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Letter from the Editor

n the frontiers of architectural design, we find hospitals, hospices, and other therapeutic facilities creating gardens and incorporating nearby landscape features to promote patient healing, caregiver relief, and visitor pleasure. The present issue of *Site/Lines* results from the coeditor Reuben Rainey's involvement in teaching and furthering the practice of this important form of "green medicine." His essay "Design for Healing: The Transformation of Health-Care Facilities in the United States" provides an introduction to the proven benefits of nature-oriented architectural practice in the creation and remodeling of hospitals. These benefits include alleviating patient stress, which accelerates the healing process, and creating a humane work environment for staff, which

reduces medical errors and employee burnout.

David Kamp, a landscape architect and founder of the firm Dirtworks, has devoted almost his entire practice to pioneering the marriage of nature and design in therapeutic environments. In his thoughtful essay titled "Nature, Design, and Health: A Personal Overview," he shares some of his instructive concepts about ways in which the body restores, renews, and heals itself, which he first explored while designing a garden for Terence Cardinal Cooke Health Care Center, a long-term care facility in Spanish Harlem that treats, among others, patients with HIV and AIDS. His autobiographical account of his career continues with a discussion of his design approach at the Life Enrichment Center in the North Carolina foothills, and at Camphill Village, a biodynamic farm with water-sheds, woodlands, meadows, and trails in upstate New York.

In "Prescribing the Outdoors: A Model Hospital Garden," Kenneth Helphand visits Legacy Emanuel Medical Center in Portland, Oregon. Using the neologism "hortophilia" to describe humans' innate affinity for plants, he chronicles the paradigmatic psychological and physical benefits that the center's garden – with its seasonal variations in color, leaf shapes, textures, and aromas – offers child and adult convalescents, hospital staff members, and visiting families.

In their collaborative essay "Rehabilitation and Gardens: The Legacy of Dr. Howard A. Rusk," Nancy Gerlach-Spriggs and Vincent J. Healey pay tribute to the gardens created by the physician who can rightly be called the father of rehabilitative medicine. This interest began while Rusk

was treating Second World War survivors with missing limbs and other devastating injuries. He later became convinced that working with plants within an otherwise sterile hospital environment helped patients focus on life-affirming nature rather than on illness, personal trauma, and injury. An able fundraiser, Rusk created several gardens in the rehabilitation center that would eventually bear his name, as well as a greenhouse filled with exotic plants.

In her essay "Up on the Roof: From Prison to Garden," Alice Truax visits Castle Gardens, a 113-unit apartment building on West 140th Street in Harlem built by the Fortune Society for formerly incarcerated men and women as well as residents of the neighborhood. On its rooftop garden, we meet a horticultural therapist named Deborah Shaw and several of the residents and volunteers who form her coterie of dedicated gardeners. The tasks of weeding

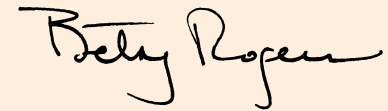
and watering and picking are simple but also invaluable; so are the conversations that unfold around those rituals. This essay illustrates the ways in which a horticultural therapist can grow a sense of community alongside the harvesting of produce and caring for flowers and in so doing provide a sustaining form of psychological support.

In "The Walled Garden at Headley Court: Growth and Restoration after War," Emily Mayhew and Peter Le Feuvre chart the history of the garden at a Jacobean-style 1879 English Manor house. Its clipped box and yew hedges, grass allées, and topiary sundial fell into disarray with the coming of the First World War and remained neglected during the house's use as a rehabilitation facility by the Canadian Air Force in the Second World War. The garden only came to life again in the

twenty-first century, when portions of it were redesigned to offer rehabilitative and horticultural therapies to the casualties of Britain's war in Afghanistan. Like David Kamp and Kenneth Helphand, whose book *Defiant Gardens: Making Gardens in Wartime* is cited in this article, the authors maintain that the interaction of emotionally and physically challenged people with nature can become a form of personal affirmation and self-assertion.

Reuben Rainey, the coeditor of this issue of *Site/Lines*, joins me in reminding you that the health and lifeblood of this journal come from donations by our readers. We urge you to mail us your contribution to the Foundation for Landscape Studies in the enclosed envelope.

With good green wishes,



Elizabeth Barlow Rogers
President

On the Cover:

Joel Schnaper Memorial Garden.
A testament to design's capacity to
enrich and support a therapeutic
environment.

Designing for Wellness: Therapeutic Landscapes

Design for Healing: The Transformation of Health-Care Facilities in the United States

Over the past forty years a remarkable architectural alchemy has transformed many health-care facilities in the United States. Not only the large teaching hospitals in our cities but often even small clinics in rural areas have undergone this metamorphosis. As you enter one of these buildings by day, you will probably encounter a spacious lobby filled with sunlight. Natural materials abound: cherry paneling on walls and columns and comfortable walnut furniture upholstered in calming greens and blues. It is surprisingly quiet. Acoustical ceiling tiles absorb sound to a remarkable degree. No intercom system interrupts the almost resortlike ambience with blaring announcements of the latest emergency. Paintings of regional landscapes, colorful birds, flowers in bloom, and lively streetscapes adorn the walls.

If you are visiting a friend, your way to her room is clear, aided by a simple floor plan, clear signage, and color-coded hallways. The hallways are illuminated by soft lighting cast from attractive sconces or fixtures embedded in the ceiling soffits. Your friend's room is private, with unrestricted visiting hours. The generously proportioned window floods the room with natural light. There are comfortable chairs, and the room has a domestic ambience, with colorful landscape photographs on the wall and a simple headboard for the bed. The private bathroom provides a walk-in shower and floral pattern tiles.

The room's design empowers its inhabitants. Your friend can adjust the lighting, raise and lower the blinds, access the Internet, select television programs, make telephone calls, and request staff attention by means of a handheld remote. This sense of control counters the oft-felt anxiety and humiliation of hospitalization – the plastic ID bracelet, the ill-fitting surgical gown, the subjection to a schedule not of one's choice. And yet, despite the homelike room and hotellike lobby you entered, you are in fact visiting a high-tech

facility with the latest in equipment and clinical protocols and an expertly trained staff that provides effective, patient-centered care.

Fifty years ago you would have encountered a vastly different environment: a meager and poorly lit lobby, monotonous white or beige walls, tile and chrome surfaces that amplified noise, and a jarring intercom announcing medical emergencies, as well as a confusing maze of hallways, glaring fluorescent lighting, low ceilings, and little if any artwork on the walls. Your friend would have been sharing a room and bathroom with at least one other person, their beds separated by thin vinyl curtains affording little privacy. Visiting hours would have been restricted, and the room devoid of any accommodation for visitors except a chair or two. The view from the small window would likely have been of the parking lot or the wall of an adjoining building. Your overall experience would have been of a depressing, alien, aesthetically sterile environment with unpleasant aromas, glaring lights, and noise. Leaving would have been a great relief. There may be some hyperbole in this contrast, but compare it to your own experience. Unfortunately, more than a few of these older facilities still exist, especially in economically disadvantaged regions of our nation.



Stressful as this medical facility environment of a half century ago would have been for patients, staff, and visitors alike, it still represented a great advancement in health care. Before the germ theory of disease took hold among medical professionals in the late nineteenth century, hospitals were mostly death traps for the poor. For those who could afford it, medical care was in the home, and hospitals were shunned as pest houses where one had little chance of survival. Then, thanks to the discovery of germs by scientific pioneers Louis Pasteur and Robert Koch, our understanding of how diseases spread grew dramatically. By the mid-twentieth century the hospital had become a medical marvel, offering the latest in high-tech equipment and a highly trained staff of specialists. The building was designed to be sterilized easily and it accommodated physicians and staff protocols efficiently. Patient perceptions of the environment and the feelings it evoked were of secondary importance, however. Why was this the case? And why are today's medical facilities being designed in such a dramatically different way – one in which such careful attention is paid to creating a more positive experience of the environment for patients, staff, and visitors alike?

Advances in the science of the human immune system are a major factor. As recently as fifty years ago, scientists thought that the immune system was completely autonomous. It followed that patients' perception of the medical environment had little or no effect on the outcome of their treatment. Thus the design of medical facilities reflected the science of their day: keep the medical environment as germfree as possible with easy-to-clean materials (chrome and tile) and make it as functional as possible to facilitate the work of the surgeon, radiologist, pharmacologist, and nurse. Now we know differently. More recent research in laboratories and clinical settings has proven beyond doubt that patients' perception of their surroundings profoundly affects their well-being: the more their environment stresses them, the less positive their health outcomes will be.

The highly damaging effects of long-term stress on the immune system were explored by medical researchers such as Hans Selye and Walter Cannon in the 1930s and have been investigated more recently by Janice Klecolt-Glazer, Ronald Glazer, Sheldon Cohen, and Bruce S. Rabin. The stress

UF Shands Cancer Hospital,
Gainesville, Florida. A typical
private room with both a landscape
view and a nature photograph.

produced by hospitalization is especially high. Some of this stress, of course, is unavoidable: patients are subjected to loss of physical capacity, painful medical procedures, and fear of the unknown. But a health-care environment that is noisy, confusing, invasive of privacy, and lacking in emotional support compounds this stress, and depression, high blood pressure, and the release of potent stress-induced hormones often result. Research indicates that these responses severely compromise one's ability to heal, a situation that leads to a longer stay in the medical facility and perhaps greater use of potentially addictive painkillers. Stress weakens the body's resistance to infections as well.

This is why stress relief has become a design priority in recent decades. Not only are these newer medical facilities designed to relieve patient stress, they are intended to do the same for staff and visitors. As neuroscientist Esther M. Sternberg aptly remarks, "Understanding and reducing stress in the hospital environment is to twenty-first-century medical care what understanding germ theory and reducing infection were to nineteenth-century care."

Now that the importance of reducing stress in the medical environment is understood, we are asking how design features can help realize this goal and how we can discover them. Designing a health-care facility is one of the most demanding of architectural commissions. The plans are drawn up not by an individual but by teams of specialists. A typical large hospital is a complex amalgam of very specific functional spaces: operating suites, neonatal units, emergency rooms, bone-marrow-transplant facilities, and patient rooms, to name but a few. Strict compliance with numerous federal and state guidelines is a necessity. Medical technology and clinical protocols change constantly. But even the smallest rural clinic is a challenge. As a result, most commissions of this sort are undertaken by larger architectural firms that specialize in such projects.

The designs they produce must combine the aesthetic sensibility of the architect with the strict functional demands of medical practice. The medical environment is a culture of science, demanding proof and precise quantification. CEOs and boards of medical facilities as well as physicians and staff expect convincing evidence that the architect's design interventions will reduce stress and aid healing. Otherwise the features are seen as costly and irrelevant frills that should be eliminated. Fortunately, the development, over the past thirty years, of what is known

as "evidence-based design" helps design teams and those who must approve their work distinguish proven stress-reducing elements from those that are mostly ineffective.

Evidence-based design is a deliberate attempt to base design decisions for medical facilities on the highest-quality research in order to achieve the best possible health outcomes for patients, staff, and visitors. The research process relies on interviews, questionnaires, randomized samples, statistical metrics, and on-site observations. It utilizes physiological measurements such as blood pressure, skin conductance, stress hormone levels, and brain waves. Admittedly, it sometimes lacks the rigor of the hard sciences. Due to the nature of the research, precise quantification, control of variables, and replication can be difficult; studies tend to establish association rather than strict causality. In addition, evidence-based design cannot necessarily explain its observations with an agreed-upon theory. And yet it frequently offers convincing circumstantial evidence of the stress-reducing effect of a design feature.

One of the most well-known examples is Roger Ulrich's 1984 study, which showed that patients in rooms with a window that offered a view of nature had shorter hospital stays, complained less, and needed less pain medication than those who looked out on a brick wall. Ulrich did not explain *why* such contact with nature was effective, but the result was nonetheless clearly observable. Hundreds of similar stud-

ies have verified his observation. Researchers have offered several theoretical explanations. Some frankly acknowledge that they don't understand the causes behind the finding but agree that the positive health outcomes are clearly measurable. Others claim that the outcomes are a learned response resulting from cultural conditioning. Another set attribute it to an innate genetic predisposition: a powerful attachment for all living things that is an essential part of being human, resulting from the evolution of the brain and body over some two million years in the African savannah. Still others contend that the exposure to the natural landscape improves cognition and eases stress on fatigued brains by relieving the intense "directed attention" required to complete many mental tasks, such as mathematical calculations, scientific experiments, and the operation of machinery.

The theoretical underpinnings of many other evidence-based design principles remain unresolved as well. Fortunately, a sensible pragmatism tends to prevail among those involved in health-care design and those who fund it. They may not know precisely why design principles derived from credible studies work, but they can observe that they clearly do, and therefore do not hesitate to apply them. They are like aspirin, whose health benefits are still not fully explained. Yet it would be ill advised and ethically insensitive to deny a patient aspirin's benefits.

What are the design features that have been observed to be

especially effective in stress relief? There are many, but the following have the largest body of credible research supporting them, and most well-designed facilities incorporate them. They include noise reduction, exposure to natural light, contact with nature (both real and virtual), clear way-finding, excellent ventilation and air filtration, and private patient rooms. These features work in ensemble, like a symphony orchestra.

Noise Reduction

Noise is the number one stressor of patients, staff, and visitors alike. It is especially hard on patients, who must



The spacious, light-filled entry lobby of UF Shands Cancer Hospital.



UF Shands Cancer Hospital. Its curtain-wall construction allows abundant natural light in patient and waiting rooms.

sleep well to heal faster. Many studies show that high noise levels (those above thirty-five decibels, the level of a quiet office) increase heart rate,

blood pressure, and other indicators of stress. Typical hospital noise can vary greatly, ranging from forty-five decibels (room conversation) to sixty-eight decibels (loud music heard through earphones). Noise levels are usually highest during shift changes, and when heavy diagnostic equipment, such as X-ray machines and ultrasound devices, are moved along hallways.

Noise can be reduced in a number of ways. Acoustical ceiling tiles throughout the building and antimicrobial treated carpets in waiting rooms are effective. Another strategy is a floor plan that provides a separate hallway and storage area removed from the patient area for transporting heavy equipment and supplies. Elimination of a facility-wide public announcement system, with the exception of one used for serious emergencies, is also effective.

Exposure to Natural Light

Exposure to sunlight evokes positive moods and reduces stress hormones such as cortisol and epinephrine. In contrast, prolonged exposure to fluorescent lighting and a scarcity of natural light dampens mood and can even lead to depression, which weakens the immune system. A study conducted of patients hospitalized for depression showed that patients in wards with greater amounts of sunlight had significantly shorter hospital stays than those in wards with lesser amounts. Medical facilities should be designed to allow abundant natural light not only in patient rooms but also in hallways, waiting rooms, staff lounges, and dining areas.

Contact with Nature: Real and Virtual

A large number of design studies have established the stress-relieving benefits of contact with nature. Viewing green spaces through a window, strolling or resting in a healing garden, or growing plants under the supervision of a horticultural therapist tend to lower a patient's stress hormones and strengthen his or her immune system. Patients who cannot be exposed to plants for medical reasons (e.g., if they are undergoing chemotherapy or radiation treatment) benefit from exposure to virtual nature, such as photographs, paintings, and videos of landscapes, nonthreatening animals, and flowers. Medical facilities should include healing gardens, ample spaces for horticultural therapy, and a generous display of virtual nature throughout the building.

Clear Way-Finding

Numerous studies have shown that confusing floor plans and poor signage are highly stressful for both patients and their visitors. They are also expensive, requiring extra staff to direct people. Circulation systems that are highly legible employ landmarks, color coding, simple floor plans, and easily visible signage.

Excellent Air Quality

Highly effective ventilation and filtration systems are critically important to prevent infection from airborne pathogens. They can also reduce the stress-inducing medicinal smells characteristic of many older medical facilities.

Single Rooms

Single-patient rooms divided into clearly distinguishable areas for staff, patients, and visitors are essential. They provide more privacy, encourage frequent visitation, and allow friends and family members to stay overnight, facilitating valuable social support. They also reduce the danger of infection. Ample windows for natural light are also a necessity, and if the site affords views of nature, the bed should be oriented to take advantage of them. Storage space and shelving will allow patients to personalize the room with photos and other memorabilia. It is important to empower patients by affording them personal control of a full array of devices, including an adjustable bed, remotely operated window shades, a computer, CD player, and television. A sleeping couch for a family member or friend extends personal support beyond visiting hours.

These six design features are essential to creating a humane medical environment for patients, staff, and visitors: one that combines the finest advances in high-tech medicine with an environment that strengthens health outcomes. Of course, there are additional design features that can be included if they are affordable, such as meditation spaces, areas for group therapy, and exercise rooms. But to omit any of the primary six features will adversely affect the quality of patient care.

What about the cost of all of this? Today's rapidly rising medical expenses demand economy. Are these design features, although ethically praiseworthy and backed by good science, simply unaffordable? Several studies featuring research teams of hospital CEOs, budget directors, physicians, and architects have made a strong case that such features are not luxurious add-ons to be dispensed with when the construction budget is about to jump the rails but instead make good economic sense. First and foremost, patients who heal more quickly go home sooner, which makes them less expensive to treat. But research has also shown that facilities that invest in these design improvements have reduced both staff turnover and medical errors – known catalysts of formidable operating expenses and lawsuits. They also tend to attract more patients, among those who have the resources to make a choice. While such features increase initial construction costs, they pay for themselves in about two or three years and contribute substantially to the long-term economic health of an institution.

The aging baby-boomer generation is beginning to hit the medical system in the United States like a tsunami, and many of its members are demanding consumers of medical care rather than passive recipients. They surf the Internet checking on a hospital's ratings and read government surveys of patient satisfaction. In the highly competitive health-care market, medical facilities lacking patient-centered design features can find themselves at a distinct economic disadvantage.

Finally, while patients come and go, those who work in medical facilities spend the majority of their waking hours in these buildings. Their compassion, knowledge, and efficiency combine to provide the indispensable foundation of outstanding health care. These men and women deserve the very best designed environment to pursue their healing mission, just as patients deserve it to aid in their recovery. Good design is good medicine, and it is ethical. We are building such facilities now, based on evidence-based design of increasing scope and sophistication, but we need many more of them. We have the knowledge. What is required is the will to use it. – Reuben M. Rainey

Nature, Design, and Health: A Personal Overview

Several years ago an Austrian colleague, intrigued with my work as a landscape architect exploring design and health, arranged several tours during my visit to his country. The most memorable of these was of a farmhouse in Greifenstein, a village not far from Vienna. Only a big set of double doors announced the entry to this rambling and unassuming building. In the main hall where our host greeted us, large windows filled the room with morning light, and I could see a few old apple trees outside. Near the windows were two massive work tables holding notebooks, garden tools, and small jars filled with seeds. After introductions and pleasantries, she eagerly led us outside.

The former farmhouse garden looked a bit forlorn. Wildflowers popped up in clumps across the coarsely mown lawn. An “insect hotel,” with rows of different-sized terracotta pipes that served as homes for bees and other insects, sat leaning off to one side. The apple trees I had seen from inside, remnants of a larger orchard, ran along the garden’s back wall. In the midst of these vestiges, however, brightly painted wooden planting beds sat among the apple trees. There were at least a dozen beds, and each was labeled with a proper name on a hand-painted sign: Bahati, Arjana, Ksenia. Like the signs, each bed had personal character. Some were tidy and ordered; others were messy and chaotic. Some were bountiful; others were sparse, suggesting a cautious or hesitant effort. One was newly planted.

The farmhouse serves as a safe haven for individuals seeking asylum in the European Union. Our host, the home’s director, explained that as many as fifteen individuals might be living here at any one time while their cases were heard. It is a slow process – often taking many months, sometimes longer than a year. People living in limbo need routines and rituals, and so anyone offered sanctuary here is also offered a garden: a small plot of land to tend. The first word these new gardeners learn together in their new home is *saat*, the German word for seed, that universal symbol of hope and promise. Nurturing such seeds can also nourish the sense of identity, dignity, and purpose that helps to mend a damaged life.

By happy coincidence, my autumn visit coincided with a harvest. Each resident shared his or her garden with pride; clearly the success of their efforts was not measured in bounty or beauty. After the tour we collected vegetables and prepared

lunch. From my chair under the dining trellis, I could survey the entire yard. The remnant grove, the new planting beds, even the rows of little terracotta homes for bees conveyed a comforting sense of order and structure: a rhythm of garden elements that evoked the rhythm of the seasons and the reassurance that comes with continuity. I had no sense of the trauma these individuals had faced or the memories they held. Nor was there talk of that; only of the tasks ahead: recording the harvest in their notebooks and collecting seeds for the spring planting.

After lunch the director and I discussed her vision of the garden. Trauma isolates. It takes tremendous strength to carry on while enduring the memory of terror and the shame of weakness that often accompanies it. Nature and the deliberate act of tending it are used to reconnect individuals to themselves, each other, and something larger. Using a seed to build a common language; creating a setting that gently encourages participation; listening to and learning from one another as the planting season begins; and sharing the fruits of their labors as it comes to a close: these are the rituals that help isolated and vulnerable refugees reengage.

I had enjoyed similar conversations with my Austrian colleague; we were kindred spirits on the role of nature in recovery from illness – how nature can help normalize, calm, and create a supportive setting for the body to heal itself. As the governor of Lower Austria, he oversaw his government’s health-care program. Fifteen years prior to my visit to the farmhouse, I had formed a landscape-architecture practice and called it Dirtworks. The name is based upon a rather simple idea that dirt works: nature can provide balance in our lives. In partnership with design, it can also help address the sense of isolation and vulnerability that comes with illness and crisis. This idea has continued to be a wellspring of exploration and inspiration.

I have seen the promise of this idea expressed in many ways: in an asylum refugee struggling to overcome separation and finding the strength to start anew; in a stroke survivor fighting a sense of loss through an effort to recapture some feeling of normalcy; and in a first-time garden visitor, perhaps a child on the autism spectrum, experiencing a sense of wonder at encountering the smell of basil. I believe that design with nature can create the opportunity for the spirit and body to do what it does – restore, renew, and heal. I also believe that this designed setting should be discreet. It should not demand presence. It should be the quiet hand that supports when needed and lets go when it is not.

When I returned to New York after working overseas in the early 1990s, I soon realized the city was different from the one I left several years earlier. New Yorkers were facing one of the most profound health crises of the twentieth century. In the space of a decade, Acquired Immune Deficiency Syndrome had replaced cancer as our most feared disease. And with that fear came prejudice. In response to diseases we do not yet understand, misinformation often morphs into myth. The name becomes a curse; the diagnosis a death sentence. And almost always the stigma leads to shame and more suffering. The emergence of AIDS called into question basic attitudes towards medicine’s power to cure and how we, as a society, should respond.

While volunteering at a display of the AIDS Memorial Quilt at the World Trade Center, I was given an opportunity to explore a design response to this disease. Terence Cardinal Cooke Health Care Center, a long-term care facility in Spanish Harlem, was one of the first in New York to care for individuals with HIV. A portion of their building, euphemistically named the Discrete Unit, was set aside to care for infected individuals. Visiting the quilt exhibit and learning of my profession, the center’s director of therapeutic programs wondered if I might provide guidance on developing a barren rooftop adjacent to the Discrete Unit. The unit hoped to create a garden.

If design is a form of problem solving, the challenge of formulating a design response to AIDS was ignorance. Defining the problem became the problem; there was no design (and little medical) research to draw upon. I started simply by observing and talking with everyone I could – doctors, nurses, family members, and the patients themselves – in order to understand the physiological, emotional, and psychological challenges this disease presented. A sense of helplessness and foreboding was pervasive in both patients and caregivers. Nature was easy to talk about; illness was not; so conversations always started with something about a garden. From there I let our conversations wander. Along the way came ideas with which to build a design strategy. It appeared that, once again, despite decades of medical and scientific advances, we faced a threat that required us to turn to nature for solace. With few treatment options available, palliative care was often all that could be offered. The challenges for this rooftop garden were not so much technical as something more intimate: addressing the human condition in all its particularities.

Life Enrichment Center. Tending the bird feeders improves coordination skills and also provides a sense of contribution and accomplishment.

It became apparent that the virus robbed the body of its ability to fight opportunistic diseases. As it destroyed the immune system, it capitalized on individual vulnerabilities, exposing those infected to a range of health complications, from multiple infections to an inability to maintain basic human dignities. AIDS stripped away one's identity as it diminished one's choices. I saw an opportunity to enrich and possibly expand those choices. Design could counter these challenges with individualized responses, providing opportunities for each visitor to engage with nature on their own terms, in their own way, and at their own pace.

Designing in health settings requires a heightened sensitivity to the needs of the individual. It demands much of designers in terms of their willingness to explore the intimacy and complexity of experience – for example, calibrating a paving system to a less than quarter-inch height tolerance to create a smooth surface for those tethered to an IV pole. One jolt of the pole from a misplaced paver could result in a disastrous fall. The seemingly insignificant rise of a door threshold, a standard exterior door detail, can be sufficient to prevent those who are weak from venturing outside. Considerations at this level of detail might go unnoticed unless one looks closely. On the other hand, not everything has to be easy or predictable. Sometimes a challenge or a moment's delight is just what is needed – such as having to reach for a fragrant blossom or discovering braille poem inserts within a handrail. In its greatest expression, design can engage



and sustain the power of the spirit when it is at its lowest ebb.

For me, the vestibule just outside the door was the rooftop garden's most important space. Simply stepping outside was a huge issue for people dealing with certain vulnerabilities and extreme complications that changed daily. If they ventured even a step into the garden, we wanted it to say welcome. This little space needed to do a lot.

Dappled shade from a multi-stem birch allowed one to adjust comfortably to the different temperature and light conditions, while metal wind chimes overhead caught the breeze. The bright melodic sounds masked noise from the TV inside and helped create, within a few steps of the door, a place away. Several butterfly bushes provided something to enjoy close up – or even from inside the room as you considered a visit. There was also a bench with a clever design:

staff could turn it over after a rain to reveal a dry seat. It was a small space, protected from the winds, the sun's glare, and prying eyes from patient rooms above. From here you could survey the entire garden.

For those who chose to venture further, a stenciled pattern of leaves painted on the paving led to the center of the garden, which was ornamented with a painted compass and planter filled with bright yellow marigolds. Visible from every corner of the garden, the colorful central feature served as an orienting landmark. After circling the compass, the path of leaves ended in the direction of the door, providing a guide for

those unsure or easily confused. The compass was a big hit with everyone, staff included – one gets disoriented quickly within the confines of a hospital, and it was always a conversation starter. From the path, other garden rooms could be explored. Together they created a progression of protective spaces, allowing a choice of setting, exposure, activity, and interest. Near the door a spacious trellis with a dense canopy of wisteria provided deep, cool shade for relaxing and socializing, whereas a canvas canopy on two other trellises created a softer level of shade and diffused light. This became the preferred spot for group activities and refreshments.

Full of color and fragrance, a garden room called the Farm was a favorite destination. There I introduced therapeutic goals into garden activities in order to improve strength, balance, and sensory, cognitive, and social skills. Planters were varied in height and width to encourage bending, stooping, and reaching. Round planters gave easy access to wheelchair users and provided a convenient way for several gardeners to socialize while tending herbs. Espalier apple trees and tomato cages required one to reach, exercising the upper torso and improving eye-hand coordination. Individual planting projects in small, hand-painted pots – the first foray into gardening for many – were displayed on lattice walls. While most of the garden was irrigated, portions of the Farm were not. Those in care became caregivers of the plants they grew. Individuals became mindful of the daily condition of their fellow gardeners. With awareness came a sense of community.

Beyond the farm was a small trellis where bamboo wind chimes and a makeshift water feature (a metal watering can pouring water into a metal trough) produced a calm, meditative sound, masking nearby conversations and the hum of air conditioners. Along one side of the trellis, the branches of a mature Hinoki cypress cast sinuous shadow patterns against a blank wall. It was an intimate spot, a surprising find at the far end of the garden: a place away within a place away.

Over the years I found that providing opportunity and choice was the key to designing for people with a range of conditions, including Alzheimer's disease, cancer, autism, and cerebral palsy. Offering such options was important in a variety of specialized care settings, such as neonatal intensive care units, physical rehabilitation facilities, and psychiatric hospitals. Designed with the help of medical staff, they could be used to create settings that supported specific treatment protocols and therapeutic goals – for example, improved strength, balance, and motor coordination. Outside of specialized care, incorporating opportunity and choice could

produce spaces that promoted meditation and contemplation and helped individuals ameliorate the stress of institutional environments.

Designing within such a focused framework requires an understanding of the medical conditions and therapies in question. Given complex treatment protocols, patients of varying abilities, and the challenge of compromised immune systems, it demands heightened attention to health and safety issues. Perhaps because my formative experience was designing for HIV/AIDS in an era when there was limited research upon which to draw, I start by developing a close working relationship with medical practitioners. Research has since become an important resource, but dialogue still comes first. Nurturing and sustaining that dialogue through the entire process ensures a garden reaches its fullest potential. In fact, it is during construction – when clients can experience the scale and context of the space, when they can touch and see the details and materials – that we often make our most important design refinements. This level of engagement demands much of the designer. The effort can be significant but so is the reward of creating a supportive setting to help patients cope with illness, one that also supports the dynamic that grows between patients and caregivers.

This methodology was honed within the controlled and specialized world of health care. I soon realized it also applied within the public realm, though with an added hurdle: addressing the conflicting dynamic between public and private space. The ambiance of a setting for public enjoyment needs to be shielded from the personal demands of therapy. Yet this needs to be accomplished in a way that does not isolate these spaces or declare their separation. The design must be subtle and discreet – a setting that welcomes everyone, regardless of capability. Variations in ability are a part of life, and at some point impediments will affect each of us. From the chronic and severe to the intermittent and mild, health concerns form a continuum. When we design accessible spaces, we are designing for everyone. Accommodating restrictions without obvious compromises is, I have come to realize, simply good design.



Designing for varying health conditions in public settings expands the opportunity for individual engagement: handrail widths that accommodate arthritic hands; plant compositions that highlight a specific sense; inclined paths that offer subtle places to pause, enjoy a feature, and catch one's breath are examples of what I call invisible details, ones that go unnoticed except by people who need them. General activities like reaching, bending, sitting, standing, and stooping, as well as focused activities like deadheading flowers, can nurture motor, sensory, and cognitive skills along with social ones. When blended into the overall ambiance, carefully considered details can engage the visitor unobtrusively and build a sense of well-being.

Many of our projects have resulted in lasting friendships. But one project, built outside my hometown, involved childhood friends – board members of an organization – who became clients. The Life Enrichment Center is a nationally recognized adult day care organization in the North Carolina foothills that provides services for individuals with a range of physical and mental disabilities. When the executive director asked me to help consider how to use the center's outdoor space, I was intrigued. I knew the land and the people the organization served. What I did not know was how to draw upon traditions of place, food, and family to help care for them.

Life Enrichment Center. The garden provides for a variety of passive and active uses that can and often do occur simultaneously with different-sized groups.

The center has a saying: "Whatever it takes." To understand what this meant, I spent several days working on-site. Most individuals (called participants) here live at home

with their adult children, who drop them off at the center on their way to and from work. In this part of the state many of these children are employed by the textile industry, so dropping off and picking up their parents at the center mimics the rhythm of the factory shifts. At the same time, the center had its own, equally meaningful rhythms. Mornings might involve reading the newspaper together, snapping beans, setting the table. Some tasks were completed alone, while others could involve half a dozen participants with varying abilities. No activity seemed contrived. The staff maintained a sense of everyday life – asking for help with this and that, and chatting about the day. I soon realized that no matter how thoughtful the design in helping with the center's routines or programs, without a great staff you had nothing.

I designed a garden that features three distinct settings – porch, promenade, and park – varying in size, character, and level of activity. Together they create a progression of protective spaces that increase gradually in scale, complexity, and exposure to the elements.

The porch – the most protected space, located between two wings of the building – provides views of the entire garden. This area is filled with rocking chairs, a chair favored by both participants and staff. Diffused light from overhead skylights helps with the transition to an outdoor setting, allowing aging eyes to gradually adjust to sunlight. Overhead fans and a fireplace extend the porch's use through the seasons. The fireplace is raised off of the ground to make it more easily visible from all areas of the porch. Above the fireplace is a pattern composed of bricks salvaged from the chimney of a dilapidated cabin found on the property. Handmade about 125 years ago, several bricks have pronounced thumb indentations made when the clay was wet. These special bricks are placed at strategic heights to encourage individuals to reach up and place their thumb inside the holes. Everyone benefits from a stretching exercise, while the staff speculate about who might have made those bricks long ago.

The promenade, framed by fragrant Sweetbay magnolias, features planters of varying heights. Anchoring each end of the promenade are vine-covered trellises, which serve as

familiar landmarks and welcome destinations. Each trellis has large tables for garden activities. Planters are incorporated into the trellis railings; they are accessible from either side to encourage socializing while tending flowers. A flagpole anchors the center of the promenade. Each morning someone is asked to raise the flag – the request is an honor – while the group recites the Pledge of Allegiance. The honoree benefits from upper-body exercise and motor-coordination practice.

Beyond the promenade is the park. It has a walkway encircling an expansive lawn, large shade trees, and bird feeders. The walkway is wide enough for individuals to stroll side by side or for someone in a wheelchair to turn around easily should the weather change abruptly. The walkway is also marked with measurements to help staff calibrate distances as they encourage participants to take a stroll. The perimeter of the park is lushly planted with dogwood, viburnum, and other native trees and shrubs to hide the enclosing fence and blend the park into the surrounding woodlands. Tending the bird feeders, which improves coordination skills, also provides a sense of contribution and accomplishment. I have come to realize that sometimes the simplest of tasks deliver the most profound results.

As my practice grew I became increasingly interested in exploring the links existing between individual, community, and environmental health. The international Camphill Movement supports children, youths, and adults with special needs, helping them to live, learn, and work with others in healthy social relationships based on mutual care and respect. Inspired by the work of Rudolph Steiner, Camphill Village was founded in 1961 in Copake, New York, to affirm individual dignity and encourage stewardship of nature, all within its own vibrant organization. In 2009 I was approached to join a team to help the organization build a new community. Here the focus was on repairing damaged ecosystems and engaging Camphill's inhabitants in their protection and stewardship: folding individual strides towards health into collective ones.

The organization's leaders had chosen the perfect challenge: a neglected 625-acre property in rural upstate New York 125 miles from

New York City, with more than its share of invasive plants, poor soil and water quality, and meager wildlife habitat. As we worked to heal the land, we would be building fellowship and improving the health of those most in need as well. This was health care at every scale.

In Camphill Village everything is done as a community and by consensus, and although maddening at times, this process was also inspiring. We started or ended nearly every meeting with a walk around the property. (We landscape architects love to walk a site.) It is at this pace one can best experience and understand the land's beauty and complexity. As I led our walkabouts I was thrilled at the clients' engagement with every seasonal nuance that nature had to offer: the crunching sound of walking through meadow grass in heavy frost in autumn; the more pronounced "ce-runching" sound of walking in snow that had started to melt midday only to freeze by late afternoon; the spring fragrances captured by a dell; the question of where to build and where not to build in order to honor the land and those who already called it home. With every visit, as we trekked through meadow and woodland, our surroundings shared their secrets. I sensed

in this ritual the community's desire to ensure that the land was part of the team. Nature was a partner at the table. Our post-walk meetings over tea were equally captivating. Discussions on the salubrious qualities of psithurism (the sound of wind through trees) evolved into philosophical distinctions between music and noise. This was the level of intimacy with nature that the community's leaders wanted to offer every resident, regardless of capability.

And they understood process: we could not create an ecologically and agriculturally productive landscape, let alone a sense of community and connection, overnight. To succeed in creating a holistic idea of community, my efforts to restore the site's ecological systems required that we balance built systems with natural systems. So, along with the standard tasks of site design, I worked side by side with Camphill to plan a biodynamic organic farm, map the trail

Camphill Village. An ecologically degraded site is transformed into a vibrant and sustainable community for developmentally disabled individuals.

system, and restore wildlife corridors, watersheds, woodlands, and meadows. And – with support from well-informed state officials and our team of architects and engineers – we created a sustainable, on-site sewage treatment facility. The process conveyed a unique spirit of collaboration and a larger vision of health. The community knew full well that lasting relationships develop with this kind of deeply personal process. It meant a great deal to me that, after each visit, I left with fresh eggs or honey.

Returning to Camphill over the years, I have enjoyed reflecting on how much has been accomplished there in terms of personal, community, and ecological health. The farm and gardens have been certified as having achieved the Demeter Biodynamic Farm Standard,



which recognizes that the comprehensive organic-farming methods employed are drawn from the living dynamics of the site. I remember discussing this with a mug of hot cider in hand after a particularly brutal winter walk. I also remember the daunting fields of mugwort that have been transformed into vegetable and healing-plant gardens. Here flowers and herbs are harvested and made into lotions and culinary mixes. At the garden market in the village everyone picks up what they need for their households. The maple trees, which we discovered in surprising abundance, are tapped to make maple syrup in the spring. And our preliminary walks crisscrossing the site to get a feel for the land and designate landmark trees engendered today's much-beloved trails. Simply mown paths within the expansive meadows, these trails offer subtle gradations in difficulty to accommodate varying levels of strength and stamina. In each home a chalkboard notes the time and location of wildlife sightings. A place for everyday nature has been created; a place to hold the ordinary and extraordinary moments of life. As in the garden for refugees, the seeds are both literal and metaphorical.

One of the greatest challenges a landscape architect faces is the test of time. And designing for health means change is inevitable – in prognosis, treatment, and even our basic attitude towards illness. The garden we designed for individuals with HIV/AIDS is now twenty-four years old. Named in memory of Joel Schnaper, a landscape architect who died of AIDS, that 3,000-square-foot rooftop garden was originally built with donations and volunteer labor. Years later, to address necessary roof repairs, the garden was demolished and subsequently rebuilt, this time fully funded by the health-care center to last at least twenty-five years – or until the next roof replacement. The term “Discrete Unit” has long been discarded; the garden is now the preferred location for meetings and events for the entire facility. The population has changed, as have their conditions and interests. Where I once worried about the height of a door threshold, now the concern is finding enough power outlets for salsa parties. I get updates on the season's bounty from the horticultural therapist. Treatments and attitudes have evolved, and yet the garden remains relevant and thrives. Like the ripples of a pebble tossed in a pond, the garden's influence has extended in every direction – and, to my great joy, it continues to do so.

– David Kamp

Prescribing the Outdoors: A Model Hospital Garden

was waiting in the hallway of the Legacy Emanuel Medical Center in Portland, Oregon, looking through the window at the center's Children's Garden, when a fellow visitor to the hospital stopped to speak to me. “I really like that we have a garden here – a place for patients to come out,” she observed. The woman, who I later learned was Emilia Endorf, told me that her husband had visited the garden that week after being confined to his hospital room for three months, and had smiled for the first time since his arrival at the center. “Which is better,” Ms. Endorf asked rhetorically, “a garden or an antidepressant?” Drugs were not necessarily the first or best avenue for helping people get better, she continued. There were so many different tools, and a garden was one of them: “It is hard to think of suicide when you're running around in a garden, playing,” she pointed out. I asked Ms. Endorf if she had a garden. Yes, she did – at home in Vancouver, Washington. “We were meant to have dirty hands,” she added.

I had come to the center to interview Teresia Hazen, coordinator of the Therapeutic Garden Program and a national leader in the world of horticultural therapy, specifically in hospital settings. The Children's Garden, which is located within a large general hospital, is only one of ten programs in the Legacy system that she supervises, including gardens at rehabilitation and burn centers. Hazen had suggested that I also meet with Dr. Minot Cleveland, Legacy Health's employee health director and chair of Legacy Health's Good Health Council. When the two arrived for our appointment, minutes later, I felt that Ms. Endorf's impromptu and succinct summary of the profound significance of the hospital garden for patients and visitors alike had served as the perfect introduction to our conversation.

I was particularly interested in the language employed in the hospital. Much of the terminology of garden therapy – both in the hospital and the research – employs the language of medicine. For example, garden interactions are spoken of as a dose, much like a prescription. What, I asked

them, is the proper garden “dose”? How much contact with nature is needed; how much makes a difference? Dr. Cleveland reminded me of Roger S. Ulrich's pioneering research. By measuring changes in blood pressure, muscle tension, and electrical activity in the heart and brain, Ulrich demonstrated that a patient exhibits a diminution of stress in just three to five minutes of being in a garden.

The terms “therapeutic garden” and “healing garden” are often used interchangeably, but Hazen told me that she considers “healing garden” to be lay language. She prefers to think of going to the garden as a therapeutic intervention: “patients and family and visitors set their own dose,” meeting their needs on their own terms. “Physicians cure; gardens can aid in healing,” she said. “The hospital has helped make the garden part of the physician's toolbox.” Hazen explained that many of the doctors at the hospital “prescribe” the garden explicitly. As soon as a patient is able, often after the third day of a stay, they are encouraged to “go out to the garden.” The psychological “healing” can be measured empirically, but it is also clearly visible to medical staff and caregivers in their interactions with patients.

Cleveland considers the term “therapeutic garden” appropriate, given the health benefits provided. But he prefers the usage “hospital garden,” which underscores the link between the garden and its context, since the setting influences the meaning of so much that takes place there. The fact that the garden can be viewed through windows in the corridor beside it makes it feel at once removed from and part of the hospital setting. It is a place that provides deeper healing – a psychological and emotional healing – achieved in a site that contrasts sharply with the hospital environment. For

Cleveland, it is a place of “relief, encouraging hope.” He noted that one patient compared the garden to a cathedral, and said that visiting it was “like coming to church.”

Hazen noted that people needed to escape from “the smells, trauma, nurses, the beeps,” and the garden was often the closest possible refuge, for staff as well



The Tin Man along the garden's “Yellow Brick Road.” Photograph by Reuben Rainey.

as patients. People use it year-round – despite all the rain in Portland. She also emphasized that just seeing the garden while walking along the adjacent hallway afforded comfort and relief to those who didn't have time to enter. There are even windows at the height of a child or wheelchair user.

We briefly discussed the academic term “hortophilia” – a clear corollary to E. O. Wilson’s biophilia, the idea that all humans have an innate connection to all forms of life. Oliver Sacks defined hortophilia as “the desire to interact with, manage, and tend nature that is deeply instilled in us,” and returned to the concept in his much-read, posthumously published *New York Times* article “The Healing Power of Gardens” (April 18, 2019). I also brought up the term “salutogenic,” which was coined by Aaron Antonovsky, a professor of medical sociology. Salutogenic design focuses on health and well-being, the converse of design that causes pathogenesis. Differing terminologies resonate with different constituencies, but hospital gardens, however defined, have a clear role to play in recovery.

Hazen emphasized that a therapeutic garden is not a place for avant-garde design or a display of unusual materials. Despite the hospital setting, the design intent is to make users feel comfortable and at home. The garden is a place to both pay attention and relax; a spot “that you could envision in your backyard,” she explained. The hospital’s goal is “family-centered care,” and the garden provides a place where families can take care of each other. Intimacy is an asset: the Children’s Garden is only 9,500 square feet.

Yet the garden contains great variety despite its compactness, which makes it feel much larger than its actual size. It has matured since designed by Gretchen Vadnais two decades ago. A sinuous “Yellow Brick Road” through the site can take a visitor on a quick walk or a slow meander, for there is much to catch one’s attention, especially the profusion of continu-



ally changing plants. And while Hazen is quick to point out that the garden’s design is “not Disneyland,” the space is replete with whimsical elements that inspire fantasy play, reference children’s stories, and more. There is a full-size Tin Man, a children’s mailbox, a line of birdhouses, and a covered arbor. There are topiary animals, odd sculptures, walls of children’s handmade tiles, and a play pavilion. The garden is also a certified wildlife habitat. There are a variety of chairs and walls at both child and adult heights. There are places for those who desire a solitary experience as well as semi-enclosed areas for small groups to meet. There are sunny areas and shady areas. Some spots are open and other spots are protected. The common considerations are variety and comfort: important lessons for landscape architects at work on virtually any project. In fact, the Children’s Garden is featured in the *Landscape Architect’s Guide to Portland*, available at www.asla.org/Portland/.

The design focus is on a rich mixture of plant material, with keen attention to sensory stimulation – provided by variations in color, leaf shapes, textures, and aromas – and

Ladybug Day in the hospital garden. an emphasis on seasonal changes. The garden is beautifully maintained. A paid horticulture-therapy gardener

does weekly service, as do volunteers. Nevertheless, Hazen is the director and coordinator – both a watchful overseer and a hands-on participant. As she reminded me, she is not only a horticultural therapist but also holds a master’s degree in education and is trained as a qualified mental-health professional. While discussing the design of the garden, she explained that “this is my studio.” The Children’s Garden and the other gardens in Legacy’s system are funded through patient-care services, and not the facilities budget. This is critical, for if they are under the rubric of clinical practice, they are less subject to the vicissitudes of funding.

Cleveland and Hazen both lauded the garden’s range of spaces and visitors. For staff, Cleveland said, there is “lots of solitary use, getting away from the job.” Cleveland’s own job is the health and wellness of the 14,000 employees, 2,500 medical staff, and 2,500 volunteers who work at the hospital. There are now several clubs of employees within the Legacy system who do garden work on site, where the meaning of “garden” as a verb is equal to its significance as a noun. Hazen added that the hospital’s care of its staff is also critically important, “so they can do their job at the highest level of skill and quality.”

Hazen told me that the hospital had been the locale for “the first controlled study to investigate the influence of taking work breaks in a garden on nurse burnout.” Of course, given the stress of the work, there are many contributing factors to burnout, but the hospital’s physical environment does play a role. The study not only validated anecdotal evidence that breaks taken in the garden provided a reduction in burnout but also that they were more effective than breaks taken indoors, even though they were typically shorter.

Just as therapeutic doses are prescribed for the patients, there is also imaginative, health-oriented programming for the staff. Last summer the hospital hosted a Midnight in the Garden program, with “scented white flowers, strings of twinkling lights, soft music, healthy snacks, infused water, and a chair massage” in the Rooftop Terrace Garden for workers on the night shift. This garden, which overlooks the now-mature trees growing in the first-floor Children’s Garden, was designed by Brian Bainnson of Quatrefoil in Portland to serve the Family Birth Center and cardiac ICU. Patients can even be wheeled into the garden in hospital beds. As Hazen reminded me, the hospital is a 24/7 operation.

Having lunch in the gardens is common, as is meeting in them with family members. In fact, I observed both of these activities in less than an hour during my mid-afternoon visit to the Children's Garden. On that particular afternoon it was Ladybug Day, because ladybugs were being released in the garden, and a volunteer was working with young children making paper replicas of them. For visitors who have the anxious and interminable wait while a family member or friend undergoes a procedure, the garden is the "un-cafeteria," providing a welcome alternative to what is often the only place to seek comfort or distraction in a hospital.

When I asked Cleveland and Hazen about their thoughts on the Japanese practice of "forest bathing" – forest walks with guided activities to promote health and relaxation – one of them pointed out that a much larger area than a hospital garden is required. However, Dr. Cleveland noted two new resources that expand the therapeutic mission beyond the boundaries of the hospital. Park Rx America links health professionals to managers of public spaces to facilitate "patient access to therapeutic time in nature." Its mission is "to decrease the burden of chronic disease, increase health and happiness, and foster environmental stewardship, by virtue of prescribing Nature during the routine delivery of healthcare by a diverse group of health care professionals." They have produced a wonderful series of videos for physicians, park professionals, and the general public available on YouTube, including "Nature: No App Required."

The Intertwine Alliance is a local consortium of "public, private and nonprofit organizations working to integrate nature more deeply into the Portland-Vancouver metropolitan region." Significantly they state that "We define nature broadly, as anything other than the built environment, from backyard gardens and street trees to natural areas and neighborhood parks. We recognize and honor all communities' and cultures' definitions and experiences of nature."

We were sitting watching a child playing hide-and-seek with his mother in the Children's Garden when I asked about palliative care in the garden. Hazen replied that she always counsels parents of child patients to use the garden as well as the nondenominational spiritual counseling that the hospital offers. Many dying children and their family members have chosen to spend as much as possible of their final days there.

I thought of my earlier conversation with Emilia Endorf and asked Hazen if she also gardened at home. "I garden every day of the year," she replied. She added that she walked her dog twice a day – another healthy practice.

– Kenneth Helphand

The Walled Garden at Headley Court: Growth and Restoration after War

Garden paths can lead humans through strange times to new places in their lives. After 2009 Britain's war in Afghanistan became increasingly brutal; soldiers returned home every day with life-devastating injuries. A single specialized military-rehabilitation facility set in the countryside in southern England – Headley Court – was charged with their restoration. But as very few human beings had ever survived these kinds of wounds, neither patients nor medical personnel were prepared for the scale of the challenge. So, together, they sought new ways to rebuild lives utterly shattered by war. Perhaps the most extraordinary of these was a path that led into the garden surrounding the facility, where both patients and staff members discovered healing and inspiration amongst the orchards, lawns, and flower beds.

Headley Court was unique in the broader contexts of horticultural therapy. Usually the healing gardens incorporated into medical facilities are new, built into empty spaces within or between existing buildings. Designed to create beautiful, restorative, and supportive spaces for patients and their loved ones, these gardens are subtly separate from the medical institution itself. What made Headley special was that a century-old garden was already there. The overlapping layers of history, space, and purpose greatly contributed to the power of the site.

Headley Court was built in 1879, with Jacobean-style interiors and an ornate exterior. The formal pleasure gardens surrounding the house were structured by hedges that framed garden rooms, terraces, and avenues lined with beech and oak trees. Architecturally clipped box and yew were a significant feature of the design, including a large and fully functional topiary sundial (shown above a year after planting in a 1911 photograph for a feature in *Country Life* magazine). As it happened, 1911 would be the high point of the gardens in their most formal incarnation. Soon after, many of the groundsmen responsible for their maintenance were conscripted to serve in the First World War. Most would not return. Instead what had once been ornate beds were gradually transformed into an easily maintained series of long, terraced lawns, and absent gardeners were replaced by mechanical mowers. In 1940, during the Second World War, the house and grounds were requisitioned by the Canadian



Air Force; eventually they were donated to the United Kingdom's Defence Medical Services for use as a rehabilitation center.

Headley Court in 1911 showing the garden with newly planted sundial. Photograph courtesy of Country Life Picture Library.

Throughout the second half of the twentieth century, generations of British casualties undertook rehabilitation therapies at Headley Court, in large rooms that had been converted for that purpose. The lawns and hedges were maintained, but few patients or staff members paid much attention to the house's surroundings. Almost unhindered and unnoticed, the planting matured, and the sundial grew to the full size that its designer had intended. After a hurricane in 1987 that caused widespread destruction in the region, the gardens were surveyed for damage. Fortunately, the storm had spared the Headley trees, and the authors of the survey were surprised to find a garden of "historic importance containing elements of great value." Although certain features had "inevitably lost some of their sparkle and coherence from their Edwardian heyday," the surveyors argued for Headley's regional significance: "in essence a fine period house surrounded by remnants of an exceedingly interesting garden."

The wars of the twenty-first century changed everything. By the end of 2009 Headley's rehabilitation facilities were running at full capacity, and extra gym space, wards, and prosthetic workshops had been built on the site. Most patients had lost multiple limbs, which were being replaced with new prosthetics, a process that took months of complex physical therapy. Soldiers quickly became bored of the insides of gym-

nasiums and treatment rooms. When they looked out of the windows, they saw the long lawns, stretching to the property's outer walls. In an unusual first response to a garden, they envisioned these elements primarily as challenges. The ability to walk out of the house, along gravel paths, down steps, up and down the sudden slope of the ha-ha, to the end of the lawn and back again in both the wet and fair weather became a patient-devised metric for progress and recovery.

Rather than urge their patients back into the formal interior spaces of treatment, the physiotherapists watched them carefully as they discovered their own and the garden's potential. In particular, the therapists grasped that the garden offered a wide range of specific mobility challenges, many of them similar to those their patients would face in their new lives as prosthetic wearers. So the senior physiotherapist (and coauthor of this article) secured official permission to develop a 300-square-meter plot in one of the "garden rooms" between the yew hedges. Here he designed a garden space that featured multiple physical challenges of route and surface within a compact area. It became known as "the test track." A network of paths looped around the space in a figure-eight configuration, enclosing two new lawn areas. The paths led around the space, up and down stairways, and onto terraces. The stairways allowed for exercises to improve balance and core strength; the patients found performing multiple repeti-

tions in the garden far preferable to using the gymnasium, even when it was raining.

A unique feature of the construction of the test track was its deliberate incorporation of imperfections. The paved paths had irregular cambers along their length, and the cobbled path included a distinct hump that had to be negotiated. This feature posed a challenge to the team that built the garden, whose members automatically sought to level gradients, straighten pathways, and smooth out humps and cambers. The designers had to be on hand throughout to remind the construction team of the importance of avoiding perfection, because perfection, in this context, was unhelpful.

The finished garden offered numerous technical challenges that changed depending on the temperature and the weather, resulting in a far richer environment than one could design in an interior facility such as a gymnasium. Patients were encouraged to become proficient at moving across all the varied surfaces. The track provided banisters alongside the steps and rest areas, so that even those recently fitted with prosthetics could make use of it, and strength and skill could be built up gradually. Eventually, though, as their aptitude improved, patients timed themselves on the track's circuits.

An essential part of the test track's design was the incorporation of different materials as part of the route. The paths were made from different-sized stones (from gravel up to cobbles). Different sizes and textures of paving stone were used, as well as wooden planking, and split logs were arranged round surface up. The log-ramp path was the most demanding; it required both concentration and purposeful movement from its users,



Part of the test track, with paving stones amid large cobbles designed to encourage proficiency across a range of surfaces. Photograph copyright © Rupert Frere.

who were carefully supervised by physiotherapists. For patients who no longer had feet to feel their way, learning to adjust to these different surfaces was especially important. Eventually the human brain recalibrates so that it can read

sensations delivered to it from residual limbs; the textured layer of the test track allowed not only physical but also vital neurological learning to take place.

Although the test track provided a rigorous environment for patients with single and double prosthetic limbs, its appearance was in keeping with the garden as a whole, particularly in the use of natural materials such as wooden planking, natural stone and cobbles, and rope banisters along its walkways. Despite its name, it was still essentially a garden, with elaborate pathways and resting places – a distinct but harmonious layer in an existing horticultural setting. Also, space was left between the elements of the test track during construction, and so it was decided to incorporate planting within these to soften and further integrate the space into the overall landscape of the larger garden.

A garden designer who visited the site regularly because his son was a double amputee patient undertaking rehab there was asked to create a planting scheme to fill up these spaces. For the first time in a century, Headley had new trees and shrubs intentionally planted in its soil. As if the garden was making up for lost time, these additions thrived, quickly providing a lush backdrop for the new herbaceous perennials planted around them. These had been chosen to provide abundant blossoms in the summer (they were sometimes used as confetti at the weddings of patients) and character and interest when seen from the windows of the house or in winter or after rain. *Alchemilla mollis* (lady's mantle) was included, for instance, as it is particularly elegant and fascinating when silver beads of water run down its foliage. Similarly *Garrya elliptica* (silk tassel bush) produces a graceful display of catkins in late winter that look striking when coated with silvery frost.



The Long Lawn at Headley Court, leading to a selection of the property's original trees. Photograph copyright © Rupert Frere.

The designer incorporated another layer of meaning into the garden, based on his experience of his son's mourning for his lost comrades and lost physical self. This layer drew on the work of Elisabeth Kübler-Ross, the psychologist who first described the cycle of emotional states experienced by human beings undergoing profound changes in their lives. He assigned plants and colors to the stages of bereavement she had identified and integrated them into his overall design:

Denial: black/deep purple

Prunus cerasifera 'Nigra' (purple foliage, pale pink blossom in spring)

Cotinus coggygria 'Royal Purple'

Anger: red

Cotinus coggygria 'Royal Purple' (leaves turn fiery red in autumn)

Bargaining: purple/blue

Juniperus squamata 'Blue Carpet'

Eryngium variifolium

Verbena bonariensis

Rosmarinus officinalis

Lavandula angustifolia 'Hidcote'

Depression: orange

Acer palmatum (gold and orange foliage in autumn)

Acceptance: yellow

Foeniculum vulgare

Peace: white/green

Viburnum davidii

Alchemilla mollis

Garrya elliptica

Choisya ternata

This newly planted layer in turn offered patients another way to become actively involved in the garden space. They could not only observe the necessities of its care but also, whenever physically possible, tend to these new arrivals. Therapists and gardeners began working together to teach patients the necessary skills to maintain the garden (mowing, hedge clipping, plant maintenance, weeding). Not only did many residents discover that they enjoyed gardening; their acquisition and development of a new skill enhanced functional independence, improved strength and endurance, and fostered a sense of achievement. In particular, physios found that gar-

dening sharpened proprioception (the sense through which we perceive the position and movement of our body, including our sense of equilibrium and balance), and that pushing wheelbarrows was especially useful in achieving this.

Therapists found it particularly satisfying when patients who had learned about garden maintenance from scratch, never having seen how food and flowers are grown from seed, left Headley Court with a "grow bag" and seedlings in the back of their car along with their new prosthetic legs and disabled parking badge. Many veterans who learned the necessities and satisfaction of garden care for the first time during their rehabilitation maintain garden spaces that still flourish today.

Although the primary purpose of the test track and garden had been to deliver enhanced physical rehabilitation, the grounds of Headley also offered an effective place to support and reinforce the psychological healing of patients, where competition and physical targets could be set aside. Anyone could find their way outside to sit communally or alone in the deep green space. An essential element was the opportunity offered by such a mature garden to be immersed in nature, a key element in horticultural therapy. Headley's tall, old tree population provided a rich and diverting soundscape on windy days, and its individual garden rooms, framed by thick, dark green hedges, offered respite, refuge, and calm around every corner. Patients described how the garden was a much easier place than the interior of the facility in which to start conversations with their therapists or sit in silence, perhaps in one of the shady garden rooms created by the hedges. As they grew more confident, the therapist would guide them towards lighter spaces, ones in full sun with bigger views, and slowly they became able to contemplate lighter spaces in their own lives and hopes of a brighter future.

Often the stages-of-grief planting scheme was a destination for these journeys.

Evening at Headley Court, 2016, showing the building framed by the still-remarkable architecturally designed yew hedges. Photograph copyright © Rupert Frere.

Patients found space to sit by the lavender, so they could smell and touch it, sometimes commenting that they hadn't known it looked like that when it wasn't in a soap bar. For many veterans, the scent of lavender is still a profound reminder of this time in their lives – when they could talk if they wanted, or be still and look around them – simply existing and coming to terms with their new selves.

This process could be enhanced by participating in the care of the garden. Growing plants from seed became an important element in the psychological support process. Planting, watering, and nurturing a pot of flowers or vegetables gave patients a gentle focus and routine beyond the gym or the competitive world of the test track, as well as time and space to let some of their more difficult thoughts slip away. One patient, who had experienced great difficulty in coming to terms with his injuries and had been plagued by suicidal thoughts, was encouraged to plant a cucumber seedling. Soon in meetings with his therapist he spoke of how he found going to look after the vegetable an escape from everything else, and that caring for something that wasn't him – that was beyond his physical self – was a positive step forward. It turned out that he was extremely good at growing cucumbers, so he grew more. Although he continues to experience psychological stress in his life, he understands that he can find some relief in his garden and that he can always begin conversations about how he is doing by describing his recent crop. Although no patient or therapist will say that cucumbers can resolve PTSD, anyone at Headley might tell you that



planting them may be a good place to begin the journey.

Additionally and unexpectedly, the garden offered spaces that benefited the families of patients and the staff. Brightly colored floral plantings could be seen from the windows of the house, and the garden's scented herbs gave children something to touch and taste when they needed distraction during long, emotional family visits. Anyone could eat their lunch seated amongst the plants, simply experiencing, mindfully, the sights, sounds, and scents of nature.

Of equal benefit to the professional and mental well-being of the staff, the garden at Headley inspired a refreshment of the therapeutic space itself, encouraging those who worked there to revisit and rethink their practice. As the space energized their patients, so it energized staff members to create new ways of working and delivering rehabilitation. Equipment from the interior gymnasiums could be adapted for use outside, and found objects could deliver value and variety. Wooden railway sleepers abandoned on the ground became narrow beams on which to practice walking. With a borrowed welder's mask from the prosthetic workshop, therapists created an occluded vision circuit of the test track, so that patients had to find their way round relying only on the new sensations being transmitted through their limbs. In autumn walking routes were made through the orchard so that residents with prosthetic feet could practice stepping on windfall apples hidden in the grass without falling, or bending down to pick up those that could still be eaten or thrown into the hedgerows for the birds.

All the therapists came to realize that the garden in which they worked was a living thing, flowing and moving with the seasons and the weather and the time of day. Unlike the internal clinical spaces, which never changed, the garden was dynamic. Those who visited it never took quite the same pathway through it, and wherever they ended up it was somewhere different than the point from which they started. This spatial reality reinforced the lesson that, even with the very smallest of rehabilitative steps, there was always forward movement at Headley. The veterans who spent time there often reflected afterward how simply walking into the garden every day and seeing growth around them enabled them to measure their own progress. Whether it was the sight of pots of chilies in the sunshine that had been grown from seedlings or the progress of blooming plants gradually filling out the sharp edges of a flower bed with soft colors and green textures, these changes helped them to understand that they, too, were flourishing, filling out the new spaces of their lives, moving forward and far away from the point of their wounding.

The creation of the garden at Headley was driven by Britain's war in Afghanistan, and in particular the influx of complex casualties between 2009 and 2014. Although the garden's primary usage was therapeutic, and all the elements and layers of its rehabilitative space were given the maximum potential to deliver their restorative properties, there was always an underlying awareness that this was a garden made in response to the tragedies of war. Its creators identified strongly with the Defiant Gardens concept, as defined by Kenneth I. Helphand: "Defiant Gardens are created in extreme or difficult environmental, social, political, economic or cultural conditions. These gardens represent adaptation to challenging circumstances but they can also be viewed from other dimensions as sites of affirmation and assertion."

Headley had been intended as a pleasure garden. Its capacity to deliver the attributes of life, home, work, and hope lay dormant until awakened by war and those who had endured its consequences. Although Helphand's research is primarily concerned with gardens made within zones of conflict or adversity, his analysis has resonance in this quiet corner of southern England. For those who lived and worked there in the early twenty-first century, the Headley garden "testifies to a depth of garden meaning amplified through hardship, a meaning that may lie latent in all garden creation, awaiting a catalyst to bring it to conscious awareness."

Helphand has noted that the defiant gardens he studies have short life spans. Headley's garden has now returned to its dormant state. In 2018, the rehabilitation facility was closed and moved to a new site 120 miles away. Plans to maintain the house and garden are yet to be resolved, so there are no more gardeners tending the lawns and beds, and its walls are crumbling. The vestiges of the topiary sundial are no longer recognizable, although perhaps one day someone will clip it free of the overgrowth. The physiotherapist who brought the garden to life paid a last visit in December 2018 – this time to take cuttings from the trees and plants for the garden that will be created from scratch in the new rehabilitation facility. Much will be expected from this new garden, based on everything that was learned and achieved at Headley Court – as well as everything that is remembered by those who traveled along its pathways. – Emily Mayhew and Peter Le Feuvre

Rehabilitation and Gardens: The Legacy of Dr. Howard A. Rusk

During the second half of the twentieth century, New York University Medical Center, now NYU Langone Health, was at the intersection of two important developments: the establishment of a new specialty, rehabilitation medicine, and the appearance of the American therapeutic garden. During this brief period, five separate gardens were integrated into a single, urban, academic medical center's rehabilitation hospital, linking the professions of rehabilitation medicine and horticultural therapy as they became important parts of modern medical practice. Together they changed the way we think about repairing broken bodies and highlighted the enduring power of nature in an increasingly technological world. At the center of this story is a remarkable, intensely committed individual, Dr. Howard A. Rusk, and his passion for healing.

If we should find ourselves on the threshold between a predictable existence and a challenging life of uncertainty – if the future is impenetrable, perhaps unimaginable, because of illness or injury – many of us now take for granted that we will be supported as we try to recapture a fulfilling life. We can take comfort in this assumption in no small part due to the efforts of Howard Rusk (1901–1989), a towering figure widely recognized as the father of rehabilitation medicine. For over forty years he worked tirelessly to give patients the tools they needed to lead full and rewarding lives, and did so amid the apathy of a skeptical and at times dismissive medical profession. According to Dr. Joseph Goodgold, Rusk's successor, who was interviewed by the *New York Times* in 1984, before Rusk's efforts "nothing much was done for the handicapped to restore their will to live, to help them learn to overcome their disabilities and get back into life." Paraplegics often survived less than a year: "They got terrible bedsores, developed kidney and bladder problems, and simply lay in bed, waiting for death." Polio, stroke, and brain-injury patients suffered the same fate. They were considered "hopeless cases." Today, thanks to Rusk, there are trained professionals in rehabilitation medicine, as well as facilities in which such care can be given.

Rusk worked at every level to improve the lives of people in need. He developed programs, trained professionals, published papers and monographs, and helped find or design better braces, wheelchairs, and eating utensils. He was also an extremely effective fundraiser. Well over six feet tall, intelligent, compassionate, and charming, he cultivated friendships wherever he went, receiving donations from small donors and prominent philanthropists alike. He raised millions of dollars to build a hospital, a research building, and – perhaps

most surprising in New York City – gardens for his patients, visitors, and staff.

Rusk understood that the single most important thing that made rehabilitation possible was the patient's own desire and determination. He knew that he could not force a patient to wellness. If the patient could not imagine a productive future or was depressed and unable to do the hard work necessary to recover, that future would never arrive. He knew that patients must be motivated to engage in treatments day after day, and that it is the accumulation of effort – strengthening exercises, learning new methods for completing familiar tasks, enduring multiple apparatus fittings and adjustments and the like – that can make a future real. Gardens are emblematic of such incremental efforts, while also providing a sense of relief and reprieve. Touchstones of normalcy, like a potted plant or a bouquet of flowers or a brief rest under a tree, can remove a patient from the immediate difficulty of a situation and nourish hope of recovery.

Rusk's Horatio Alger story began in Brookfield, Missouri. In his autobiography, *A World to Care For* (1972), he humorously described his childhood as a Huckleberry Finn story in a railroad town on the prairie, "about halfway between Hannibal and St. Joseph – or halfway between the worlds of Mark Twain and Jesse James." His older brother died at birth, Rusk believed, because there was no hospital in the town, and the doctor had neither the training nor the facilities to save him. Rusk recalled in his autobiography that his mother was terrified she would lose her second son: "I survived, though homely, jaundiced and not too strong." At age eleven he started helping a local physician. When he was halfway through college, his family lost their businesses in the Great Depression, but his mother insisted he remain in school, which he managed by working multiple jobs. After graduating from the Pennsylvania School of Medicine, Rusk taught, did research, and set up a successful practice in St. Louis. As he proceeded to treat both paying patients and those unable to pay, he learned that there was "magic in the patient-doctor relationship." He observed that, at least some of the time, people improved because they believed someone was interested in their problem and was trying to help them.



Bernard Baruch, Enid Haupt, and Dr. Howard A. Rusk at the opening of the Glass Garden, 1959. Photograph courtesy of The Lillian and Clarence de la Chapelle Medical Archives at NYU.

The bombing of Pearl Harbor was the beginning of what became his life's work in rehabilitation. Feeling compelled to join the war effort, he enlisted with the United States Army Air Forces and began treating soldiers with relatively minor injuries who needed to be returned to active duty. Soon, however, he saw young men with devastating injuries – burns, broken backs, missing limbs – for whom he could do nothing. For Rusk, this was unacceptable. Undaunted by military red tape and a lack of support, he began garnering facilities,

developing programs, and training staff all across the military. By 1944 he had a dedicated rehabilitation hospital and the support he needed to develop prosthetic devices and train soldiers how to use them.

Some problems were solved with creativity and little or no support from the military hierarchy. At one point a bored soldier recovering from a broken leg complained that an orderly had removed a spider's nest from the ceiling; it turned out that watching the spider make her web, catch flies, and have young spiders was the most entertaining thing he had done in three weeks. This inspired Rusk to engage the convalescing soldiers in an aircraft-identification "course." Model planes were hung from the ceiling on a pulley system and moved along every half hour or so. The bedridden soldiers were soon able to identify more planes than those who had taken the military's mandatory airplane-identification course. Hundreds of courses and programs were subsequently developed across military facilities, from calculus to military courtesy to victory gardens to engine repair.

After the war ended Rusk turned his attention to the civilian population, convincing New York University Hospital to allow him to develop a rehabilitation program. Eventually a freestanding rehabilitation hospital was built, but Rusk described it in its early stages as "merely an idea and certainly not a very popular one." At that time, he continued, "a great majority of the medical profession looked on rehabilitation as an extracurricular, adjunct activity of medicine, something dealing with social work and vocational training." It wasn't that the medical profession disapproved of getting disabled people onto their feet and back into the mainstream of life, he explained; it was that they didn't think it could be done.

Rusk used what he called "the phenomenon of hope" to train people: "not just within the limits of their ability, but up to the heights of their latent ability – to help them live the very best lives possible with what is left." Rusk knew that to treat the whole person he needed to address the entire spectrum of physical, emotional, social, educational, and vocational needs. And although he understood that where they were treated was important, he did not let the lack of facilities stop him. His maxim – "action absorbs anxiety" – led him to establish what amounted to a school or athletic training facility, with patients spending their days engaged in physical, occupational, and speech therapy, or with job counselors, social workers, psychologists, psychiatrists, and medical-device specialists. Today, horticultural, music, art, pet, and other therapies have been added to the mix. Rusk's patients learned to walk again: whether independently or with crutches, canes, or artificial limbs. They learned to feed, bathe, and dress themselves. They received vocational training. The institute eventually built a "sidewalk with a curb" (this was before the curb cuts we take for granted today) and brought in a decommissioned city bus so that patients could learn how to navigate some of the common urban obstacles that prevented them from working or otherwise partaking of city life.

Over the course of his long career, Rusk collaborated with hundreds of professionals and numerous institutions. Nothing was too large or small for his attention. He developed methods of treatment, helped develop medical devices, edited the first textbook on rehabilitation medicine, trained staff, lobbied politicians, lectured widely, wrote a weekly column in the *New York Times*, and by 1951 had raised enough money to build a new patient-care building for rehabilitation services at New York University Hospital. Rusk's aesthetic preferences are unknown: he had clear ideas about what facilities were needed and how they should relate to one another, but apparently left the appearance of the buildings to others. The rehabilitation hospital built under his direction was an

undistinguished, flat-roofed building of glazed, white bricks, set in the dense urban fabric of New York City at 34th Street and First Avenue. The site shares the lot with a massive air vent for a Long Island Rail Road tunnel.

The hospital was just four stories when built in 1951, but by 1954 Rusk had raised enough money to add three more floors. The “new” facility had a gymnasium, therapeutic swimming pool, and physical-therapy unit: facilities essential for muscle strengthening. It also had offices, a library, and a cafeteria, and spaces for an occupational-therapy department, psycho-social services, and vocational guidance. A research building of similar design was completed nearby in 1968 to foster collaborations and developments in rehabilitation medicine. Projects conducted there included disease-focused research, hyperbaric oxygen studies, and the design of new surgical instruments, among others. And before the decade was out, the institute would have a garden.

The fact that Rusk wanted to develop gardens for his patients would not have surprised his colleagues. According to speech therapist Martha Taylor Sarno, Rusk “had a passion for gardens and flowers.” He frequently brought large bouquets of fresh flowers to the hospital from his country home north of the city to give to staff and patients, saving some for his office, where flowers were displayed in every season. He certainly knew that nothing else can bring beauty, life, and a sense of graciousness to a clinical setting the way a garden can.

Typical of many health-care institutions, the gardens at the Rusk Institute mainly occupied irregular, leftover spaces between buildings. But, unusually, there were eventually five of them – more than at most institutions. Three announced themselves at the main entry, and two were accessed from inside the building and therefore were somewhat hidden. Rusk found his first garden compatriot in Enid Annenberg Haupt, heiress to a publishing fortune. Using his considerable fund-raising skills at a dinner party, he convinced her to fund and endow the Glass Garden. In his autobiography Rusk describes Haupt as someone “who loved flowers and beauty and recognized their healing qualities.” A great philanthropist and patron of American horticulture, Haupt continued to fund garden projects at the institute and around the country for many years. According to her obituary in the *New York Times*, “the gift that gave her the most satisfaction . . . was one of her earliest and least heralded: the Enid A. Haupt Glass Garden.” Howard Rusk affectionately called it “the Garden of Enid.”

The Glass Garden was also architecturally undistinguished – a classic working greenhouse. What made it revolutionary was that it was located within a hospital. It had wide aisles for wheelchairs and tables of different heights so that patients could see, touch, and smell the plants. A shallow, round, terrazzo-paved pool for fish and aquatic plants was its most decorative element. The mission of the Glass Garden was rehabilitation, respite, education, research, and outreach. Over time it evolved into a public botanic garden, open to everyone. Its plant collections evolved as well, depending on the interests of the patients, horticulturists, and volunteers on hand. Along with the aquatic garden, there were collections of orchids, ferns, palms, bromeliads, succulents, insectivores, bonsai, and many other plants suitable for city offices and apartments. The greenhouse also housed birds and had space for individual and group therapy sessions. Rusk called it “a therapeutic greenhouse where patients can get their hands in the soil and work with growing things, which is not only good for occupational therapy but good for the soul.”

In 1969, ten years after the Glass Garden opened, two more of Rusk’s staunch supporters, the philanthropists Bernard and Alva Gimbel, of Gimbel’s department store, donated one of the “hidden gardens.” Alva Gimbel was a founder of the women’s auxiliary of the Institute of Rehabilitation Medicine at New York University

Rusk Perennial Garden in spring circa 2010 with the Glass Garden in the background. Photograph courtesy of The Lillian and Clarence de la Chapelle Medical Archives at NYU.



Medical Center. For several decades beginning in the 1950s, she hosted an annual house and garden tour in Westchester County to raise money for the institute. Her long-lasting support of Rusk and his institution was typical of the loyalty his passion fostered. The 4,800-square-foot Gimbel Garden was a beautiful modern garden. It featured rows of honey locust trees, which provided dappled shade for its benches, and a troughlike pool punctuated by bubbling fountains. Its carefully composed and proportioned geometries were reinforced by spare plantings, so that the total effect was one of peace and serenity. Today we would call it a contemplative garden. This garden dominated the view from the Physical Therapy Department. Occasionally therapy took place there, but it was primarily a complement to its frequently-used predecessor, the Glass Garden. At about this time there was also a children’s play area, the Jesse Stanton Playground; an unnamed, grassy expanse with steps and a paved walk; and the Gretchen Green Rainbow Roof Terrace, donated by and named after a beloved volunteer, which became an outdoor space for fun activities like cookouts and concerts.

In 1984, when Rusk finally agreed to allow the hospital to be renamed the Rusk Institute in his honor, he was asked why he had held out for so long. “I didn’t want it named until I felt sure we had all the elements of an institute of excellence,” he replied. Certainly, the gardens were an intrinsic part of that excellence. Even after Rusk’s death, five years later, they continued to be built or rebuilt as horticulture staff recognized the need and saw the opportunity. Sometimes working with more creativity than resources, staff managed to provide places of relief as the hard work of therapy continued.

In 1991 Enid Haupt funded another innovative garden. Designed by Bruce Kelly and David Varnell, the 4,500-square-foot space contained a diverse collection of perennials chosen for their ability to withstand low light and the harsh conditions of an urban environment. The Perennial Garden, as it was called, was created at a time when landscape architects were beginning to develop design solutions that more sensitively served their clients’ physical and social needs. Features like raised beds, sun/shade conditions that anticipated patient sensitivities, and wide, smooth paths designed for wheelchairs and walkers were coming

to the fore. With curvilinear, terracotta-colored raised beds overflowing with plants, along with places to gather and areas for more solitary pursuits, this garden was used extensively by patients, staff, visitors, and the general public. Nestled between buildings, it was also quieter than the other gardens. On one side it was bounded by a glass-enclosed area belonging to the Occupational Therapy Department. From this safe, enclosed space, one could view the garden when the weather was bad or when not in the mood to participate in activities there.

By 1998, when Johansson & Walcavage redesigned and rebuilt the Jesse Stanton Playground, landscape innovations for specific populations had developed even further. This award-winning, 5,500-square-foot area, renamed the Children's PlayGarden, was the result of a collaborative effort by a large team of designers, therapists, teachers, physicians, and construction and maintenance personnel. Horticulturally it was a garden of diverse tree, shrub, and plant collections selected to encourage children to explore nature's sensory richness, provide material for environmental education, and attract a wide range of exciting wildlife and insects. The play equipment was designed to physically challenge large and fine motor skills, strength, balance, and coordination. Risk and safety were thoughtfully balanced in the design. Challenges of different levels were provided by a grassy hill with a slide, overhead rings and hanging bars, a swing, a sandbox, and a playhouse with knobs on its doors. Curiosity about the natural world was encouraged by elements that stimulated the senses: a rock-lined brook and bog, scented plants like lavender and mint, wind chimes, birds, butterflies, and insects. Children were also encouraged to connect with the garden's resident animals, which included a cat, turtle, and rabbit. When quieter moments were needed and children wanted to spend time with adults, there was a wheelchair-accessible glider swing and hammock.

Designed for children under the age of twelve, the Children's PlayGarden quickly proved popular with all ages. Rusk Institute inpatients and outpatients, their families, therapists, and teachers used it regularly, and families from the local community liked to visit it on the weekends. The garden was also used by children from the NYU pediatrics unit and HIV-positive children from another hospital. Rusk Institute occupational and physical therapists also brought adults there, to help them learn to navigate its curving paths and changes in slope.

Looking north over the East River from the 7th-floor roof garden of the new NYU Langone Kimmel Pavilion that opened July 2018. Image copyright 2018, Jeff Goldberg/Esto.

In the first decade of the twenty-first century, there were four gardens at the institute, with the Glass Garden serving as their physical and spiritual center. According to Dr. Steven R. Flanagan, the Howard A. Rusk Professor of Rehabilitation Medicine and the chair of the Department of Rehabilitation Medicine at NYU Langone, these functions included providing places "to relax and reflect, socialize, and engage in physical challenges to improve both mental and physical health as patients learned new skills or avocations." High-school students worked in the Rusk gardens for science credit. Nursing-home residents, developmentally disabled adults, and formerly homeless adults were brought to the gardens for therapeutic horticulture. Hundreds of domestic and international professionals visited and trained there.

In addition, they were places of research. Among the many studies published was one by speech therapist Martha Sarno and horticultural therapist Nancy Chambers demonstrating that patients with acquired aphasia not only reported more gratification in a garden, but also spoke more and interacted with others when treated there. Finally, the gardens were places for staff, volunteers, and members of the community at large to gather, unwind, and learn about plants. In 2012 this all came to an abrupt and dismaying end.

On October 29 of that year, Hurricane Sandy hit New York with an unprecedented storm surge of almost 14 feet. The East River overflowed its banks, submerging much of Lower Manhattan – including a large part of the campus of NYU Langone Medical Center. Millions were without electricity. When the hospital's backup generators malfunctioned

because of flooding, patients had to be evacuated – first the acute-care and maternity patients, and later the more stable Rusk Institute patients. In the immediate aftermath, it was unclear whether the institution itself would survive.

As the storm approached, the Rusk horticultural-therapy staff removed the animals that lived in the gardens, but there was little they could do to protect the ground-floor gardens. The force of the hurricane flooded and knocked out the power to the Glass Garden. The Perennial Garden and adjacent buildings were decimated. Many of the Perennial Garden's plants were washed from the planters, settling into wet masses as the water receded. Three hundred pumpkins that had been set out in anticipation of Halloween washed up against the fence in the PlayGarden and had to be disposed of by the staff. In the Glass Garden, the greenhouse plants that sat on tables above the high-water level and therefore were not drenched by diesel-contaminated water were salvaged and taken in by various institutions and individuals. As Rusk Institute patients were relocated, energies turned to patients and programs, not to the damaged greenhouse and its adjacent, ruined gardens. According to Gwenn Fried, manager of Horticultural Therapy Services at Rusk Rehabilitation, the resilient staff, well supported by the administration, adopted the attitude, "Take what you can and land on your feet."

In truth, although Hurricane Sandy undeniably hastened the demise of the freestanding Rusk Institute, its patient-care building, research building, and gardens would not have been spared even if the hurricane had never occurred: the entire site had already been slated for redevelopment. Today the site is occupied by the eighteen-story Helen L. and Martin S. Kimmel Pavilion and Hassenfeld Children's Hospital. The gardens of the Rusk Institute, one of which was more than fifty years old, have vanished.

In the intervening years, however, the institutional appreciation of the role that nature can play in patient recovery and what gardens uniquely bring to an institution has only grown. In fact, the gardening culture was so well established at NYU Langone by the time Sandy hit that, despite many competing priorities, the administration fully supported the horticulture staff and programs of the Rusk Institute in its aftermath, finding and developing new places in its vast medical complex to continue to refine Rusk's vision.



Today NYU Langone has a vibrant horticultural-therapy program, with activities conducted in several locations across the sprawling campus in both indoor and outdoor settings. Not only rehabilitation patients but also psychiatry, neurology, and inpatient pediatric patients are given horticultural therapy, and outpatient programs for pediatric oncology and dementia patients have expanded. The department's staff also cares for the plants in lobbies and offices, and reaches out to the larger staff on special occasions. On a recent Earth Day, in a gesture Howard Rusk would have heartily approved of, the Horticultural Therapy Department promoted its visibility within the larger hospital by giving away 350 potted begonias to patients, visitors, and staff members.

At the same time, Rusk's influence can also be seen in the numerous added or renovated open green spaces on the main campus, which continue to offer patients, visitors, and staff the restorative benefits of such features in a clinical setting. Natural environments on the campus today include Fleck Garden, Alumni Courtyard, and Main Campus Courtyard, and outdoor terraces attached to the new Kimmel Pavilion, Hassenfeld Children's Hospital, and Science Building. These large-scale focal points also provide natural light and pleasing views to patient rooms and many indoor public spaces.

Gwenn Fried explained that three particularly important spaces for the horticultural therapy offered by NYU Langone are the solarium and the roof terrace in its Orthopedic Hospital and a corner of Stuyvesant Park across Second Avenue. The solarium has a glass ceiling, south light, and good views. Orchids and coffee trees are grown on the windowsills, and it contains a table that can be raised and lowered to suit patients in wheelchairs or those who stand to build endurance. The terrace garden on the thirteenth floor of the Orthopedic Hospital has trees and shrubs as well as so many tropical plants in summer that one patient took a photo of herself there, joking that she was in Puerto Rico. This is where two bunnies, Clovis and Nutmeg, are kept. Many patients love to pet them, and the occupational and physical therapists frequently use a visit with the bunnies as a form of encouragement. ("If you finish your exercises, and we have time, we can go see the bunnies.") It is not uncommon for former patients to return to visit the terrace garden when they are in the city.

And finally, there are beds in a corner of Stuyvesant Park, across the street, where the NYC Parks Department allows the Rusk staff to maintain and grow plants for their therapy sessions. In addition, with a pass from a physician, patients are allowed to visit the park, reconnect with the city, and meet friends and family members – even their own dogs, which are not allowed in the clinical setting. (Only trained and approved dogs are admitted.) And so Rusk's legacy continues.

Several forces allowed the Rusk Institute gardens to flourish as long as they did. First, the hospital's patients were generally well enough to participate in garden activities but also needed relatively long stays; in the 1990s the average stay was more than a month. In today's high-tech rehabilitation centers, stays average a week or two before patients are transferred to another facility or treated in outpatient settings. Second, when the gardens were originally built, the hospital was not yet under pressure to develop every parcel of real estate to its fullest capacity. And finally, there was Rusk himself, who had cultivated not only an extraordinary horticultural-therapy staff but also benefactors like Enid Haupt and Alva Gimbel who could help him achieve his goals. Largely through his efforts, rehabilitation services became linked to gardens and horticultural therapy, which in turn became an important part of the culture at NYU Langone Health – and have remained so long after the original gardens were destroyed.

Today the Horticultural Therapy Department has an even broader reach than when it was located in one small facility. As rehabilitation services have expanded worldwide and now often include care for chronic breathing problems and cancer treatment, so has horticultural therapy become more widespread, adapting and refining programs and therapies, as Rusk did, in creative and flexible ways. Those who have visited and trained in horticultural therapy at the Rusk Institute continue to spread its namesake's vision of treating the whole person – in the process proving the value of both rehabilitation services in general and horticultural therapy specifically.

In a recent conversation, Fried emphasized that not only gardens but even a single plant can be a metaphor for the rehabilitation process. It does not yield instant results and yet, with continued care, something better will come. In learning to care for nature, we learn to care for ourselves. Rusk related an anecdote that exemplifies this metaphor in his autobiography: "When a new patient arrives at the institute, feeling low and helpless, it often happens that he finds a potted plant or flower by his bed," he explained. "It's kind of a welcome but it's also more. After he's been there a day or two, he begins to see that the earth around the plant is getting dry. It needs watering. In most cases he will eventually say to the nurse, 'How come nobody waters this plant?' And the nurse will reply, 'Well, it's your plant. Why don't you water it?'" – Nancy Gerlach-Spriggs and Vincent J. Healy

Up on the Roof: From Prison to Garden

When I first visited the rooftop at Castle Gardens, on a hot morning in May, Deborah Shaw was worrying about her client Richard. Only a few weeks earlier, Richard had helped plant seeds on the roof: butternut squash, kale, and cucumber. Now Deborah has returned with flowers – plastic trays of marigolds and coleus and petunias for the residents to plant in their boxes. One resident has already planted two boxes by the time I arrive, and another is considering her selection. No one, however, has seen Richard, and something feels off about his absence.

As every gardener knows, there is always something to worry about in a garden: the potatoes that were planted too late; the primroses that bloomed too early; the cold spring; the scorching summer. A horticultural therapist has relationships growing alongside the plants to fret about as well – between clients and their projects, among the clients generally, and between each client and the complicated world that lies beyond the garden. On 140th Street, some of these relationships are old, others new; some strong, others stressed or fragile.

The Fortune Society is a not-for-profit organization whose mission is "to foster a world where all who are incarcerated or formerly incarcerated will thrive as positive, contributing members of society." In 2010 Fortune built 113 units of affordable housing for both formerly incarcerated men and women and residents of the neighborhood. Six years later Fortune hired Deborah Shaw, a horticultural therapist, to make weekly visits to the building's rooftop garden. Many of the residents of Castle Gardens struggle with overlapping challenges: poverty, unemployment, anxiety, depression, anger management, and a variety of disabilities. And while the visible parameters of Deb's domain at Castle Gardens are defined by the roof and the storage closet just beneath it, the invisible tendrils of her concern spread throughout the building's eleven stories. Anyone who is, as Deb puts it, "a friend of the garden," becomes part of the loose web of connection she fosters: a community of gardeners within the larger community of the building's inhabitants.

Now a variety of people make their way up to the roof: residents, staff, volunteers, and the occasional outsider like me. I emerge from the stairwell onto the roof's expansive patio, which has a clean, modern feel and flower boxes edging its border, and my heart lifts at the sight of the Hudson River as Deb introduces me to the other two gardeners present. Barbara, a no-nonsense woman in her fifties, radiates a sense of competency as she moves from task to task, so I offer my

services to Sandi, an elderly woman in a wheelchair who can't reach the top row of her tiered flower bed. Although this is Sandi's second year in the garden, her tentative handling of the plants and her black fur coat suggest a certain discomfort. ("Fake fur," she later corrects me. "I'm a vegetarian.") I then learn that this is Sandi's first season planting in a wheelchair. Nevertheless she is quite definite about her aesthetic choices: petunias on the top shelf, where there is more room for them to grow, and then herbs beneath: catnip, sage, and basil. Deb shows us how to gently pinch the plants out of their tiny plastic containers and tease the root systems apart before placing them in the soil: "Not too deep," she warns.

It is warm and still on the roof, and everything slows down in a pleasurable way. Sandi has lots of questions about how I know Deb (she is an old friend of my partner's) and about who my partner is, exactly, and whether or not we ever went out to bars in Greenwich Village, where Sandi was a bartender for a while (disappointingly, no). Christina Morse, the office operations manager, passes by and says hello. Meanwhile, Barbara, who is more appropriately dressed for the heat than Sandi in shorts and a t-shirt, is constantly in motion: digging, hauling, watering. Still, she makes small talk with me between her tasks – encouraging me to crush a velvety leaf of Cuban oregano between my fingers or explaining that the garden was a godsend to her because she has so many food allergies ("The only way I can have pesto is if I make it myself"). After we fill in Sandi's vertical garden – which is strategically located in the only bit of shade on the roof – Barbara waters it for us. Sandi and I also plant several coleus in pots and arrange them at the little garden's base.

This task completed, I venture into the back section of the garden, behind a gate, where Deb and Barbara are refreshing last year's grow bags with new soil and fertilizer. Grubs and insects are often unpopular with urban clients, so whenever a worm is spotted, Deb reminds us that worms are a *good* thing. This is the workaday section of the roof, where most of the vegetables are planted. I discover a bag choked with roots, among which a few red leaves have come back after the



Deborah Shaw, the horticultural therapist at Castle Gardens, up on the roof. Photograph courtesy of The Fortune Society.

winter: Deb identifies this as chocolate mint, and I decide that I will take a cutting home with me.

As the three of us crouch over the grow bags, I notice an elegant woman standing just inside the gate, with a tiny handbag dangling from her forearm. She meets my gaze and raises her finger to her lips: clearly she expects a warm welcome, but she

doesn't want Deb to see her just yet. This, I soon learn, is Eleanor: another friend of the garden.

We retire to the community room and open its tiny closet; here the tools are put away, and the herbs are hung from the ceiling to dry. Afterwards, Deb provides us with a light lunch: hummus and bread, clementines, a red pepper. The ritual of sitting down together is clearly good for the group. When Barbara informs me that the iced tea we are drinking is made from herbs grown one story above us, I can pick out the taste of mint and chamomile but fail to identify the other significant ingredient: lavender.

Now that Barbara is off her feet, her body is hurting. She has to go to the supermarket later to take advantage of a produce sale; luckily, she says, she can bring her collapsible chair with her, in case she needs to stop and rest. I can't believe that this is the same woman who has worked for hours upstairs in the hot sun. Over lunch we learn that Eleanor, in fact, does have news of Richard, and that Deb's worry was well-founded: he had a stroke on his way to church and ended up in the hospital. Everyone resolves to find out more before the following Tuesday and share what they learn.

When I interviewed Deb in her apartment a few weeks later, she was concerned about Barbara, whose father had just passed away in Florida. The good news, however, was that Richard was home from the hospital and looking pretty well, all things considered. When Deborah had a chance to speak

to him privately, she asked him about any lasting effects from the stroke.

"He said, 'The biggest change is something you can't see!' Deb recalled. 'I can't write!' And I said 'Oh – you could before and you can't now?' And he said, 'I can't write at all!'" Deb immediately thought back to the day they had planted vegetables together in the spring, when Richard had experienced considerable difficulty writing the names of the plants on the labels. Now she suspected that he might have had a series of ministrokes before the one that put him in the hospital.

In the lives of Deb's clients, small problems can blow up to become far bigger problems than they need to be while big problems may be completely ignored – even by the individual who is afflicted by them. "People are so accustomed to having issues and them not being addressed, or just adapting to them – in prison, in life," she observed. Adaptability is a necessary survival mechanism, but it can also dull important warning signs. In other instances, gadgets and minor operations covered by Medicaid seem to be commonly prescribed, she notes, whereas corrective surgery and physical therapy are less available, even when clearly needed. I mentioned how struck I had been by the fact that Barbara's pain had resurfaced as soon as we left the roof. "That's hort therapy," Deb replied. "*Put down your cane, because you need two hands to do this.* And temporarily the cane is forgotten."

Deb's decision to become a horticultural therapist was more political than botanical: when she retired from her career as a costume designer, she knew that she wanted to work on criminal justice reform. When she then discovered that Rikers Island had an enormous garden for inmates, run by the Horticultural Society of New York, she decided that that was where she needed to be. In fact, she originally took a course at the New York Botanical Garden in hort therapy simply because it included a visit to the island. Once there, she reasoned, she would find a way to insinuate herself into the program.

First, the garden was even better than she had imagined. "It was a very heady experience," Deb recalled. "There's a pond, there's a big vegetable garden, fruit trees everywhere, perennial gardens, greenhouse, a cutting garden, guinea fowl . . . I was completely blown away. And so I just kept on pestering the director of the program, Hilda Krus" – Krus is a world-renowned horticultural therapist in the field of incarceration. "They didn't take volunteers at that time, but I wore her down."

Deb started working two days a week on Rikers in 2010. She discovered that getting onto the island was exhausting, and dealing with the prison's bureaucracy was frustrating, but she loved working with the inmates, and the world of the

garden was deeply absorbing. “There was constantly something going on,” she recalled, “most of the time relating to what was growing, or would be growing, or had been growing, outside.” They focused on foods that could be prepared and eaten without a lot of cooking or knives: “We had very limited access to knives, as you might expect. So we would cut up vegetables with pruning shears.”

In 2014 Deb got a part-time job working with formerly homeless people with mental illness at a permanent residence run by Brooklyn Community Housing and Services. Then in 2016, after receiving her certificate from the NYBG and six years of working on the island, she left her gig on Rikers to take her part-time job at Castle Gardens. Now each of her jobs is tailored to the needs and desires of the clients. In Brooklyn, for example, the residents have turned out to be crazy about herbs – “They eat them by the handful” – and everything needs to be predictable. Lunch must always be the same – an enormous salad with eleven ingredients – and if Deb forgets even one element, there will be an outcry. At times, this can be frustrating, but then she reminds herself that it is a sign of how much more discerning her clients’ taste buds have become; almost none of them had ever eaten such a healthy salad before she started working there. At Castle Gardens, on the other hand, there is a greater interest in growing vegetables, and the residents are more willing to try new things.

The beauty of horticultural therapy is that it can

be adapted to respond to almost any human predicament: “Elderly people, people with physical disabilities, people with intellectual disabilities, children – you name it,” Deb said. “Even if you just want to calm down – whatever!” And yet her certificate to practice it was less a goal in itself than a byproduct of her desire to combat systemic injustice. “All people want is to be treated like a regular person,” Deb said. “Whoever they are. Whether they’re in jail. Whether they’ve been in prison. Whether they’re homeless with mental illness. Whoever they are! They want to be treated like a regular person.”

The advantage of practicing horticultural therapy on Rikers is that you always know a group of clients will be there because the inmates are assigned to the garden each day. A garden on the roof, however, is a little like a gym on the roof: we always feel better after we visit, and yet we don’t always make our own well-being a priority. For Deb, the uncertainty of who will show up on any given day is another concern. A new program, like a new garden, can take years to come into its own, and it needs patient funders as well as patient therapists to help it flourish. This year Fortune received a grant from the Burpee Foundation, for which Deb is profoundly grateful, and the office operations manager is also extremely supportive: “Christina, whom you met, is just the greatest: *It’s great, just keep doing it, just keep doing it.* So that’s beautiful.”

On my second visit to Castle Gardens, in mid-July, Deb is worried that we won’t have enough time in the garden: there is an event scheduled for 2 p.m. in the community room, which means that we will have to finish up early. When I arrive in the building’s lobby, I immediately spot the poster (“Free Photographs Today: How About a Professional Headshot – Without the Cost?”) along with an irate Sandi in her wheelchair: the security guard can’t find the key that allows the elevator to ascend to the roof. “Tell Deb!” she commands.

I deliver Sandi’s message, and Deb goes downstairs to negotiate – the man at the desk discovers that he does have the elevator key, after all – and soon Sandi and I are stationed by her planter once more, but she is still agitated. Deb tells Sandi that she has also investigated Sandi’s complaint that she had been “kicked off the roof” by the building staff a few days earlier. Apparently there had

been warnings of a storm, and the patio wasn’t considered safe. For the next ten minutes or so, Deborah carefully revisits the incident with Sandi from every angle. Was the staff being hostile or obstructionist? Might Sandi, on an exposed roof in a wheelchair, perhaps have been in danger, even if she saw no signs of lightning? The two of them chew over the possibilities until Sandi is able to settle into the present moment again.

It is only after we turn our attention to Sandi’s vertical garden that I notice the positive changes in its caretaker. First, Sandi is dressed more comfortably and driving her wheelchair with greater skill. Her questions about my personal life are less urgent; her focus on the task at hand more sustained. As I weed the top shelf, I discover a tiny statue of the Virgin Mary facedown in the dirt among the petunias; with Sandi’s permission I dust her off and position her in the corner.

The basil is coming along nicely, but Sandi admits that she is not much of a cook: last year, she says, she survived on mango lassis for months at a time. I admire the pots of coleus we planted, which are flourishing, and she informs me that there have been some additions since my last visit: she had noticed some coleus down the block that were “severely stressed,” and so she and her aide had saved their lives by digging them up and replanting them here. I ask if she executed this plan in the dead of night. “Eight o’clock,” she replies. I concede that the coleus are looking very happy in their new home.

Other people come and go. Barbara’s daughter darts up briefly to check on her flower box. A shy man named Lee arrives with a tiny sprig of mint in a soda can filled with water; he has been waiting for its roots to grow long enough to plant the cutting properly. Deb sets him up with a little pot, and soon he has replanted his mint and taken it back downstairs to his apartment, forgetting in his excitement to put away the bag of dirt. With a pang, I realize that I have forgotten all about my chocolate mint, which must have died by now. Meanwhile, Barbara has already harvested baskets of lavender, and Eleanor has come by with more troubling news: a friend of hers downstairs is not answering the phone or the door. Barbara leaves briefly to inform the staff that maybe someone should check the apartment, just in case. Everyone is relieved to learn it is empty.

On this visit, which is blessedly cool, I am getting better at “reading” the garden: at distinguishing where the standard roof plantings end and the residents’ projects begin. As well as the window boxes and beds there are now a dozen containers on this side of the roof – peppers, eggplants, tomatoes.



Andrew, Barbara, and Georgina displaying some vegetables with Deb in the background. Photograph courtesy of The Fortune Society.

Thick clumps of different varieties of mint and thyme grow among the more conventional flowering bushes, and Deb has planted masses of purple coneflowers. Barbara shows me two small strawberries in the undergrowth, ready to be picked. “Eat them, eat them,” Deb urges Barbara. “They’re yours!” Barbara offers me one, and I pop it in my mouth. It tastes delicious. Later she tells me, “What we grow up there? It’s organic, that’s another thing. Like the cucumbers, when we grow them up on the roof and compare them to the ones in the store, the ones in the store have a whole bunch of wax and stuff on them.” The only downside, she adds, is that organic food doesn’t last as long. “So you have to eat it right away. But I don’t have a problem with that *at all*.”

When our weeding is done, Sandi and I head back to the vegetable garden, where Deb and Barbara are pulling up garlic. Sandi can’t get too close with her wheelchair, so I transport each new clump over for her inspection. There is a second grow bag containing a different variety that is also ready to be harvested, but because of the photo shoot we run out of time.

As we head back downstairs, Deb asks if Barbara and her daughter will get their pictures taken. “It’s free!” Deb reminds her. Barbara is noncommittal. Her harvest bowl, however – which contains a green pepper, sun gold tomatoes, rainbow chard, and kale – deserves to be memorialized: Barbara documents her take religiously each week with her phone and posts updates of the garden on Facebook and Instagram. Before we relinquish the community room to the photographers, she and Deb hang the garlic and the lavender in the closet to dry.

The day of my last visit, at the end of July, Deb is worried about the heat: it is supposed to get up to 92. This means not only lots of watering but also that potential volunteers might be discouraged from coming outside. And indeed, when I arrive at Castle Gardens, a sign on the door to the community room announces that it has been converted into a “cooling room” for overheated residents, who are sometimes unwilling to run their air conditioners due to the cost. But Barbara and Sandi are already on the roof, and both are in excellent moods. Barbara has made an unusual sartorial concession to the temperature: she is wearing a large straw hat.

On the way back to the front patio with the second half of our garlic harvest, Deb draws our attention to two boxes of herbs, one of

which is clearly struggling. The box’s owner hasn’t kept it sufficiently watered. “When leaves get what I call ‘crispy,’” she explains, fingering the dying herbs, “They rarely come back.” Which is particularly sad in this instance, Barbara says, because this was a special kind of herb; the gardener’s sister had sent the seeds from Bolivia. Once again I think of my cutting, and how hard it is to take care even of the things that matter to us.

During our lunch downstairs, I ask Sandi what draws her up to the roof.

“Deb,” she promptly answers. “I’ve never done this before,” she adds. “I’ve never grown anything. I mean, I’ve lived in New York all my life, and – maybe I’ve had a plant or two. But usually they died!” When Sandi first came upstairs, she had no idea that she would become a gardener. “And I walked by this amazing structure,” she continues, her voice taking on a storytelling tone.

“That was abandoned,” Deb sardonically interjects.

“This empty structure that nobody looked at,” Sandi says happily.

“That actually was going to end up in the garbage,” Barbara adds.

“It was ready to go,” finishes Deb. They all clearly relish the tale.

“But Sandi to the rescue!” Barbara finishes. “And now that’s Sandi’s project!”

“I had asked Deb if I could make a garden out of that,” Sandi continues. “She was a little bit . . . skeptical.”

“That is 100 percent correct!” Deb chimes in, laughing. But then she becomes serious. “When I have someone new,

I want them to have projects that will succeed, not fail. Because it is depressing if the first thing you do fails. And I was worried that that was going to be a difficult project.” But Andrew, another friend of the garden, helped Sandi with her plantings, and



Sandi inspecting the garlic harvest. Photograph by Alice Truax.

she was extremely proud of the results. In fact, when Stanley Richards, the executive vice president of the Fortune Society, came to visit Castle Gardens, Sandi made him come up to the roof to admire her project. “Stanley, look what I did!” she exclaimed. “I never planted anything in my whole life!” Had he liked it? “He loved it,” Sandi replies. “We showed him everything. Right, Deb?”

Suddenly I realize that we are talking about Sandi’s vertical garden – the same planter I planted with her in May; the same planter we

had fastidiously combed through seven days earlier, pinching off every brown leaf, plucking out every tender new weed: the planter that was now topped with white and purple petunias and overflowing with nasturtiums and lush tongues of sage and surrounded by its semicircle of liberated coleus. How could it have been considered trash? As I have helped to transform Sandi’s garden – even just that little bit – my way of seeing has also been transformed. This, I suddenly grasp on a visceral level, is what horticultural therapy is all about.

Then Sandi adds, forgetting that she has already given me the unvarnished story, “The *coleus* we rescued from another area of the city,” and we all burst out laughing. Sandi wonders if she could take on more work in the garden, even with the wheelchair; perhaps she could learn to water with the big hose.

“If you have someone to undo it for you,” Barbara reminds her. “Doing that hose is not easy.”

“But I would enjoy that,” Sandi insists, of the watering. “I would like the meditation part of that.” Barbara agrees that gardening can have that effect; sometimes she goes upstairs and waters for hours. “I’m just there by myself, taking my time, enjoying the weather and the *peace*.”

Although Barbara’s grandparents, who lived in Puerto Rico, had grown everything (“We used to pick the mangoes off the tree”), she herself had never gardened before moving



A cornucopia of fresh produce from the garden. Photograph courtesy of The Fortune Society.

into the building. Then the property manager gave the residents a little patch for some lavender and string beans and tomatoes, but it was limited. “We didn’t have grow bags – I never knew what a grow bag was until I met Miss Deb,” Barbara said. “So it’s nice, because with Miss Deb we get a lot more.” If Sandi loves the flowers for their beauty, Barbara appreciates them mostly because they draw the bees, and bees are needed to encourage pollination. It is the reciprocity of the garden that seems to give her the greatest pleasure: the way she takes care of the garden and it takes care of her in return. She shows us a picture of a recent meal on her phone: a pan full of tiny tomatoes sizzling in olive oil with garlic and garbanzo beans. So good, she tells us, you can eat it without rice.

A friend of Barbara’s on Long Island follows her garden updates online. “She still does not believe that I’m growing this,” Barbara declares proudly. “I’m like, ‘Yes, I’m growing this *on the roof*. In *Manhattan*.” A few days earlier, this friend had sent her a recipe for stuffed zucchini blossoms. At first Barbara was incredulous, but after reading the ingredients – ricotta, basil – she is eager to try it. Barbara sometimes shares her dishes with the staff – both to show them what can be made from the garden and to increase their loyalty to it: “This way when I need them to help us, to advocate for us, they’re there.” She also cooks for the end-of-season celebration – which includes both gardeners and staff – and about twenty-five people come.

Before we leave for the day, we hang the last of the garlic up in the closet to dry. Deb is extremely pleased with the size of this week’s bulbs. Barbara is swooning over the scent of her harvest. “Oh my God,” she exclaims, “that spearmint? It smells so good in here! Oh my God, I’m going to just lock myself in here!” Meanwhile Sandi – reassured after a long conversation with Deb about some confusion surrounding her rent check – is driving around the room in her wheelchair at top speed. Someone has warned her not to do this on the sidewalk, but here, she reasons, it is perfectly safe.

I feel reluctant to admit that this is my last day of reporting at Castle Gardens. Deb invites me to come back to their harvest celebration in October – perhaps I, too, can become a friend of the garden – but I still feel wistful. I realize that even though I have failed to grow a cutting from the roof, I am leaving a little bit of myself behind there.

Barbara announces that she is going to try to make stuffed zucchini blossoms over the weekend. Maybe I can get her to send me a picture. – Alice Truax

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