the breath, Smiles, tears, of all my life!—and, if God choose, I shall but love thee better after death,” her face remains unchanged until the end of the poem, signaled by a slow drawing together of her hands in a final clasp of fealty to her beloved.

After their experimental first year, the NTD was ready to mount its touring season in the fall of 1967. They performed for mostly hearing audiences, first near their home in New England, and then in other parts of the country. Two short plays were featured: William Saroyan’s The Man with His Heart in the Highlands, the wildly funny nonoperatic version of Puccini’s Gianni Schicchi, and then a collection of poems, including Audree Norton’s “How Do I Love Thee?” Gianni Schicchi was an immediate hit with the critics, who loved its colorfully outlandish costumes and frantic choreography. Bernard Bragg wore a gaudy harlequin costume complete with prosthetic rubber nose for the title role, and Joe Velez was equally memorable as his assistant. The costumes and sets were far more lavish than any Deaf club theater could ever have hoped to match. As the company traveled to stages around the country, at colleges and universities as well as repertory stages, Deaf audiences found themselves sitting in plush seats in fully professional theaters, and before their eyes was a company of Deaf actors, each of them famous but never before brought together on the same stage. Almost immediately, the Deaf audiences complained about the new theater: Too fast! Incomprehensible! Too elite!15

Eric Malzkuhm, who had been hired by the NTD in its first two
seasons to translate written English script to ASL, remembers that
the idea of putting hearing and Deaf actors together on a stage
"worked beautifully, and it was terrible." He meant that for Gianni
Schicchi, it worked beautifully, but the following year, when the
company performed Moliere's Sganarelle, it became a disaster in
Malzkuhn's eyes. The hearing actors were given their own lines to
sign, and like Gianni Schicchi, there was ambitious choreography,
but the Deaf audience was confused about where to look. The ac-
tors were signing, yet some were speaking too. The voice actors
who would normally be consigned to the background were now
more prominent. Tensions mounted as the Deaf actors found
themselves competing with hearing actors for the audience's at-
tention.

As the actors tried to resolve the balance between sign and voice,
Deaf audiences who came to the first performances of this new
theater were surprised that they couldn't understand the perfor-
mances. Hearing audiences could use sound to track who was
speaking on stage, but the Deaf audience couldn't always figure
out which actors to look at. Deaf actors moved, but didn't sign.
Hearing actors didn't move, but signed. The pacing of Deaf club
theater, where the actors behaved as if the stage were a world
made up entirely of Deaf people, kept the staging clear to its audi-
ces. But with a new choreography designed for the kind of vi-
sual spectacle that hearing audiences were used to, the feel and
texture of the NTD was no longer like club theater. Deaf audiences
were torn. The NTD had their favorite Deaf actors playing in en-
semble, and sign language was displayed favorably to the public,
yet it was not the same.

The new use of voice on the public stage foretold a changing or-
der of things, and there was no turning back. By any measure, the
NTD was an outstanding success. Clive Barnes, writing for the New
York Times, called himself charmed by the experiment in sign lan-
guage, but said that in his opinion, the theater would not work
without the use of voice. In subsequent seasons, the NTD staged
complex classics, from Dylan Thomas's Under Milkwood to Gertrude
Stein's Four Saints in Three Acts, to prove that the theater had seri-
ous ambitions, but both translated poorly into ASL and alienated
Deaf audiences. In Wolf Bragg's time, the audience had been made up of those
who came to see mainstream plays in culturally familiar perfor-
mancess. It was segregated theater, and like Yiddish theater of the
same period, it was intensely familiar to insiders and by definition,
inaccessible to outsiders. Yet within the confines of these expec-
tations, both were fertile theater: They had actors who were popu-
lar with their audiences and through their skill, the performances
brought to life the language and culture of the community.

The placement of voice on the sign stage was a planned inter-
vention and it changed practices. Beyond making sign language intelligen-
tible to hearing audiences, it altered Deaf actors' style of acting.
It changed the direction of translation, because the signing now
not only needed to match the original English text, but it also had
to match the choreography of voiced performance. We tend to
think of technology in terms of objects, say a telephone or a com-
puter, but attached to each technology is a body of practices. The
technology of writing is not merely the storage of speech in visible
form, but an industry of writing: We have writers, editors, and
publishers. Beyond these agents, we have paper manufacturers,
printers, and book binderies. Howard Becker reminds us that the
"genius" of art is not the solitary work that artists do, but includes
a "cooperative community" of art brokers and gallery owners,
framers, paint and canvas supply houses, and so on, which sup-
port, justify, even exalt the work of artists. As Deaf actors moved
onto a public stage, the "cooperative" work of actors, directors,
and producers put new pressures on signed performance.

When voice became packaged into the bodies of actors and inte-
grated into the performance, it foretold of social change to come.
Sign language theater already had a Deaf audience, but Hays wanted a different audience. He told his company that “our object is not to create just another theatre for the Deaf. Our new theatre is for everybody.” Hays astutely recognized that his own growing fascination with sign language was likely to be shared by audiences who were searching for novel kinds of performances. Like him, the public was growing interested in popular kinds of performance, especially of new and exotic groups, and the National Theatre of the Deaf fit the bill. The NTD cleverly marketed Hays’s vision of Deaf theater and soon the company had a full schedule of bookings on major stages across the country.

NTD appealed to Deaf performers who had grown restless with the small confines of Deaf club stages and yearned for exposure and fame. Bernard Bragg had dreamed as a child of performing before large audiences but he could not imagine how to do it without voice. When he saw Marcel Marceau command a large audience in San Francisco, he began to think mime might be his vehicle to the public stage. He managed to acquire an invitation to study with Marceau, and after a summer in Paris at his studio, Bernard returned to the United States and tried to build a career as a mime. He landed himself a weekly series on local television called The Silent Man, and achieved a small amount of fame. When he could not convince David Hays to try mime in the new NTD, Bernard joined the other Deaf actors and learned to accommodate voice in their acting. Patrick Graybill remembers his time with the NTD as struggling with his fellow actors in the company over the problem of sign translation and timing, but the lure of the professional stage was powerful.

Soon silent sign language theater began to fade away, as did Yiddish theater in the 1940s. Today there is very little theatrical performance in sign language that is not voiced. Sometimes signed poetry or narratives will be performed silently to demonstrate the difficulty of translation into voice, but these are brief, nostal-
Wolf Bragg knew how to make signs pleasing to Deaf audiences; he would play with the internal structure of signs to show details of the actors’ actions and their reactions to events. But in NTD, the emphasis was on sign transparency: Bernard Bragg remembers Gene Lasko asking the actors to “stretch out their signs” to make them more iconic and thus more recognizable to the audience. The actors should not simply sign that “the arm was bloody,” but actually hold up the arm, and slowly show the blood flowing down the arm and droplets dripping off the arm.

Soon after, voice as a technology began to be deployed in arenas other than the theater—in education, social service, government, and the workplace. Several years after the NTD's inaugural season in 1966, a series of federal laws were passed guaranteeing access to the deaf and disabled. Section 501 of the Rehabilitation Act of 1973 prohibits discrimination against the disabled in any federal agency. Section 504 of the same act expands the protection to include any federally supported program. Shortly after the passage of Public Law 94-142, also known as the Education for All Handicapped Children Act of 1975, public school districts were required to admit and provide education to any deaf and disabled children. As deaf children and adults moved out of segregated schools into new public arenas, the workplace and the integrated school, interpreters not only signed for them, but provided voice as well, to translate signs into spoken English. Whereas public school education had been typically limited to deaf or hard-of-hearing children who could speak for themselves, schools now provided voice interpreters who spoke for students if they could not do so themselves.

The expansion of disability rights through the next two decades culminated in the far-reaching Americans with Disabilities Act of 1990, which guaranteed access in commercial spaces as well as public ones. Television manufacturers are now required to install a captioning decoder chip in all televisions larger than thirteen inches, enabling nearly every television in the United States to provide captions on the screen. Hotels have to be accessible to the disabled, including by providing televisions equipped with decoder chips. Deaf people who wish to attend union meetings or workplace training can request interpreters who can both sign and voice, gaining them access in expression as well as in information. Unlike during the International Typographical Union’s chapel meetings of the 1940s and 1950s, when Deaf workers relied on hard-of-hearing coworkers to interpret for them, the American Postal Workers’ Union today provides interpreters for its Deaf union members. Participation in public government also expanded under the new law. Los Angeles County has a staff legal advocate whose responsibility is to meet with every deaf or hard-of-hearing person who enters the legal system and determine their communicative needs. If voice as well as signing are needed, the advocate arranges for an interpreter to be present at all legal matters involving the individual. Giving voice to a deaf defendant or petitioner has become an expanded legal right only recently. Hospitals can be sued for failing to provide interpreters when medical information is gathered from a deaf patient at the time of admission.

Deaf people’s use of voice has not only deployed human actors and interpreters in the service of Deaf individuals, but also led to the design of new types of machines. In 1985, the California Association of the Deaf (CAD) and the Greater Los Angeles Association of the Deaf (GLAD), an agency providing social services to deaf people, petitioned the California Utilities Commission to provide telephone access to deaf and hard-of-hearing residents of the state. Arguing that any public utility should be fully inclusive, the organizations demanded that the commission provide free-of-charge teletext machines so that deaf people could access the telephone lines to do real-time exchange of text messages, just as phone companies at that time provided telephones free of charge for the hearing. Furthermore, they wanted the commission to support telephone access between individuals who had the text machines and those who did not.

Local Deaf agencies in California had been experimenting with
using hearing operators who would read incoming teletype calls to a caller who did not have teletype equipment. The CAD wanted the service funded by telephone subscription fees and expanded to twenty-four hours, seven days a week to any citizen living in California. Using the relay, Deaf people could call hearing relatives, shop owners, doctors, catalog companies, work supervisors, and others over the telephone. The utilities commission agreed, and in 1987, inaugurated the new service, in which calls to and from the operator were free of charge, and the telephone toll charge was as if the Deaf caller had dialed the hearing caller directly.20 To pay for the cost of distributing equipment and hiring relay operators, the commission created a surcharge added to all phone bills. The technology provided voice for Deaf consumers to use and to exploit in conjunction with other technologies.

Quickly recognizing that relay services could be lucrative given the subsidy, telephone companies aggressively bid for the right to offer them. And Deaf people, no longer limited to borrowing the voices of neighbors and relatives, clamored for the service, causing the demand to skyrocket. In the first month in California, 50,000 calls were relayed after the new service was inaugurated. Five years later, the service spread through the rest of the country and there were 315,000 calls per month. By 2001, there were approximately 51,000 calls a day to relay centers throughout the United States.21 Text relay services are tightly mediated, with the operator speaking the text lines slowly and limiting interruptions from the hearing caller, but the service has established the principle of public access for deaf telephone users, and is now commonplace throughout the United States. To make it more convenient to use and remember, many states have converted the toll-free number that callers use to reach the relay center to a simple three-digit one, 711.

To handle the volume of calls, a telephone carrier offering relay services may employ as many as one hundred relay operators during the peak hours of 10:00 a.m. to 3:00 p.m., weekdays. Depending on the carrier, the actual location of the operators may not even be within the state where the call is made: Sprint employs operators throughout the country and has centers located in California, South Dakota, and Texas. As the operator comes on line and identifies her or his gender and operator number (for example, “Operator 456F” for a female operator), the caller gives the phone number to dial and waits for the operator to connect with the other party. Throughout the conversation, the operator maintains as strict a mediator role as possible: no personal conversations should take place between the operator and the deaf caller, nor should the operator engage in overmediation and try to respond on behalf of either party. Voice relay is expected to be impersonal and objective, with the identity of the operator limited to the gender and code. Whereas thirty years ago Deaf people asked neighbors, friends, coworkers, and children to make telephone calls on their behalf, calls are now made by hearing strangers whose identity and location are never known.

The blending of human voice and intelligent machines has moved to the next level with video relay services, which use cameras and the Internet to link Deaf signing “callers” to a live interpreter. The Deaf caller goes to a website where the image of a sign language interpreter appears on the screen. Once the interpreter sees the video image of the Deaf caller as well, the call is initiated and the telephone transaction takes place in sign language and the operator’s voice using cameras. Video relay calls likewise use interpreters in remote locations, and the role of the interpreter is strictly limited to transmitting language between the two callers. The service has expanded to hospitals, where instead of arranging for a live interpreter for Deaf patients who arrive at the hospital, the staff wheels in a video monitor with a camera attached to a high-speed phone line. The video interpreting service is dialed up, and an interpreter working out of her home in another state comes on the monitor and interprets for the Deaf patient.

Voice can also be contained in small portable machines. Deaf
people can own text pagers that convert written text to speech using a fairly realistic mechanical voice for the purpose of leaving voice messages with hearing callers. Voice recognition software is also now being used for remote live voice translation. The voice of the speaker in a public speaking situation is transmitted to an operator and a small desktop computer via a high-speed telephone line where it is translated into text using voice recognition software, then transmitted back to the location of the speaker where it is projected onto a screen as English subtitles or captions. To compensate for the relatively high error rate of voice recognition software, trained operators monitor incorrect word choices and type in corrections. In this configuration, the divide between the human and the mechanical becomes blurred because the “interpreter” is never actually seen but is mediated entirely by machine. In essence, as the human-to-human interaction in voice translation is broken down, voice reaches a new level of alienation, where its translation to text is never completely human. Conspiring with the arts, the public utilities, the government, and private industry, Deaf people have given themselves the ability to speak in new ways, even as they do not themselves produce voice in their own bodies.

Far from being an unknown entity, voice is a very serious matter to Deaf people. In his autobiography, *Lessons in Laughter*, Bernard Bragg tells how he had to be taught how to laugh because his untutored laughter was too strange to the hearing ear. Deaf people who are self-conscious about their own voices will insist on hearing people’s voice interpretation of their language. For short interactions, such as an order in a restaurant or a chance encounter with a hearing person, Deaf people will use writing to communicate because to attempt to use an unmodulated voice is risky. Joseph Grigeley, a Deaf artist, memorialized his many written encounters with hearing friends and strangers into an unusual art form titled White Noise, once on exhibit at the Whitney Museum.

of American Art. Scraps of paper saved over the years, ranging from instructions to philosophical ruminations, were wallpapered on a curved surface, showing interactions preserved in writing. For most of their history, Deaf people in the United States have managed their use of voice, either by using others’ voices or through writing; in this sense, technological transformation of voice is not new to the community.

When faculty members Elizabeth Benson and Edward Scouten voiced behind a screen off-stage for Gallaudet College’s 1947 production of *The Mikado*, they were there because the hearing faculty wanted to hear the lines of Gilbert and Sullivan said out loud and not because they didn’t understand the language of the production. At that time, many hearing faculty at Gallaudet were fluent signers before teaching at the college. A number had Deaf parents, or had come to the profession because of another family connection to deafness. Yet even with hearing faculty, the campus was segregated and limited to those who knew sign language well. Interpretation, while available, was not used on the scale it is today. When Benson and Scouten were at Gallaudet, both were the only interpreters the campus had or needed, because the contexts for using interpreters were few. Within the campus, there were many signers, but outside the campus there were very few. Today there are many more signers outside the group, and for those who do not sign, there are technologies to mediate interaction.

Today interpreting has become highly professionalized and has reached a massive scale. The largest interpreter referral agencies employ long rosters of interpreters and send them out to a variety of settings, from educational to social service to corporate and legal as well as personal. One large agency serving the western United States has 143 interpreters on its roster available for assignment; of this number, twelve are employed full-time. As an estimate of the demand, interpreters in San Diego work a combined 234,000 hours a year. At an average of twenty dollars an hour, total pay-
ments to interpreters easily exceed $1 million a year—for one metropolitan region. Viewed nationally, a conservative estimate of payments made to sign language interpreters must be at least $100 million. Deaf adults and children routinely use the voices of professional interpreters—to talk to their doctors, to talk to their teachers and to teach themselves, to make their weddings accessible to hearing family and friends, and for nearly every other aspect of their lives.

Voice can simplify tasks for Deaf people. Instead of writing out their wishes, Deaf people can use voice interpreters to speak simultaneously as they sign. Instead of faxing to businesses or visiting them personally, Deaf people can remain at home and use the relay service to call and inquire about their products. But technology is about rearrangement and replacement; as new practices are adopted, older practices decline. Deaf actors can perform before new audiences with voice accompanying them on the stage, but they have to alter their style of signing. Where once they occupied the stage entirely and without compromise, they now have to share the stage with voice actors and accommodate the constraints of voiced performance. The technology of voice brought Deaf actors to the public stage, but shortly after, silent Deaf theater began its decline, and for all purposes is today only a nostalgic theater.

Where once voice belonged to people who hear and Deaf people were said to be "mute," over the years Deaf people have assumed greater ownership of voice. Managing the technology of voice is a means by which Deaf people have carved out a public space for themselves in American life. As their sign language moved into public places, voice moved with it. In the process, Deaf people have made themselves less a secret community, and more a public one—at a cost.