

DIRECTOR'S LETTER 3 **2017 NATIONAL DESIGN** 5 **AWARDS GALA DESIGN AND AGENCY** 6 **IN MIDAIR AND OVER WATER** 9 **THE AXIS PROJECT:** 12 **DESIGNING FOR WELLNESS DRAWING BY TOUCH** 14**DESIGN PULSE:** 16 EMPOWERMENT **COOPER HEWITT LAB:** 18 **DESIGN ACCESS SUSAN GRANT LEWIN** 19 **INTERVIEW: RARE AND RADICAL JEWELRY PLANNED GIVING AT** 21 **COOPER HEWITT** SHOP 22

DIRECTOR'S LETTER



WINTER 2017 DEAR COOPER HEWITT FRIENDS,

A collaborative and creative process, design begins with empathy for the user and results in systems, products, and solutions that improve lives. At Cooper Hewitt, the visitor is our user and the campus is designed to be welcoming and participatory. Everyone is encouraged to engage in the design process, and these interactions transform a passive viewing experience into an immersive discovery of design. Beyond the museum's walls, audiences from all over the globe explore our vast and eclectic permanent collection and build their own online collections with our digital tools.

This year and going forward, we are embracing accessibility in its broadest sense to ensure that people of all abilities and backgrounds will fully enjoy Cooper Hewitt's offerings. The contents of this issue of Design Journal reflect our campus-wide commitment to a more inclusive future, and feature designers, users, and designer-users who are breaking down barriers and expanding opportunities.

Tara Accetta and Alex Elegudin share how Wheeling Forward designed and built the first-of-its-kind, communitybased fitness facility for people with physical disabilities. Steve Landau, founder of Touch Graphics, introduces his tactile drawing board, which gives the visually impaired the capability to draw, design, and create. "Design and Agency" adds several more knowledgeable voices—August de los Reyes, Jeffrey Mansfield, and Walei Sabry—who bring both professional and personal perspectives to the importance of accessible design. And this

01

Vice President of the Board of Trustees Elizabeth Ainslie (left) with Director Caroline Baumann and Board Chairman Barbara Mandel (right) at the 18th National Design Awards Gala. Ainslie has been appointed Board Chair as Mandel steps down after four vears of indomitable leadership.





issue's "Design Pulse" asks: What can design do to empower people with disabilities? The thought-provoking responses broaden awareness of design's impact on individuals with different abilities.

On campus, a slew of initiatives are capitalizing on the museum's role as a dynamic hub to highlight advancements and promote design thinking for expanding access. On view in our first-floor galleries, Access+Ability presents some of the extraordinary research and over seventy innovative products that address different physical, cognitive, and sensory challenges, taking advantage of the latest developments in digital technologies and fabrication methods. They also reflect changing attitudes that prioritize the user in the design process to emphasize what a person can do when given the opportunity.

Last spring, we brought together students from New York University's Ability Project and users to help us design prototypes and solutions for making the museum more accessible. This winter, we are very proud to partner with New York City's Mayor's Office for People with Disabilities for Access+Ability and our newest initiative, Cooper Hewitt Lab. For two weeks in February, the Barbara and Morton Mandel Design Gallery will be transformed into a collaborative space for experimentation and learning for visitors of all ages and communities. An accessibility hackathon with Google, a rug-making workshop with San Francisco-based studio Creative Growth, a Mark Morris dance workshop for people with Parkinson's disease, a Design and Storytelling Salon with Columbia University Digital Storytelling Lab, and much more will stimulate dialogue and awareness around broadening access to everything from museums to cities to vital services. I hope you will participate in this unprecedented experiential learning opportunity at Cooper Hewitt.

National Design Award winner of the Director's Award Susan S. Szenasy helps a young designer create a book cover at our Design Fest during National Design Week.

DIRECTOR'S LETTER







Throughout the museum, there are exhibitions of design ingenuity introducing visitors to objects of beauty and intellectual richness: from exquisitely decorated objects of the eighteenth and nineteenth centuries to innovative works of contemporary design. Visitors to Joris Laarman Lab: Design in the Digital Age are fascinated by the gravity-defying MX3D printing technology developed by the pioneering designer and his multidisciplinary team. So we asked architectural historian and critic Mario Carpo—who has written extensively on the contemporary revolution in technology-to describe the game-changing impact of MX3D's capabilities. On the second floor, Jewelry of Ideas: Gifts from the Susan Grant Lewin Collection celebrates the acquisition of 150 brooches, necklaces, bracelets, and rings from this influential collector. Susan's extraordinary generosity to Cooper Hewitt has expanded the international scope of our jewelry holdings and brought important innovators into the collection. Enjoy our interview with Susan—a giant in the world of cultural communication in which she discusses her passion for supporting contemporary jewelry, informed by her close relationships with leading architects, artists, and designers.

And please mark your calendars for the opening of The Senses: Design Beyond Vision on April 13 and Color on May 18. Highlighting our diverse ways of seeing the world, The Senses will explore sensory design as a source of pleasure and wonder, as well as an outlook for solving problems and expanding access. Furthering our understanding of sensory power and perception, Color will combine highlights from the museum's permanent collection and the Smithsonian Libraries' extraordinary rare books collection to share how design innovates and communicates through color.

Finally, I want to express my profound gratitude to two beloved members of the Cooper Hewitt family who just stepped down as officers of our Board. Trustee Barbara Mandel provided four years of indomitable leadership as Board Chairman and Beth Comstock gave us six years

03

Importance of the Obvious collection, 2013; Matthias Borowski (German, b. 1983), Kollective Plus Zwei (Vienna, Austria, founded 2014); Foam, polystyrene, resin, wood; Sizes vary, up to 25 x 30 x 110 cm (9¹³/₁₆ x 11¹³/₁₆ x 43⁵/₁₆ in.)

04 and 05

Judine @baumtweet **Caroline Baumann** Director

@baumstagram @cooperhewitt cooperhewitt.org

NATIONAL HIGH SCHOOL DESIGN COMPETITION

of outstanding service as President. Cooper Hewitt's

more—simply would not have been possible without their

enthusiastic and steadfast dedication and support. Thank

vou. Barbara and Beth! I am delighted to announce Trustee

Elizabeth Ainslie as Chairman and Trustee Scott Belsky as

experience, with the support of all our members and friends,

will ensure Cooper Hewitt's continued success and impact.

President, as of December. Their combined wisdom and

mammoth renovation and reopening-and so much



Now in its third year, the 2018 National High School Design Competition in collaboration with Target is challenging teens across the country to make an everyday product, process, or place accessible. Submit your design idea by February 12, 2018. Find out more at cooperhewitt.org/designcompetition.

2017 NATIONAL DESIGN AWARDS GALA NDA ACROSS THE USA

Cooper Hewitt celebrated the 18th National Design Awards on Thursday, October 19, 2017.



(left to right) Marc Leff, Deborah Berke, Maitland Jones, Stephen Brockman, and Caroline Wharton Ewing of Deborah Berke Partners, Interior Design Award winner, with presenter Michael lan Black

After six years of outstanding leadership, Board President Beth Comstock (left) is passing the baton to Trustee Scott Belsky (right).

4

We are celebrating the 2017 National Design Awards nationwide, bringing our winners to Washington, DC, San Francisco, and Boston for design-based learning experiences and panel discussions. Learn more at cooperhewitt.org/nda.

)on't be square

(left to right) Product Design Award winner Joe Doucet and Spencer Bailey, Surface Magazine

National Design Awards programming is made possible by major support from





Additional funding is provided by Design Within Reach, Facebook, Bloomberg Philanthropies, and R/GA.

Greg Kennedy, Delta Faucet (left), Andre Zechmeister, Delta Faucet (right)

05

(top left to top right) Cooper Hewitt Trustee Todd Waterbury, Cooper Hewitt Trustee Margaret Gould Stewart, and Facebook guests (bottom)

Design Mind Award winner Craig L. Wilkins

Lifetime Achievement Award winner Hartmut Esslinger

WINTER 2017

DESIGN AND AGENCY

An industrial designer, architect, and advocate speak to the role of the user in the design process.

EVERYDAY LOVE STORIES

By August de los Reyes

When I look at a bendable straw, I see a love story. As a designer, I have always thought of accessibility simply as good design, a kind of design hygiene that just has to be done. Navigating environments from my power wheelchair brought me to a conclusion: accessibility is not enough. In 2001, the World Health Organization reframed the definition of disability from the medical model to the societal model, suggesting that disability is not an effect of some physiological or cognitive difference—rather it is a mismatch between a person's abilities and the environment or artifact with which she or he is interacting

This shift set me on a path to understanding the concept of inclusive design, both a critique and a complement to accessibility. While accessibility implies a workaround to an existing design to gracefully degrade an experience, inclusive design focuses on someone with an ability difference in mind from the beginning, assuming that what benefits this person will benefit all whether they share the difference or not. An everyday example is the curb cut. While curb cuts help people in wheelchairs and other mobility aids transition from sidewalk to street, many people take advantage of these affordances whether they're walking their bike, pushing a baby stroller, making a hand-truck delivery, or pulling a suitcase across a city street.

As I dug deeper into inclusive design, I found a history of innovations all born from addressing some kind of ability difference. The telephone was originally intended to help the deaf; the keyboard was devised by someone whose lover, an Italian countess with visual impairments, could not write him love letters without assistance; early email protocols were created by Vint Cerf so he could communicate more directly with his wife rather than relying on the relay service for the deaf and hard of hearing. The elegance and beauty of these and many other examples is they all have one thing in common: they are all love stories—expressions of innovation and creativity by designers and inventors hoping to be closer with the people they love.

When I see a bendable straw, I think of the father who was sitting at a diner watching his young daughter unable to drink her milkshake because the straw was too high for her



mouth. When he got home, he put a screw inside a straw and wrapped wire around the grooves, creating the first bendable straw. As I encounter everyday objects through the lens of inclusive design, I find myself surrounded by love stories.

August de los Reyes leads the product design team at Pinterest. As the former head of Xbox Design, August helped Microsoft break new ground for inclusive design in the digital arena. August holds an MDesS from Harvard and is a Fellow of the Royal Society of Arts.

Upper

Copy Of Patent for Drinking Tube (USA), September 28, 1937; Made by Joseph B. Friedman (American, 1900-1982); Ink on paper; H x W (document): 28.9 x 20 cm (11 ¾ x 7 ¼ in.); Joseph B. Friedman Papers, Archives Center, National Museum of American History, Washington, DC, 2001.3031

THE ARCHITECTURE OF DEAFNESS: **ON THE SUBVERSIVE AND DIGNIFIED ARCHITECTURE OF THE DEAF SCHOOL**

By Jeffrey Mansfield

Set in picturesque Casco Bay in southeastern Maine, Mackworth Island is a peculiar knob of land. It is a place I have known since I was a child. To the Deaf community it is known for The Governor Baxter School for the Deaf, to the locals for its hiking trails and miniature faerie houses, and to the world as the setting of Mark Medoff's Tony-winning Children of a Lesser God.

A residential school for the deaf founded in 1957 by deed of the late Maine governor, the facility is a short drive from Portland. Yet owing to its location on the 100-acre island, accessible only by boat or the causeway that connects the island to the mainland, the school could not be farther from the city. Its topographical and bathymetric contours-precise yet arbitrary lines drawn by surveyors—also draw the contours of normalcy in our society, and in its inverse, dis-ability, designating a physical and mental boundary between "normal" and the "other." This edge condition obfuscates the island institution with other typologies of isolation, including the boarding school, asylum, prison, internment camp, hospital, lazaretto, leper colony, monastery, and sanctuary.

As a social institution, the mission of the deaf school was historically educational and rehabilitative: to prepare deaf children for productive assimilation into society. In the service of "curing" deafness, the architectural forms and vocabularies of deaf schools, from sprawling Kirkbride-like campuses to modern interpretations of the panopticon, bear therapeutic aims that forge an indelible link between deafness and pathology. Today, this merger continues to shape social attitudes toward deafness and guide technocratic approaches that seek to architect a final solution to the problem of deafness. But schools like Governor Baxter are subversive. For the first time in our lives, we were brought together and communication flourished effortlessly not through speech but through sign, challenging as a misdiagnosis

Background

Mackworth Island, Falmouth, Maine. Governor Percival Baxter deeded the island to the State of Maine in 1943 as a "sanctuary for wild beasts and birds." Since 1957, the island has been home to the Governor Baxter School for the Deaf. Photo by author







the premise that deafness is an ailment. The deaf school did not so much cure deafness as cultivate a discrete, if disruptive, linguistic, sensorial, and material culture that resists the homogenizing effects of biopower. Most important, these schools brought transcendent dignity to Deafness.

Jeffrey Mansfield is an Associate with the 2017 National Design Award winner for Architecture Design MASS Design Group. A Kluge Fellow at the Library of Congress, Mansfield holds a Master of Architecture from the Harvard Graduate School of Design. Architecture of Deafness is supported with a grant from the Graham Foundation for the Advanced Studies in the Fine Arts. Deaf himself, Jeffrey attended a school for the Deaf in Massachusetts.

Upper

Plan, Mackworth Island. A causeway connects the 100-acre island to the mainland; to enter the ecologically diverse island and the school, visitors must enter through a gatehouse-a symbolic threshold of our disciplinary society. Illustration by author

WHEN DESIGN FAILS THE DISABILITY COMMUNITY

By **Walei Sabry**

"WHEN PRODUCTS ARE WELL DESIGNED, THEY HAVE THE POTENTIAL TO ENABLE HUMAN BEINGS TO PERFORM TASKS THEY PREVIOUSLY THOUGHT WERE IMPOSSIBLE ... HOWEVER, IT IS IMPORTANT TO DESIGN PRODUCTS THAT EMPOWER USERS INSTEAD OF MAKING THEM FEEL INFERIOR."

Born in Egypt and raised in New York City, I'm a classic New Yorker. The only difference about me is that I drag a 58-inch black cane across the streets and sidewalks. That's because I was born with a progressive eye condition called retinitis pigmentosa. As a child, I could see fairly well. But by the time I was nineteen, I was blind. Once I started my new life as a blind person, I discovered that I had an abundance of tools and assistive technologies to help me access information. Because of these technologies, I was able to stay connected to my family and friends, and complete an undergraduate degree as well as a master's degree in disability studies. Today I am New York City's first digital accessibility coordinator, responsible for making the city's digital products work for people with disabilities.

When products are well designed, they have the potential to enable human beings to perform tasks they previously thought were impossible. This is especially true of products designed to include the disability community. However, it is important to design products that empower users instead of making them feel inferior.

When it comes to assistive technology and products designed to enhance the lives of people with disabilities, there tends to be a trend of products that, although created by well-meaning, non-disabled designers, fall short of their goal of delivering independence—products that are good ideas in concept but ultimately do not take into consideration actual needs and behaviors of disabled users.

An example of such products would be audio description devices for blind customers to use in movie theaters. In concept, these devices enable blind visitors to get the information they need to perceive and enjoy Hollywood's latest blockbusters. Essentially, these wireless devices transmit a recorded audio narration that explains visual aspects of the movie. This includes describing the setting of each scene, introducing characters, and noting visual actions that are integral to the plot. Think of it as the audiobook version of the movie.

That sounds amazing, doesn't it? Unfortunately, these devices have a history of shortcomings. First and foremost, the devices are not designed with the needs of blind customers in mind. Instead, assisted listening devices and audio transmitters that are designed for sighted people are used. This makes them indistinguishable from other devices. It is common for blind customers to ask for the audio description device and receive the assisted listening device meant for customers who are hard of hearing.

Another common design flaw is a result of the fact that these are wireless devices. Because of that, the signal is not strong throughout the theater. This means that blind customers have to sit in a very specific section of the theater in order to properly hear their audio description. The result can put blind customers in uncomfortable situations. It could be that there are no available seats in the area with the strongest signal. It could be that there are only a few seats available, which results in the blind customer being separated from his or her party. Finally, in film screenings where there are a lot of blind viewers attending, blind customers have to be segregated into their own section of the theater. This happens most often at disability film festivals.

Perhaps the biggest design flaw of these devices is that blind users cannot set them up independently. The devices heavily depend on LED displays that have no audio or tactile feedback. The real-world consequence of this flaw is that employees who do not use these devices often can make mistakes setting them up for the customer. The customer will not find out if the device is properly set up until the movie begins. The only course of action is to leave the movie that has already started and find customer service for assistance. This process is not only frustrating but stressful, as it can prevent the rest of the audience from properly enjoying the movie.

How do we avoid designing these flawed products for the disability community? The answer is simple. Include people with disabilities from day one. Ask yourself, "How many people on the design team are also going to be users?" "Do we have a diverse set of beta testers?" "Have we reached out to the disability community for their feedback throughout the design cycle?" "Have we listened to their feedback?" It's all the basics of good customer service. Because disabled customers are just customers and their money is the same as everyone else's.

http://www.acb.org/adp/tech.html

Walei Sabry is the digital accessibility coordinator for the New York City Mayor's Office for People with Disabilities.

IN MIDAIR AND OVER WATER



Revolutions, both social and technical, always start on a small scale—often from trials and tests, samples, probes, and dry runs. When these experiments are successful, they scale up and grow, which is why we eventually get to know them, and we call them revolutions: because they change everything.

The basic principles of digital design and fabrication have been known since the early 1990s. As Bernard Cache, Greg Lynn, and other pioneers of computational architecture explained back then, parametric scripting and CAD-CAM technologies opened the way to a new universe of variable technical objects, where the same script can generate a

DESIGN AND AGENCY

By Mario Carpo

family of similar but different items, and endless variations can be mass-produced at no extra cost. Mass customization is a complete reversal of all the technical, social, economic, and esthetic tenets of the industrial age. Yet the first forays of digitally driven mass-customized design into commercial production were met by the architectural establishment of the time with dismissive sarcasm: when Greg Lynn first showcased his now famous Alessi Tea and Coffee Tower (2000)—a textbookperfect demonstration of the technical logic of nonstandard production-many remarked that computer-aided design could be good for making fancy trinkets, but would never do for architecture; as a noted historian and critic said back then, buildings ain't teapots. Perhaps not, but today the offices of Zaha Hadid, Frank Gehry, and others use similar technologies to build very valuable real estate, including some of the most costly high-rises in the world; and no one, not even in academia, can laugh them off anymore.

The manufacturing process of choice for the first generation of digital makers was the CNC (Computerized Numerical Control) milling machine—a legacy subtractive technology that drills and carves shapes out of blocks of raw material. The first decade of the twenty-first century saw the development of cheap and affordable 3D-printing machines, which create objects by extruding or otherwise adding layers of material on top of one another—in Michelangelo's terms, not per forza di levare but per via di porre (not by taking away but by adding material; Michelangelo famously favored the subtractive process, which, he argued, raised the sculptor's art above the painter's). In our times, however, the rise of additive replication technologies singularly vindicated all the principles of digital design and manufacturing, and elicited even greater expectations. For this was a technology meant to bypass the modern industrial system altogether: using digital technologies, making more copies of the same product will not make

any of them cheaper; economies of scale do not apply to digitally driven 3D printing. As a result, distributed, local fabrication becomes a viable technical and economic alternative to centralized mass production, and a Fab Lab at the corner of the street (making stuff only when needed, as needed, where needed) can be more efficient, and certainly more environmentally friendly and more socially cohesive, than the most productive and profitable of factories-particularly if factories, as

often happens these days, are built in distant places, thousands of miles away from their markets.

When the 3D-printing revolution started, however, many in the design professions once again retorted that making big buildings is quite unlike making small teapots. For a start, buildings are made of many different materials, some load-bearing, some not. But today's 3D printers can already print high-performance materials, and even different materials and materials

the same structure, which incidentally is going to upend some centuries-old principles of structural design that most engineers still take for granted (and they shouldn't). Until recently, size appeared to pose a more formidable and possibly insurmountable problem. As 3D printing typically occurs inside a printing chamber, 3D-printed objects must be smaller than the machine that prints them. Some designers have tried to circumvent this issue by using bigger and bigger 3D-printing machines (see recent work by Michael Hansmeyer and Benjamin Dillenburger, for example: at the time of this writing, the biggest 3D printers are the size of a small room). Others have argued that even the biggest building is a whole made of many parts, and are developing catalogs of small-size 3D-printed components ready for robotic assembly (Gilles Retsin, Manuel Jimenez Garcia, and Daniel Kohler at the Bartlett School of Architecture; Jose Sanchez at the School of Architecture of USC, Los Angeles; and Gramazio and Kohler at ETH Zurich, among others).

with different performances within

This is where MX3D and Joris Laarman have come up with guite a different solution, less intuitive perhaps and technically more challengingwhich is probably the reason why it was hitherto untested-and which promises to be a game changer. Instead of printing the building (or its parts) inside a machine, they have installed a new generation of printers-welders on robotic arms, and they move the printers around the building as they make it—just the way a team of traditional carpenters would climb on the rafters of a barn as they raise it. MX3D and Joris Laarman print the building out of the box, as they say: in midair. But if robotic printers can climb on the structure they print and use it as the base and scaffolding for further printing, size is no longer a limit for computer-driven, 3D-printed buildingonly the sky is, as the saying goes.

Building without framings or scaffoldings has always been every architect's dream. On the eve of the modern age, Filippo Brunelleschi—a goldsmith by training, a noted eccentric, and a prankster without any architectural expertise-was commissioned to build



04

the dome of the Cathedral of Florence because he claimed he could do so without using centering. To this day, we don't know how he did it, but he carried it off pretty well. And if the Renaissance turned out to be more than just another revival of antiquity, we also owe it to the technical self-confidence and creative optimism that Brunelleschi's exploit revealed and infused into the culture of early humanism. A bridge on an Amsterdam canal is likely to be a tad less conspicuous than the dome of the Cathedral of Florence—but it is fairly visible all the same. Again, revolutions always start on a small scale.

Mario Carpo, theorist and critic, is the Reyner Banham Professor of Architectural History and Theory, The Bartlett, University College London. He is the author of Architecture in the Age of Printing: Orality, Writing, Typography, and Printed Images in the History of Architectural Theory and The Alphabet and the Algorithm, and other books. Carpo is currently the Vincent Scully Visiting Professor of Architectural History at Yale University.



Joris Laarman Lab: Design in the Digital



Visualization of stress lines, MX3D Bridge; Courtesy of Joris Laarman Lab

02

Coffee and Tea Towers designed by Greg Lynn for Alessi, 2000

03

Cross-sectional drawing of Filippo Brunelleschi's design for the dome of Santa Maria del Fiore Cathedral in Florence, Italy, by Lodovico Cardi da Cigoli (1559-1613)

Rendering, MX3D Bridge in the MX3D workshop; Photo courtesy of Joris Laarman Lab

Marker for MX3D App

Joris Laarman Lab: Design in the Digital Age is organized by Cooper Hewitt, Smithsonian Design Museum and the Groninger Museum, the Netherlands. It is curated by Mark Wilson. Chief Curator and Sue-an van der Zijpp, Curator of Contemporary Art and Design, at the Groninger Museum and Andrea Lipps, Assistant Curator of Contemporary Design at Cooper Hewitt.

Joris Laarman Lab: Design in the Digital Age is made possible by the generous support of Amita and Purnendu Chatterjee and the May and Samuel Rudin Family Foundation, Inc. Support is also provided by the Ehrenkranz Fund, the Dutch Culture USA program of the Consulate General of the Netherlands in New York The Iwata Family Foundation, Tory Burch, Kim and Al Eiber, and the Creative Industries Fund NL

Age is on view through January 15, 2018.



05

DOWNLOAD MX3D BRIDGE APP

Enjoy an augmented reality experience of Joris Laarman Lab's MX3D bridge. Zoom in and out and move around the bridge for a 360-degree view of its design.

iPhone and Android users:

download the app from iTunes or Google Play and use figure 05 as your marker for exploring the bridge.



THE AXIS PROJECT: DESIGNING FOR WELLNESS

THE AXIS PROJECT:

DESIGNING FOR WELLNESS

By Tara Accetta and Alex Elegudin

The Axis Project is a multidisciplinary center committed to providing highquality services for those with physical disabilities. We founded the Axis Project with the concept of counteracting the lack of health and wellness facilities for those with disabilities, while simultaneously aiming to foster an individual's independence. As a firstof-its-kind facility, the Axis Project fills a new and unique role, replacing a hospital or outpatient environment with a community-based setting that empowers an individual to lead an active, fulfilling life.

Individuals with disabilities make up the largest minority group in the United States. Nearly one in five people have a disability in the U.S., the equivalent of about 56.7 million people—19 percent of our nation's population. In the U.S., 25.6 percent of people with a disability are physically inactive during the week, compared to 12.8 percent of those without a disability. There is an imperative need for people with disabilities to engage in a healthy lifestyle-not only for their physical health, but for their spiritual and emotional well-being. With proper assistance in achieving holistic wellness, people with disabilities are more motivated to pursue an education, strive for job opportunities, and, importantly, become active members in their community. Unfortunately, in New York City, accessible gyms are few and far between; this is even more true for gyms with a knowledge tailored to assist our community. Knowing that, we knew we needed to create our own space to foster our vision. We had to start from scratch to even think of what this kind of space would look like. Although accessibility is codified in some ways by law, it's really a subjective concept from a user perspective. We knew we needed a large open space that had groundfloor access, since neither a lift nor an

elevator would be able to accommodate the consistent daily traffic of dozens of wheelchair users.

Aside from the challenges of finding a location, we needed to find a place that was willing to take a chance on us—a nonprofit with a new, unproven idea. We eventually found a 7,500square-foot space that housed a social adult day program in Harlem that was underutilized in the afternoons. The space was intended for use by senior citizens; there were elements, such as immovable tables and chairs, as well as very narrow pathways, which would prove obstructive. The space had a lot of small activity rooms located next to one another, all too small and impractical for wheelchair users. We had to make some modest structural changes to the space, including taking down walls within the smaller rooms to make the rooms larger and replacing permanent chairs and tables with ones that were foldable and easy to move to create wider passageways.

We identified a 750-square-foot room to be our gym to hold fitness exercises for members. To conserve space that would allow wheelchair users to navigate around one another, we not only kept our equipment close







to the walls but also we transformed the walls themselves into workout stations by attaching anchors and various pulleys to them. Further, we were able to attach a ceiling lift that made transferring from a wheelchair a lot easier for our members. Our main space is 4,000 square feet and is our most dynamic because it serves various different purposes, but is best suited for group-based activities. It was imperative that the equipment for group activities be portable, for example Krank Cycles on wheels and movable therapy mats. Members truly love the classes we offer. Whether it is a standing class or a Krank Cycle spin class comparable to SoulCycle, we show that wheelchairs don't stop our members.

Social engagement and peer-to-peer support are major goals of the Axis Project. Thus we needed a space where members could converse without being distracted by the activities going on around them. Creating separate areas for activities was difficult with our space constraints, but we managed by using movable walls and designating some areas for semi—private socializing. We also allow the front area



to serve as a "hangout" space—special events and parties are a big part of our programming.

After successfully operating for two years and receiving great feedback, we knew it was time to expand. Our place in Harlem was great, but the space was far away from large demographics of members from Brooklyn and Queens, so we wanted a more localized area for them that was easier to access. We never expected to find a place that was ideally accessible right off the bat, just hoped that the space didn't have structural barriers that would hinder us from implementing our vision of accessibility. Unfortunately, due to the gentrification going on in Brooklyn, we were priced out of many of the available properties that were priced for retail use and not as community spaces. This required us to go deeper into Brooklyn to find a suitable location. One of the challenges with many of the spaces was their being a part of new multi-story developments and having many structural columns that often protruded into the space itself and had a narrowing and obtrusive effect for accessibility. However, after months of

searching, we found an 11,000-squarefoot lot that had an 8,000-square-foot single-story building on it. The property was formerly a catering hall and had beautiful high ceilings and a unique interior courtyard, and provided the spacious layout we needed to fulfill our vision.

The new Brooklyn location allows wheelchair users to unapologetically roll through the space, while simultaneously having access to all the different activities available to them. The new gym space has general exercise equipment with slight modifications, so whether you are a person with a physical disability or completely able-bodied it is the perfect fitness center for you. We believe that a space that serves the able-bodied population and those with disabilities cohesively is the most integrated ideal setting. And soon, we plan to serve seniors at our Brooklyn location as well. The Axis Project is a place that has been designed to help users become their best selves.

Tara Accetta is pursuing an MSEd at Brooklyn College and is an up-and-coming advocate in the disability community.

Alex Elegudin co-founded Wheeling Forward in 2011 to help persons with disabilities get the support and resources they need to lead active lives. He is an attorney and advocate on disability issues.

N1

A member performing a battle ropes workout.

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Participating in a Zumba class at Axis.

3

The Axis Project 1st Anniversary Celebration

04

A boxing class at the Axis Project

DRAWING BY TOUCH

DRAWING BY TOUCH



By Steve Landau

As a company of designers and producers of tactile maps and models, Touch Graphics, Inc. usually focuses on products that communicate spatial information through the sense of touch for use by visually impaired students and museum visitors. Occasionally, the company develops tools to support blind artists and scientists. One of our recent explorations involves a collaborative project with a practicing sculptor, Emilie Gossiaux, who explores new modes of self-expression through touch. The result of this experimentation is a large rubber drawing board, a simple device that provides real-time tactile feedback as you draw. The role of vision in figure drawing is easy to demonstrate: if you close your eyes or put on a blindfold and then try to draw a picture of your dog, for example, the results will probably be unrecognizable. Drawing a good likeness requires visual feedback: you have to see the line as it is being drawn, so that you can continually correct your movements to achieve the desired result. Without vision we have no way to perceive lines as we make them, and no way to experience the picture as a whole.

HN M KENNEDS

Drawing

he Blinc

A TACTILE DRAWING BOARD

A person can learn to draw without seeing, by replacing visual perceptions with tactile feedback. In pioneering experiments in the 1970s, psychologist John Kennedy at the University of Toronto taught adults who had never had sight before how to draw using a rubber mat placed under a sheet of drawing paper. Their pencils created raised furrows in the paper as they pressed down into the resilient surface, and the artists could feel these furrows with one hand as they drew with the other hand. When they weren't drawing, they were using both hands to scan the emerging tactile composition, so they could comprehend and plan the overall picture, placing each new mark in the right location to create simple, recognizable figures.

A POWER USER

Sculptor Emilie Gossiaux, who has no light perception after a bike accident seven years ago, uses a tactile drawing board like the one in the earlier study to sketch and illustrate ideas about her artworks. After years of practice, the experience feels to her like visual drawing, which is not surprising, since fMRI studies at Harvard in the 1990s showed the same parts of the brain lighting up during both activities. Gossiaux's pictorial explorations using this simple tool are pushing the boundaries of tactile portraiture, showing us a new level of expressiveness and mastery of this form of sensory substitution.

DESIGN OF TOOLS

To achieve these results. Gossiaux experiments with different surfaces, styli, and paper to optimize the tactile drawing experience and find the "sweet spot," in which she receives the most accurate tactile information, capturing not only the placement of lines, but also visual characteristics like darkness or thickness Pressing a little harder with the stylus should result in a barely perceptibly higher raised line; this requires a rubber pad with just the right resiliency, and paper that stretches a bit but does not rip when you really bear down. A good analogy is a singer who listens to herself through the highestquality headphones during recording sessions: the more precisely she can hear herself, the more accurate and steady her pitch and timbre.





TACTILE MINDFULNESS

While Gossiaux's work reveals exceptional artistry and skill, probably anyone with good fingertip sensitivity can learn to use the tactile drawing board to make simple figures. The key to developing these abilities is temporary or permanent lack of vision. Just putting on a blindfold causes us to switch our focus from vision to touch, bringing tactile sensations to the perceptual foreground. Because vision is effortless, operates at a distance, and can take in an entire scene at once. it always supplants touch as the dominant sense. Sighted people can learn tactile mindfulness with training, but as soon as their blindfold is removed, vision takes over and their newly acquired tactile skill will probably start to fade.

MASTERY

But for those living without vision for many years, tactile ability can become

highly refined through constant use and the absence of visual distractions. The tactile drawing board is a low cost, low tech, portable tool for non-visual selfexpression and communication that builds tactile mindfulness through its continued use, leading to some extraordinary artistic accomplishments, and highly developed manual skills that probably carry over into every aspect of the artist's life. As with any skill, the key to achieving mastery appears to be intensive practice and access to appropriate tools, adapted to one's specific needs and preferences.

01

Emilie Gossiaux holds up her sketch of her guide dog, London, as London pokes her nose up into the photo, bottom right. Emilie used the Blackboard tactile drawing board from Sensational Books (sensationalbooks.com).

02

John Kennedy's *Drawing & the Blind* book cover showing simple side views of a person lying down, a cat, a dog, and a horse. These sketches were made by a blind student using the rubber-mat method of tactile drawing.

03

Mom and Dad, tactile portrait by Emilie Gossiaux. Ballpoint pen on copy paper, 2017

04

Still image from a video of Emilie Gossiaux demonstrating the tactile drawing board in her studio. She holds the pencil in one hand and feels the lines she is making with the other hand.

Steven Landau is the president of Touch Graphics, a company he founded in 1998 that aims to refine and commercialize methods for tactile graphics production. **DESIGN PULSE: EMPOWERMEN**

DESIGN PULSE: EMPOWERMENT

What can design do to empower people with disabilities? Voices from the field provide a range of viewpoints.

ERIC KONDO Entrepreneur, father, wheelchair skateboarder



Every person is a reservoir of potential energy and future accomplishment. Over thirty years ago, I had a motorcycle accident that made me a wheelchair user. In my house, I have a wheelchair from the era of Theodore Roosevelt, which serves as a constant reminder to me of how important design has been in my own life. I have benefited greatly, as have others, from the continuous evolution of thoughtfully designed and manufactured adaptive equipment. Design is

not just about aesthetics, it can be freeing.

https://www.facebook.com/Wheelchairboarding

JED A. LEVINE

Executive Vice President, Director of Programs and Services, CaringKind

For individuals with Alzheimer's and other dementias, good design has the power to provide comfort, and support their independence and autonomy as long as possible, thus empowering the affected individual to be more fully who they are. When persons with dementia do well, caregivers also benefit, experiencing less stress.



GRAHAM PULLIN

Designer, academic at the University of Dundee and author of Design Meets Disability



Design can reflect and even influence attitudes toward disability. So why am I reluctant to adopt the word empowerment? Perhaps it is the transformation implied of overcoming disability, when disabled people I know reject this expectation. Perhaps it's just the tone of voice: EMPOWERMENT in block capitals. Disability-related design can be deliberately unremarkable where this is appropriate, yet without being in any way apologetic. Disability, like design, can be part of the fabric of everyday life, beyond triumph or tragedy.

I can't think of anything less empowering than writing about EMPOWERMENT. It is not empowering to be the object of someone else's good deed. Even the phrase "design for disability" implies that something has been done for us, rather than with us or by us. We're more than our bodies and experiences. We have thoughts and ideas, too. The design world must trust the expertise of disabled people: we're more than just your inspiration. Disability ingenuity is the future of this design movement and it's about time we start getting some credit. I believe the expectation of choice will ensure that our designs rather than our bodies will become the focus of critique. And perhaps through this process, disabled people will feel empowered to become designers, because design needs more than our experiences. It needs our ideas.

SINA BAHRAM

Accessibility consultant, researcher, and entrepreneur and founder of Prime Access Consulting

It is important for us to distinguish between universal design, inclusive design, and accessibility. Universal design is the



act of considering all audiences, or as many as we can, at the beginning of a project, and iterating upon this consideration until we arrive at a solution that is usable by far more people than if we had not taken such a design tact. Inclusive design is a newer term, used by many contemporary designers and advocates. While "universal" implies a potentially unattainable burden for designers and developers, "inclusive" is an invitation. It's warm, and it aligns with most peoples' basic values. We include our friends, our loved ones, and so on. Inclusive design recognizes that people have multiple forms of identity and difference, including age, ability, language fluency, socioeconomic status, cultural background, and so on. Accounting for those differences doesn't mean making everyone the same.

COOPER HEWITT LAB: DESIGN ACCESS



Cooper Hewitt Lab: Design Access will activate the museum's 6000-square-foot Barbara and Morton Mandel Design Gallery with programming, activities, workshops, and events focusing on accessibility and design for visitors of all ages and communities February 2–16, 2018.

ACCESS DESIGN TEEN PROGRAM

COLUMBIA UNIVERSITY DIGITAL STORYTELLING LAB DESIGN AND STORYTELLING SALON: VERBAL DESCRIPTIONS

DESIGNING ACCESSIBLE CITIES SYMPOSIUM

COLLEGE ACCESSIBILITY PROJECT OPEN CALL WITH PANEL CRITIQUE

CREATIVE GROWTH HANDS-ON RUG-MAKING WORKSHOP

MUSEUM ACCESS CONSORTIUM UNIVERSAL DESIGN WORKSHOP

MARK MORRIS DANCE FOR PARKINSON'S PROGRAM

ACCESSIBILITY HACKATHON WITH GOOGLE CLOUD MACHINE LEARNING APIS

ACCESS+ ABILITY

This exhibition (December 15, 2017–September 3, 2018) features objects and services—developed over the past decade—with and by people with physical, cognitive, and sensory disabilities seeking to expand accessibility and inclusion for all users.

Mayor's Office for People with Disabilities

Cooper Hewitt Lab: Design Access and Access+Ability will be presented in partnership with New York City Mayor's Office for People with Disabilities. The collaboration contributes to Cooper Hewitt's greater, ongoing efforts to broaden access to its campus, exhibitions, programs, and online presence. We invite you to share your thoughts on our Access+Ability blog: cooperhewitt.org/channel/access-ability/.

SUSAN GRANT LEWIN INTERVIEW: RARE AND RADICAL JEWELRY



Susan Grant Lewin bestowed a rare gift to Cooper Hewitt that includes 150 brooches, necklaces, bracelets, and rings, and traces radical developments in jewelry from the mid-twentieth century to the present. Lewin's gift significantly expands the range and depth of Cooper Hewitt's jewelry holdings to encompass the inventive approach of the studio jewelry movement and the impact of later groundbreaking conceptual and materials-driven contemporary jewelry design. Lewin talks here with Cooper Hewitt about the story behind her collection, which is now on view in **Jewelry of Ideas: Gifts from the Susan Grant Lewin Collection** through May 28, 2018.



COOPER HEWITT: What is your background and how did you land in the design world?

SUSAN: Art, architecture, and design have always been my passion. I was a fine arts major with a focus on architecture and design at the University of Pennsylvania, and went on to New York School of Interior Design. I began working at Fairchild publications, then Hearst magazines writing about interior design and furniture. I became creative director at Formica Corporation, and then founded my own art and architecture public relations company.

CH: When did you develop an interest in contemporary jewelry?

SGL: It was by chance that my professional interests led me to become a contemporary jewelry collector. The first event that opened my eyes to this world of contemporary jewelry was in Copenhagen. While still working as a journalist, I traveled frequently to Denmark to write about furniture. It was in Copenhagen that I fell in love with the work of Vivianna Torun Bülow-Hübe. That was the beginning! I just loved it. The other influence that got me into collecting in the '80s was Mickie Friedman at the Walker Art Center. As the creative director at Formica Corporation, I was determined to bring "culture" to the commercial manufacturer with an arts program that included lecture series, museum exhibitions, scholarships for design students, etc. As part of









the program, I organized a design competition with the goal to suggest innovative uses for a new material. Titled "Surface and Ornament," The New York *Times* called the resulting exhibition "the benchmark of design competitions." One of the most celebrated pieces I commissioned while at Formica was Frank Gehry's Fish in ColorCore. That work was included in Gehry's 1986 retrospective at the Walker Arts Center in Minneapolis. I worked closely with Design Curator Mickey Friedman who'd always admired my jewelry. She ended up inviting me to buy jewelry for the Walker. This gave me the opportunity to travel across the United States and visit the most important contemporary jewelers' studios—and, in the process, build my own collection.

CH: And did you start collecting then?

SGL: Yes. but I didn't think of it as collecting. I thought of it as buying and shopping at first, always gravitating to hear the stories of these designers. I sought out works that were not about

wealth or sentiment; they were about ideas and concepts. The jewelry in the collection is often abstract or non-objective and includes jewelers whose work advanced the field. I built a collection with a pantheon of jewelers, representative of the absolute best makers and designers working in jewelry across the world.

CH: How do you describe your tastes and choices in contemporary jewelry?

SGL: I have to say it's very hard to put my taste into a box. I would definitely say that I'm much more into abstract geometric pieces, gravitating to works like Thomes Gentille's. But then again, I like Iris Eichenberg and her work is extremely feminist. I became a major proponent of contemporary American jewelry, which was not as well regarded as its European counterpart at the time. In order to champion American jewelers, I wrote a book on the subject, One of a Kind: American Art Jewelry Today (1994). My collecting was driven by

experimentation.

CH: What are some of the new directions you see contemporary jewelry taking?

SGL: That's definitely technology and 3D printing. And that is represented in the exhibition [Jewelry of Ideas]. I have donated 150 pieces from my collection to Cooper Hewitt so we can tell the story of these groundbreaking works. I feel I am acting as a conduit for these pieces. This work will now be available to a wider audience and expertly preserved for future audiences.

01

Black Sectional Necklace from the Islet Series (Philadelphia, Pennsylvania, USA), 2011; Doug Bucci (American, b. 1971); 3D-printed glass-filled nylon, sterling silver; 5.4 x 36 cm (2 1/2 x 14 3/16 in.); Promised gift of the Susan Grant Lewin Collection

02 Portrait of Susan Grant Lewin

03

NOT TITLED 7 Brooch (USA), Twentieth century; Thomas Gentille, American, b. 1936, Bronze, goldfindings; $7.5 \times 6.8 \times 1 \text{ cm} (2^{15}/_{16} \times 2^{11}/_{16} \times 3^{\circ}/_{16} \text{ in.})$ (part a), 5.5 × 1.9 × 1 cm (2 ³/₁₆ × ³/₄ × ³/₈ in.) (part b); The Susan Grant Lewin Collection, Cooper Hewitt, Smithsonian Design Museum, 2016-34-38-a,b

04

NOT TITLED Brooch (DeMarco Series) (USA), Twentieth century: Thomas Gentille, American, b. 1936; Bronze, gold, industrial paint; Diam x D.: 7×0.6 cm ($2\frac{3}{4} \times \frac{1}{4}$ in.): The Susan Grant Lewin Collection, Cooper Hewitt, Smithsonian Design Museum, 2016-34-37

05

Fish Lamp (First Generation) produced by New City Editions, (Los Angeles, California, USA), 1984; Frank Gehry (American, b. 1929); Colorcore, wire, wood; 38 x 48 x 26; Image Courtesy of Gehry Partners IIP

Jewelry of Ideas: Gifts from the Susan Grant Lewin Collection is made possible in part by the Rotasa Fund, the Society of North American Goldsmiths (SNAG), Gallery Loupe, Sienna Patti, William P. Short III, in memory of Nancy Jean Fulon Short, Helen W. Drutt English, Kim and Al Eiber, and Ornamentum Gallery.

PLANNED GIVING AT COOPER HEWITT

Residents of Caswell County, North Carolina, designers Robert Black and Ormond Sanderson have always tried to live by the ideal of "making everything in your life beautiful and well functioning." As the couple plans their legacy, they are eager to share this philosophy with others. "Having spent a lifetime promoting these ideals," says Black, "we wish to encourage others to appreciate the value and satisfaction that can be achieved by being exposed to well-designed objects." Of course, Black and Sanderson see Cooper Hewitt as the place to make that happen.

The couple met in the late 1950s while teaching at Atlantic Christian College in North Carolina. The two shared a passion for arts and crafts, and soon decided to open a store and sell their own pottery, enamels, and paintings. Converting a family property, they developed Straw Valley outside of Durham. They built their own equipment, designed additional merchandising, and as their business grew, even designed the buildings for their stores, studios, and residence. Over time they expanded to include contemporary furniture, accessory lines, and a wide range of merchandise and artistic productions from notable designers. The campus became an eclectic epicenter in North Carolina, as they enthusiastically welcomed visitors to learn about great design.

Recently the couple generously supported Cooper Hewitt with a charitable gift annuity. A gift like Black and Sanderson's provides the donor with regular fixed payments and a charitable tax deduction, and the museum with a vital source of future support for its programs. "And of course if you don't need the payments from the annuity" explains Black, "you can use them to make additional contributions to an organization you admire." By design, a gift annuity is a gift that continues to give.

When you support Cooper Hewitt with a planned gift, you also enjoy lifetime membership in the Cooper Hewitt Legacy Society as well as the Smithsonian-wide Legacy Society, with invitations to special



J. ORMOND SANDERSON, JR.



events and programs at Cooper Hewitt and the Annual Smithsonian Members' Weekend in Washington, D.C.

"Planned gifts like these help the museum organize for its future, and greatly contribute to its overall financial health." says Julie Barnes, Associate Director for Strategic Development at Cooper Hewitt. Black and Sanderson's gift will support a wide range of museum efforts, from cutting-edge exhibitions to innovative education programs.

The couple believes that "good design adds quality to life," and Cooper Hewitt could not agree more. We are grateful to Black and Sanderson—and all of our donors—for their generosity and for helping us educate, inspire, and empower people through design.

To learn more about planned giving opportunities, and other ways to support Cooper Hewitt, please contact CHLegacySociety@si.edu or 212.849.8322

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Racing Wheelchair, 2016; Designed and Manufactured by Designworks Los Angeles Studio (Newbury Park, California, USA, founded 1972) and Bavarian Motor Works (BMW) (Munich, Bavaria, Germany, founded 1916); Carbon fiber, aluminum, titanium, and 3D-printed parts; Photo courtesy of Designworks Los Angeles

On view in Access+Ability through September 3, 2018.

COVER IMAGES (FRONT AND BACK)

Dot Watch, 2017; Dot Incorporation (Seoul, South Korea, founded 2014); Designed by cloudandco (Seoul, Korea, founded 2010); Creative Director: Yeongkyu Yoo (Korean, b. 1971); Industrial Design: Yeongkyu Yoo, Kihwan Joo, Youngwoo Choi, Jaesung Joo; Graphic Design: Yeongkyu Yoo, Nara Ok; Concept Editor: Michelle JY Park; Anodized aluminum case, gyroscope, touch sensors, wireless MCU platform, leather; Watch: 4.3 × 1.25 cm diam. (1 ¹¹/₁₆ × ¹/₂ in.); Courtesy of Dot Incorporation.

On view in *The Senses: Design Beyond Vision* (April 13, 2018–October 22, 2018.)





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Design Journal, Number Seven, Winter 2017 Published by Cooper Hewitt, Smithsonian Design Museum 2 East 91st Street New York, NY 10128-0669 cooperhewitt.org

Design Journal is printed on FSC-certified recycled paper.

Graphic Design: Ann Sunwoo Project Manager: Pamela Horn, Director of Cross-Platform Publishing and Strategic Partnerships © 2017 Cooper Hewitt, Smithsonian Design Museum. All rights reserved.

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