Design and Violence

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The Museum of Modern Art, New York

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Foreword

This book represents the culmination of a pioneering curatorial experiment at The Museum of Modern Art exploring the intersection of contemporary design and violence in its myriad forms. Born first as an online platform, and then as a series of public debates, *Design and Violence*, organized by Paola Antonelli and Jamer Hunt, examines the ways in which violence manifests in the post-2001 landscape and asks what makes these manifestations unique to their era. The project is not only emblematic of our contemporary moment; its unusual format and challenging, provocative content test the boundaries of traditional exhibition making and represent a paradigm shift at the Museum.

Today, humankind enjoys better health, longer life spans, and greater access to material goods than ever before. Connecting to friends and strangers across both short and vast distances has likewise never been easier. The field of design, whether through applied medicine or mechanical engineering or computer science, has helped to propel these advances. As such, design has been rightfully trumpeted as a force for good, a facet of creative production that touches all of our lives.

Yet, this narrative, albeit comforting and easy to digest, troubles in its simplicity. Throughout history, design has both perpetuated and mediated violence, giving rise to tools that harm, control, manipulate, and annihilate—from the simple, handheld weapons of ancestral times to the undetectable, self-propagating computer malware of contemporary ones. The potential violence wrought by these tools is compounded by systemic power imbalances and their reification in our bureaucratic, social, and economic structures. It is the reexamination of this omnipresent yet shadowy narrative that drives the investigation at the heart of *Design and Violence*.

Over the last decade, several of the Museum's design exhibitions, including *Safe: Design Takes on Risk* (2005), *Design and the Elastic Mind* (2008), and *Talk to Me* (2011), have staked the claim that design encompasses not only tangible objects but also information architectures, user interfaces, and communications protocol. *Design and Violence* is born of this legacy, engaging with graphic, industrial, speculative, and architectural design, among other forms. The essays in this book, commissioned from a roster of talented writers, activists, and scholars, cast a suitably wide net. Among the various objects considered, some are designed to propagate violence, others to subvert it; mass-produced plastic handcuffs used by law enforcement and spray bottles repurposed as protest tools succinctly illustrate the two poles on this spectrum. Still other ideas presented in these pages animate violence in order to condemn it, such as the roller coaster designed to induce euphoria at the same time that it euthanizes its passengers. The terror evoked by guns and by prison architecture may be palpable and incontestable; but as with interface designs that engage with political lies or that celebrate the fraught processes of natural selection,

violence can also present in subtle and ambiguous ways, empowering and disempowering simultaneously.

Since its inception in 1932, the Department of Architecture and Design has provided a platform for groundbreaking exhibitions and projects. *Design and Violence,* insofar as it bravely charts novel territory, represents yet another example of the department's ambition. The design concepts in this volume often provoke discomfort, not only because they cast a harsh light on contemporary humankind—for whom death, destruction, and the deliberate infliction of harm are by no means unfamiliar—but also because they bring into relief our own often unwitting, and sometimes willing, complicity in the field's darker recesses. The Museum is proud to support this project as part of its commitment to facilitating engagement with a broad cross section of contemporary art, architecture, and design discourses, no matter how challenging they may be. *Design and Violence* does not always make for easy reading, but the dialogue it provokes should not be shied away from.

Glenn D. Lowry
Director, The Museum of Modern Art

Design and Violence

In violence we forget who we are.
—Mary McCarthy[1]

In 2011, acclaimed scholar Steven Pinker published *The Better Angels of Our Nature: Why Violence Has Declined*, a commanding attempt to correct what he sees as a widespread misconception: that the world is more violent today than ever before.[2] On the contrary, Pinker argues, violence has for centuries been on an evident decline. Perhaps intuiting the knee-jerk skepticism of future readers, he mounts an exhaustive defense, patiently and convincingly steering his argument through reams of data and mountains of statistical evidence.

Pinker's argument is undoubtedly seductive. Certainly, public executions, once a widespread form of punishment, are no longer as prevalent. Nor is, for example, legal impunity toward the killing of wives. We have undeniably curbed some of our instinctual tendencies toward brutality. Yet what if violence were merely mutating rather than disappearing? What to make of the fact that in the United States African American males are six times more likely to go to prison than white males (despite comprising a much smaller proportion of the overall population); and that, if trends continue, one in every three black American males will face incarceration in his lifetime?[3] Or that, because of our thirst for fossil fuels and our appetite for material possessions, the temperature of the planet is rising, possibly irrecoverably, to dangerous new highs, launching us on a course toward new conflicts? How, in other words, do we even begin to explore the unanticipated consequences of our collective actions? These may take subtler, less measurable forms, but they are violence nonetheless.

Not only does violence appear to be morphing, but how we experience, perceive, and assess it is also shifting. Since at least the 1960s (and more likely as far back as the abolitionist and suffragette movements of the nineteenth and early twentieth centuries), minority-, gay-, and disability-rights struggles, along with feminist and anticolonialist ones, have each illuminated the pernicious ways in which unequal access to basic human rights such as education, employment, and housing are themselves insidious forms of violence. Phrases such as "stick it to the Man" emerged as fierce pushback against assaults by big business, paternalistic government, and conformist institutions. In her treatise *On Violence*, Hannah Arendt diagnosed this inability "to localize responsibility and to identify the enemy" as a kind of tyranny, calling it "among the most potent causes of the worldwide rebellious unrest," and highlighting "its chaotic nature, and its dangerous tendency to get out of control and run amuck."[4] Protesters in the 1960s and 1970s, from Parisian students to the Black Panthers, from punks to the Sanbabilini,[5] conjured threats and acts of violence both as catharsis and as confrontation. Pinker refers to the loose grouping of movements that rose up

against these polymorphous forms of discrimination as the "rights struggles." And while he credits these struggles with redefining violence as we know it, his argument does not extend far enough to convincingly account for the impact of such violence on those forced to contend with it day in and day out.[6]

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Where there is transformation, there is design: indeed, the reshaping of everyday experience is at the core of the designer's work. Whether under the guise of urban renewal or the cliché of disruptive innovation, designers—of buildings, infrastructures, garments, products, graphics, interfaces, and even experiences— have often played invisible or ambiguous roles, reconfiguring everything from our ecosystems to our moral philosophies to our ways of life. Traditionally designers have set out to better society, their objectives ranging from the quotidian (spoons) to the autocratic (cities).[7] Yet at times they may find it all too easy to overstep, indulge in temptation, or succumb to the dark side of a moral dilemma; they may also simply err. With characteristic polemics and drama, design activist Victor Papanek thundered in 1971, "There are professions more harmful than industrial design, but only a very few of them."[8] From the Three Gorges Dam to the Cross-Bronx Expressway, from police batons to high-heeled shoes, designers often generate forms for social, psychological, and material violence.

Nevertheless, within the profession, voices that trumpet design's commercial and aesthetic successes have dominated. Design's history of violence, unless linked overtly to political and social suppression, too often goes unexplored. How is it possible, for example, that Mikhail Kalashnikov, designer of the AK-47 assault rifle, now considered the most widely adopted firearm in the world (and used by armed forces in more than eighty countries), could naively reflect in his later years, "My spiritual pain is unbearable. . . . If my rifle claimed people's lives, then can it be that I . . . a Christian and an Orthodox believer, was to blame for their deaths?"[9] Turning a blind eye to the depth of design's complicity in destroying as much as (or more than) it creates, our profession has been institutionally incapable of gauging the full extent of its impact. *Design and Violence* confronts this head-on. It considers the manifestations of violence in contemporary society through the lens of design, contemplating the ambiguous relationships between creation, destruction, and everyday experience.

Launched in 2013 as an online curatorial experiment, *Design and Violence* features controversial, provocative, and compelling projects that raise unsettling questions about designers and their complicity in violence. Each week, over the course of a year and a half, we invited one author to respond in writing to a selected design (occasionally contributions have included illustration, animation, and even sound art). We then published the encounter online, alongside a leading question that distills issues raised in the author's response, and invited the public to respond. In doing so, we opened a space for comment, reflection, and active (sometimes fierce) debate. As designers and curators we aspired to challenge ourselves and a wider community to consider whether and how contemporary violence has mutated, as well as the role of design in engendering these new forms—or not.

Violence evades easy definition primarily because the term accommodates so many configurations, spanning the symbolic and the real, the individual and the collective. As we define it for this project, violence is a manifestation of the

power to alter the circumstances around us, against the will of others and to their detriment. In its various guises, violence tempts us all. Once more we invoke Arendt, for whom power belongs to the order of politics and manifests only in the aggregation of people and political agency. Violence, on the other hand, is of a completely different order. She writes, "Violence, we must remember, does not depend on numbers or opinion but on implements, and the implements of violence share with all other tools that they increase and multiply human strength. Those who oppose violence with mere power will soon find out that they are confronted not with men but with men's artifacts, whose inhumanity and destructive effectiveness increase in proportion to the distance that separates the opponents."[10]

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With few exceptions, *Design and Violence* focuses on the myriad ways violence has manifested since 2001, a watershed moment in the American collective experience and a traumatic one for the world. September 11, 2001, was a turning point in the socio-technical construction of violence; it is for this reason that we situate this project in the years since this cataclysm. Two related and equally tectonic shifts make a contemporary exploration of design and violence since 2001 particularly revealing: the dematerialization of the means of warfare, from clubs, knives, guns, and bombs to propaganda, counterinsurgency, and cyberwarfare; and the shift from symmetric, nation-based war strategies to asymmetric, decentralized ones.

In the wake of the attacks of September 11, 2001, the U.S. government under George W. Bush launched a global "war on terror." Rooted in political pretzel logic, the war rationalized an all-out assault on whomever, whenever, and for whatever reasons. The approach has also redefined war as we know it, entailing not a collision of nation-states or superpowers, their battalions waging attacks in fields, skies, and oceans, but rather a continuous struggle to root out an enemy that is everywhere and nowhere: the caves of Afghanistan; the religious centers of London; the jogging path of the Buttes-Chaumont park in Paris; or the tract homes of suburban New Jersey. The government also rewrote the rules of engagement: "enhanced interrogation techniques," the usurpation of sovereign airspace, remote-controlled drone attacks, and targeted assassination have revived torture and tossed aside the Geneva Conventions. With no easily defined enemy or endgame, the conflict may never end.

Much of the post-9/11 havoc came about because "terror's" earliest incarnation in the United States' collective imaginary, Al Qaeda, presented a new form of opponent: stateless, distributed, decentralized, and highly networked. For a conventional military power, there were no longer borders to cross, territories to seize, or populations to pacify. A 1996 Rand Corporation monograph, *The Advent of Netwar*, foresaw as a consequence of the information revolution's networked organization a shift toward decentralized, amorphous, and diffuse forms of conflict. The term "netwar" depicts "societal conflict and crime, short of war, in which the antagonists are organized more as sprawling, leaderless networks than as tight-knit hierarchies."[11] The Rand researchers suggested that netwar capabilities were being developed by terrorists, criminals, fundamentalists, ethno-nationalists, revolutionaries, and militant radicals alike, with new doctrines, strategies, and technologies emphasizing networked forms of organization.

"Netwar may be the dominant mode of societal conflict in the 21st century," they concluded.[12] Nonstate combatants integrating network theory reveal that asymmetrical strategies can confound much more powerful, albeit lumbering adversaries.

The U.S. and NATO occupations of Iraq and Afghanistan following 9/11 also rewrote the terms of combat. With overwhelming force no longer the objective—it would only further destroy Afghanistan's social and political infrastructure—a different tactic was in order: "Protracted popular war is best countered by winning the 'hearts and minds' of the populace," reads the 2006 *U.S. Army/Marine Corps Counterinsurgency Field Manual*.[13] The shift in strategy from overwhelming force to counterinsurgency means that foot soldiers today act more like anthropologists and less like combatants. Their aim (apart from their own survival in a combat zone) is social and political accommodation, not military conquest. These changes in strategy are redefining violence and force as we know them. Mass armed warfare begins to look more like violence in its everyday guises: insidious, invisible, and immaterial.

As further evidence of the quicksilver nature of warfare, in 2005 the U.S. Air Force adapted its mission statement to include, along with air and space, a new dimension of control: cyberspace.[14] Increasingly, it seems, the terms of warfare, espionage, and conflict are played out via immaterial electrons circulating across information networks and not in our material world of bludgeons, bullets, and bodies. The precipitous rise of cybercrime, cyberterror, and cyberwarfare in the twenty-first century assumes forms such as malware, viruses, worms, distributed-denial-of-service (DDoS) attacks, and massive, state-sponsored information offensives. In 2010, for example, the U.S. government, in partnership with Israel, crippled centrifuges at the Natanz nuclear enrichment facility in Iran by unleashing the devious computer worm Stuxnet (p. 22), its sole objective to make the facility's centrifuges spin out of control and effectively destroy themselves (neither government has admitted its involvement).

DDoS attacks incapacitate target websites by directing to them high volumes of network traffic. The tactic has existed since the mid-1990s, but was popularized in recent years by the hacker collective Anonymous, who has often used the strategy as a form of electronic civil disobedience. In 2013, Google introduced the Digital Attack Map (p. 134), a real-time tool that visually maps the origin, target, and geographical distribution of DDoS attacks. Dotted tracers light up like fireworks over a map of the world, visualizing the profusion of attacks at any one moment (as well as over time) and their near-worldwide ubiquity. No institution or organization is immune.[15] As of late 2014, cyberattacks have been successfully launched against banks (JPMorgan Chase); newspapers (*New York Times*); retailers (Home Depot, Target, Neiman Marcus); service providers (Apple's iCloud); governments (China, Pakistan, Canada); and even the U.S. Pentagon, headquarters of the Department of Defense. We have, by all appearances, entered a very different era of warfare, terror, espionage, crime, and violence.

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Design and Violence is not a gallery-based exhibition simply translated online. From our earliest conversations, we conceived it as a platform for multiple projects—a series of public debates, a set of academic course materials, a symposium, and this book, for instance—with the website as anchor. Unlike traditional exhibitions, which do not easily accommodate direct dialogue, the project's multiple formats invite commentary, feedback, questions, and even discord from audiences. Among the many benefits of this approach, the exhibition is accessible to visitors who may never cross the physical threshold of the Museum, and clearly indicates the institution's interest in the opinions of its audiences. We called the project a "curatorial experiment" to signal its inherent adaptability and responsiveness, traits we hoped could be developed to launch the conversation into public awareness.

We have strived to make *Design and Violence* an open invitation to discussion rather than the last word on any one subject, although this stance is often hard to negotiate. To better understand the broader impact of design, we invited authors from outside the field to write about many of the projects we selected, hoping they might jolt us out of complacency, professional blindness, and simple overfamiliarity. Our respondents bring perspectives diverse and unique. Pinker himself discusses Spatial Information Design Lab's information visualization Million Dollar Blocks (p. 140). Nobel Peace Prize winner Jody Williams comments on Massoud Hassani's demining tool, Mine Kafon (p. 170). New York District Court judge Shira Scheindlin, who famously declared the NYPD's stop-and-frisk procedures unconstitutional, takes on plastic handcuffs and the anti-bite or anti-spit mask (p. 64). Former Ugandan child soldier China Keitetsi reflects on the AK-47 rifle (p. 214). United Nations High Commissioner for Refugees, António Guterres, considers Hyperakt and Ekene Ijeoma's Refugee Project (p. 144). Sex-trafficking survivor Shandra Woworuntu responds to the stealthy Pivot project by Public Practice Studio (p. 26). And musician and activist Angélique Kidjo examines Amnesty International's campaign posters intended to stop feminine genital mutilation (p. 96).

To expand the range of voices even further, we opened each post to comments from the reading public, invited the object's designer to weigh in, and encouraged both author and designer to share the post and solicit comments through social media. The results have often been surprising. Two designs in particular have become lightning rods for discussion and dissent. The post on Temple Grandin's Serpentine Ramp (p. 188), featuring a powerful response by PETA's president Ingrid Newkirk, brought heated discussion over the ethics of meat production and consumption to one of our public debates (p. 220) and precipitated our longest comment thread to date. John Thackara's no-holds-barred critique of Michael Burton and Michiko Nitta's speculative design project, Republic of Salivation (p. 60), engendered a similarly intense discussion in the comments section. Drawing in voices from around the world, the dialogue shed as much light as heat on the global politics and ethics of speculative and critical design.

One remarkable comment on the website may best demonstrate the value of inviting into the Museum the participation of outside voices. In April 2014, we published a post on the Euthanasia Coaster, an intentionally provocative conceptual design by Julijonas Urbonas (p. 194). Urbonas's roller coaster features seven loops, each tighter than the one before, propelling the rider through successive degrees of g-force acceleration until a final, inescapable death. Urbonas's design aspires to offer agency to the fatally ill, an antidote to an otherwise grim end. Respondent Antonio Damasio, leading professor of neuroscience at the University of Southern California, gently critiqued this speculative fiction: "Euthanasia is death . . . compounded by myriad questions regarding the

circumstances in which it may or not be acceptable." His objection to the possibility of a "joyful euthanasia" lay in the very chilling possibilities for its misuse by an increasingly technocratic society. In a comment, one reader countered with the following:

Your post extends from a singular premise—that death is necessarily a tragedy. As somebody who is in pain every day, I do not believe this is the case. Sometimes life is the tragedy. When one's only experience is overwhelming pain, it is a tragedy to be prevented release. For many there is only one option for release and that is the final option. I feel it likely that one day in the distant future I may choose this option myself. Doing so through the experience of something so amazing that the human body cannot withstand it sounds a whole lot better to me than a boring gray room.
       To remove all violence from humanity would be to utterly sanitize life, to remove the experience of anything but grays. Certainly the specter of interpersonal violence is undesirable, but I WISH to be violently happy, violently sad, violently moved. I wish to feel violent acceleration and violent relief. Conflating violence with anything that challenges us is to remove all value from the human experience, to paint the world gray.[16]

Profound, wrenching, revelatory, this comment reframes certain experiences of violence and affirms the worth and necessity, even, of the project's open, participatory framework.
       Many commenters have shifted the evolution of *Design and Violence* and along with it our thinking. Free of the time-based constraints of a gallery exhibition that begins and ends on specific days, we launched the project with an open-ended checklist, an unusual curatorial freedom. This extraordinary flexibility has allowed us to contemplate our ongoing exchanges, both with each other and the public, and extend the period of research and development far beyond what is normally available. When we initially conceived *Design and Violence*, we focused on projects that challenged our understanding of violence. These works—Diller + Scofidio's Vice/Virtue water glass series (p. 113), for instance, or James Bridle's Drone Shadows (p. 128)—fall for the most part in the category of critical design; that is, conceptual projects that ask us to consider the future we are creating through design, or that compel us to grapple with design's ability to reshape our experiences.
       But as *Design and Violence* developed, commenters helped us to recognize that we were too often featuring projects with abstracted or symbolic notions of violence. Over the course of several months, the projects we selected shifted in orientation; we turned to designs and to authors who could speak more directly to the distorting cruelty of designed violence. By no means are we implying that some forms of violence are more authentic than others, or that some authors have more authority to speak on these issues; only that design shapes violence in various ways, and we had been omitting those experiences most immediately felt. To put it in concrete terms: the visionary prospect offered by Sputniko!'s Menstruation Machine of a world in which all genders understand one another (p. 52) differs markedly from the sanitary napkin designed by Public Practice Studio to counter female sex trafficking even though both illuminate forms of violence.
       We recognized from the very outset that a project on violence hosted by

The Museum of Modern Art posed an inherent risk: aestheticizing violence and recasting it as this week's outré object. Our critics were not slow to suggest this. "Patrick," for instance, inveighed against the Museum under William Gibson's response to Trevor Paglen's *Five Classified Aircraft* (p. 154), a collection of unofficial embroidered patches from the "black world" of classified intelligence:

Today army pins, yesterday heels. The Internet requires an extremely warped sense of gimmickry and violence certainly fits the bill. But it's just another meaningless brand wrapped on multiple justifications. Perhaps museums can now classify the new hot style of the month. Violence . . . So chic. So 2013.
       Once an object is stamped "violent" by MoMA, does that make it so?
       The inherent problem with showing symbols and pictures of violent design [outside of their] context is an extreme fetishization of those symbols. It's like gratuitous, sexed-up violence without the "story" (insert unchallenging content). One wonders if "chicks with guns" is around the corner.
       The blog format of this project seems only to heighten the state of fetishism and separation from context, more flattened imagery in an already crowded landscape.

Indeed, "Patrick" vividly outlines the very hazards we have been trying to circumvent from the outset: the stylizing of violence, the flattening of affect, and the frisson of risk and danger in the comfortable context of a safe institution. Granted, Paglen's work was only the fourth in our series of posts, and we had not yet reached a critical mass of examples. The reaction led us to fine-tune the way we wrestled with the concept of violence and its impact, while acknowledging its relevancy to design discourse and to culture. What more opportune channel for dialogue than through a free and accessible Internet site at a highly visible and influential establishment like The Museum of Modern Art?

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This book is not a literal transposition of the website. Instead, you are reading a curated condensation of our experiment. Here we include a selection of more than forty design artifacts, each entry composed of images, the author's response, the leading question, and a selection of comments that illuminate new avenues for discussion. Certain projects live more comfortably in an electronic environment, so we opted not to reproduce them: Christoph Niemann's antic animated GIFs; Jad Abumrad's dazzling sound piece; and many of the data visualizations. Unlike on the website, we have organized the selected entries into four animating categories: Hack/Infect (to utilize the structure or code of an object or system against itself either through subversive reconfiguration or by the introduction of an active foreign element); Control (to use power or violence in order to discipline, dominate, or restrict one's own or another's ability to act with free will); Trace (to make visible, before or after the fact, the immaterial legacy of violence upon our mental and physical landscapes); and Annihilate (to seek out total obliteration of an obstacle or adversary by any means available, whether human made or naturally occurring). These categories identify patterns across the various manifestations of violence, and knit together projects to create contrasting and divergent associations.

Throughout this experiment, one simple mission has inspired us: to wade into the ethical mire that design, and every act of human intention, draws us into. Considering the broad influence of design on the world and the contemporary pace of innovation—requiring continuous alterations and adaptations—design shoulders a heavy, yet shadowy responsibility. It needs to be brought into the light and grappled with. This project is our attempt.

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A complete archive of *Design and Violence* lives at the original URL: http://designandviolence.moma.org.

1. Mary McCarthy, "Characters in Fiction," *Partisan Review* 28, no. 2 (1961): 171–91.
2. Steven Pinker, *The Better Angels of Our Nature: Why Violence Has Declined* (New York: Viking, 2011).
3. E. Ann Carson and William J. Sabol, *Prisoners in 2011*, U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, 2012, p. 8. As quoted in the Sentencing Project, *Report of the Sentencing Project to the United Nations Human Rights Committee: Regarding Racial Disparities in the United States Criminal Justice System*, Sentencing Project: Research and Advocacy for Reform, 2013, http://sentencingproject.org/doc/publications/rd_ICCPR%20Race%20and%20Justice%20Shadow%20Report.pdf.
4. Hannah Arendt, *On Violence* (New York: Harcourt, Brace and World, 1970), p. 38–39.
5. Sanbabilini is a far-right movement from the 1970s, so called because its members used to gather around Piazza San Babila in Milan, Italy.
6. Paola, the Italian half of this author duo, experienced adolescence in Milan amid armed extremists warring among themselves and with the police. Her walk to school was rerouted almost daily to avoid danger zones that would often shift overnight.
7. "Dal cucchiaio alla città" (From the spoon to the city) is a slogan coined by Italian architect and critic Ernesto Nathan Rogers to describe the Milanese architectural and design process, which at the time encompassed all scales—and still does, unfortunately to a lesser extent. There is some disagreement about when Rogers said this. Deyan Sudjic notes that Rogers wrote something like it in a 1952 editorial for *Domus. The Language of Things: Understanding the World of Desirable Objects* (New York: W. W. Norton, 2009), p. 34.
8. Victor Papanek, "Preface," *Design for the Real World: Human Ecology and Social Change* (New York: Pantheon Books, 1971).
9. Mikhail Kalashnikov in an April 2013 letter to the head of Russia's Orthodox Church written shortly before his death. Excerpt published in Luke Harding, "Kalashnikov Inventor Haunted by Unbearable Pain of Dead Millions," *Guardian*, January 13, 2014.
10. Hannah Arendt, "Reflections on Violence," *New York Review of Books*, February 27, 1969.
11. John Arquilla and David Ronfeldt, *The Advent of Netwar*, RAND Monograph Report (Santa Monica, Calif.: RAND Corporation, 1996), http://www.rand.org/pubs/monograph_reports/MR789.html.
12. Ibid.
13. *U.S. Army/Marine Corps Counterinsurgency Field Manual* (Chicago: University of Chicago Press, 2007) quoted in Elizabeth Dickinson, "A Bright Shining Slogan: How Hearts and Minds Came to Be," *Foreign Policy,* August 24, 2009, http://www.foreignpolicy.com/articles/2009/08/13/a_bright_shining_slogan.
14. Pamela L. Woolley, "Defining Cyberspace as a United States Air Force Mission" (unpublished graduate research project, Department of the Air Force Air University, Air Force Institute of Technology). The term "cyberspace" was added to the U.S. Air Force's mission statement on December 7, 2005. Woolley writes, "On December 7, 2005 the Air Force (AF) Chief of Staff released the following new mission statement for the AF: 'The mission of the United States Air Force is to deliver sovereign options for the defense of the United States of America and its global interests—to fly and fight in the Air, Space, and Cyberspace.' The addition of 'Cyberspace' to the mission statement let [*sic*] many to ask, what is Cyberspace? And what does it mean to have cyberspace as a mission area?"
15. Except, as Gabriella Coleman points out in her essay for this book (p. 134), those territories without the infrastructure of the Internet, itself a different measure of social, political, and economic violence.
16. Here as elsewhere in this volume, comments extracted from the *Design and Violence* website may be truncated (indicated by an ellipsis). Save for minimal editing, usually for reasons of space and comprehension, comments are otherwise quoted as they appear online—warts and all.

Hack

To utilize the structure or code of an object or system against itself either through subversive reconfiguration or by the introduction of an active foreign element.

The Box Cutter
(Designer unknown, c. 1920)

The single-edge razor blade enclosed in a protective handle, now known colloquially as a box cutter, is believed to have originated in the 1920s as a hand tool derived from much earlier utility knives and straight razors. The model pictured here (p. 20) was first patented in the 1950s in the United States. In the United Kingdom, a slightly different model, referred to as the Stanley knife, was named after the company that began manufacturing it in the 1920s. The box cutter continues to be redesigned by many companies and manufacturers interested in leaving their mark on the classic and widely used blade. The tool earned notoriety in the early twenty-first century after the *9/11 Commission Report* revealed that it may have been used by the hijackers in the September 11, 2001, terrorist attacks on the World Trade Center. The exact design of the allegedly used blades was never verified.

John Hockenberry

A box cutter is the perfect tool for our time, for thinking "out of the box." We create boxes that require a blade to liberate ourselves and the other things we place in them. These self-referencing iterations of irony transform the utility knife into the clown acrobat of industrial capitalism. The blade punctures the fiction like a hammer smashing a nested set of Russian dolls.

The fashionable out-of-the-box thinking of the late twentieth century put a utility knife into each of our hands and set aside all of the carefully crafted blades we had carried for thousands of years. A traditional knife is an extension of the hand, cutting and shaping the materials preindustrial humans consumed as food, wore as clothing, and constructed as shelter. The utility blade can do nothing in a world of hunters, builders, and farmers.

The utility knife is invisible and useless in this traditional world, and yet the tribal postindustrial assault on boxes needed a sacred tool. Out-of-the-box thinking required a ceremonial weapon.

Men in planes screaming about God performed the initiation ceremony of the box cutter. On a day in September 2001 it became the postindustrial murder weapon. Cutting itself out of this final box, the utility knife slashed its way out of the twentieth century, never to return.

Online packagers seem careful to use soft tape for their boxes so consumers won't have to reach for the twenty-first century's murder weapon to see the lovely things they have purchased.

In a world where shoes are bombs and shampoos can bring down jetliners, you may still find a utility knife in your own drawer, in your own kitchen. See if I'm right. I'm betting that it is no longer invisible.

John Hockenberry is an Emmy and Peabody Award–winning journalist and host of public radio's live morning news program *The Takeaway.*

Q: Which other "invisible" everyday objects can become lethal weapons?

COMMENT 1. Susan Yelavich:
I am struck by how remote violence is from all of us contributing to this site. We are either the lucky survivors expunging our guilt or we're harboring wounds too deep to share.

Designer unknown. Box Cutter. c. 1950s.
Stainless steel, 4 ³⁄₁₆ x 2 ⅛ x ⅛"
(10.6 x 5.4 x 0.3 cm)

Stuxnet: Anatomy of a Computer Virus
(Patrick Clair, 2011)

Patrick Clair's motion infographic *Stuxnet: Anatomy of a Computer Virus* thoughtfully animates the inner workings of the elusive malware Stuxnet. This intricately constructed computer virus, consisting of a worm, a file shortcut, and a rootkit, was designed to disrupt programmable logic controllers, or PLCs, run on Microsoft Windows operating systems. PLCs typically control automated manufacturing and monitoring processes, such as industrial-plant assembly lines. The Stuxnet virus works in two waves: first, it maps a blueprint of the plant operating systems; second, it disrupts these systems. By exploiting unknown security gaps, the virus was able to destroy 20 percent of Iran's nuclear centrifuges, while simultaneously relaying normal readings to the plant operators. The attack was delivered via USB thumb drive, and although it was first detected in June 2010, it may have been circulating for up to a year prior. The malware, which has been linked to a policy of covert warfare allying the United States and Israel against Iran's nuclear armament, is considered to be the world's first weaponized piece of software and heralds a change in twenty-first-century global military strategy. Its creators remain unidentified.

Lev Manovich

My own first encounter with design and violence was at the age of fifteen. As a high-school student in Moscow, I was required to take two years of mandatory classes in military education. Over many months, we practiced disassembling and reassembling the masterpiece of the "design meets violence" genre: the legendary Kalashnikov rifle. Because it consists of only a handful of pieces, I was able to dismantle it in eleven seconds, and put it back together in sixteen. (Dismantling the rifle within a certain time was required for passing the course.)

I suppose this background gives me some qualification to reflect on projects in the *Design and Violence* initiative, such as Patrick Clair's video infographic on Stuxnet, a computer worm unleashed on Iran's nuclear program, among other target sites, and discovered in June 2010. Computer worms, as with viruses and executable scripts, constitute part of the various tools and techniques in the arsenal of cyberwarfare and cyberspying. If mid-twentieth-century non-networked weapons such as the Kalashnikov are location specific, operating only within their user's immediate line of sight, viruses and worms are not hampered by geography: worms such as Stuxnet can replicate and move from computer to computer around the world, attacking not only the host system but also its hardware and the other computers it controls.

Stuxnet is the first known computer worm to spy on and reprogram industrial systems. It indiscriminately hops across computers that run Windows-based operating systems, but its malware specifically targets industrial software from Siemens that is used to control a variety of large-scale infrastructure systems, including manufacturing plants. Stuxnet affected facilities in a number of countries, including Iran, Indonesia, India, and the United States. Due to its size, and the unusual complexity of its code, it has been speculated that the worm was developed by a nation-state. (According to a 2012 *New York Times* op-ed, the United States and Israel collaborated on its design.[1])

Because Stuxnet has been in and out of the news for several years now, there are a number of well-designed media presentations explaining its history, effects, and operations (besides dozens of articles). These include a compelling diagram by Guilbert Gates that accompanied a *New York Times* op-ed,[2] and a

Patrick Clair (Australian, born 1982). *Stuxnet: Anatomy of a Computer Virus.* 2011. Digital video (color, sound), 3:21 min.

dynamic 2011 TED video from the German scientist Ralph Langner, who worked on an analysis of the worm.[3] (At the time of writing, the video had received over one million views.) As always, the most detailed single source is the *Wikipedia* page, which, as of December 2014, has been edited 1,529 times by 716 distinct authors, and has received over 62,035 views in the last thirty days alone.

Knowing about all this coverage of the Stuxnet worm helps in thinking about Patrick Clair's video, produced for an Australian TV program in 2012. In contrast to the more complete historical narrative presented on *Wikipedia*, Clair's video presents only one of its dramatic episodes: the discovery that Stuxnet affected Iranian nuclear reactors. The video uses the contemporary language of motion graphics, with animated 2-D and 3-D text, unexpected 90-degree camera turns, superfast zooms, and 3-D vector graphics. As is typical of such videos, the movement never stops; forms are transposed, transfigured, added, and multiplied without pause. This constant movement is visually engaging but also troubling. The constantly flowing animation works differently than broadcast-news segments that typically cut between the newscaster's narration, live and recorded interviews, and on-the-scene reporting. These cuts or breaks may interrupt the viewer's immersion in the story, but they also leave space for the viewer to digest and better understand the information presented. In the motion-graphics narrative, however, there are no such breaks or juxtapositions of media types; instead the story unfolds in one continuous three-minute-long animation accompanied by a constant music beat in the background. The color wireframes and robotic-camera moves look cool, but all too often at the expense of the important facts and details of the events being described.

Branding Stuxnet as "the first weapon made entirely out of code" (this may be true or not, depending on one's definition), the video tries to convey the

worm's operation through visual forms and metaphors. For example, at 1 minute, 30 seconds, the familiar Kalashnikov rifle appears on the screen, presented as a wireframe model. The rifle multiplies and shrinks to form the word "code," linking the physical and electronic forms of assault weaponry. (It reminds me of how, at the end of our course in my Moscow high school, we were taken to a real military range out of town to practice what we had learned. My fellow students and I, each with a heavy Kalashnikov in hand, lined up across a white winter field and then shot at the targets.)

Projects such as Clair's exist within a paradigm I call "info-aesthetics." These projects, which arise not only from the field of data visualization but also from motion graphics, human-computer interaction (HCI), architecture, music, and custom hardware, to name a few, have as their true subject the "stuff" our software society is made from—data (big and small), algorithms, distributed client-server systems, global networks, networked hardware. And, as with these other works, Clair's video tries to give this stuff a visible form in order to make sense of it and to produce knowledge from it. But because data and code largely exist at a scale outside of that of the human body and perception—because they are too big, or too fast, or too dispersed—the task is quite hard.

Which leaves me with the same questions I've been asking for years: Can our information society be represented iconically, if all its most characteristic activities are dynamic processes? How can the superhuman scale of our information structures be translated to the scale of human perception and cognition? Clair's video dramatizes how challenging a task this is for contemporary designers. Were we to remove the video's familiar objects—the microscope, the schematic diagram of a nuclear plant, the rifles, and the text—what would be left? Is it possible to visually represent a software "thing"—in this case, Stuxnet—that operates on a scale radically different from the old, familiar Kalashnikov rifle?

1. Misha Glenny, "A Weapon We Can't Control," *New York Times*, June 24, 2012, http://www.nytimes.com/2012/06/25/opinion/stuxnet-will-come-back-to-haunt-us.html.
2. Guilbert Gates, "How a Secret Cyberwar Program Worked," *New York Times*, June 1, 2012, http://www.nytimes.com/interactive/2012/06/01/world/middleeast/how-a-secret-cyberwar-program-worked.html.
3. Ralph Langner, "Cracking Stuxnet, a 21st-century Cyber Weapon," filmed March 2011, TED video, 10:40, http://www.ted.com/talks/ralph_langner_cracking_stuxnet_a_21st_century_cyberweapon.

Q: Can malware ever be used for positive ends, or is it inherently a weapon for wrongdoing?

COMMENT 1. Jason Persse:
The notion of any weapon being used for "positive" outcomes is so problematic that it makes the question seem ludicrous. The better the weapon's design, the more assuredly it will outstrip even the most noble of intentions and lead to widespread harm. Stuxnet and the AK-47 are both especially apt examples: when applied to weaponry, "user-friendly and supremely durable," the one-two punch that every designer hopes to land, becomes a genie you can never push back into the bottle. All weapons are inherently intended for wrongdoing; designing them well just means more people can do wrong to more people with greater reliability.
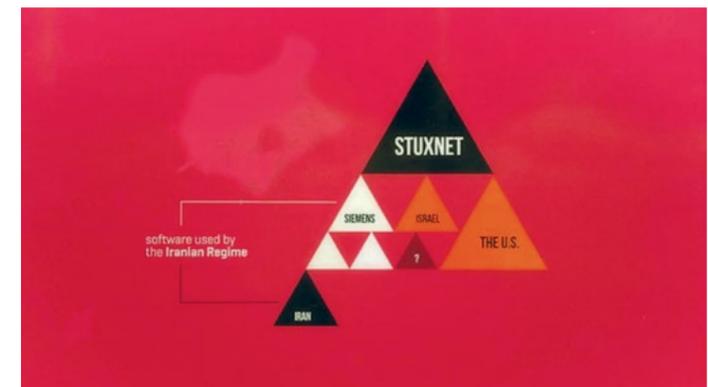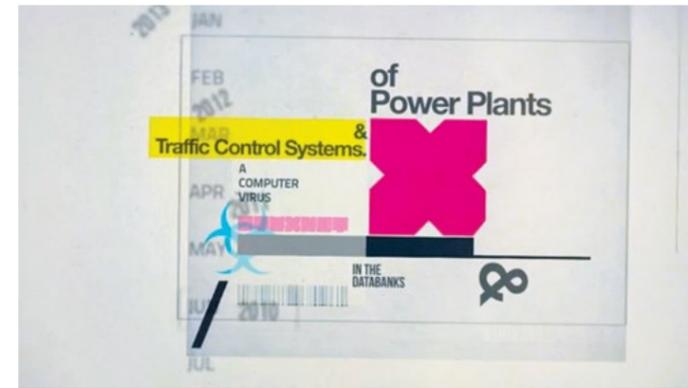
Pivot: Design against Trafficking (Public Practice Studio, 2012–13)

Human trafficking happens to men, women, and children of all ages, and occurs in many different industries and geographic locations. In 2009, the United Nations Office on Drugs and Crime reported that approximately 79 percent of human-trafficking incidents worldwide involve sexual exploitation; most of the victims are women and girls. The women involved are rarely left alone, making it difficult to pass information to them. The Public Practice Studio at the University of Washington, Seattle, attempts to confront this coercive violence with Pivot, a feminine-hygiene product designed to communicate rescue information to trafficked women. Pivot consists of two sanitary pads in a box with nondescript, functional packing. Sandwiched between the pads is an insert whose simple illustration depicts how trafficked women wishing to seek help may do so. The insert contains a detachable slip, disguised as a fortune-cookie message, with the telephone number for a national portal to services and counseling. Pivot allows women to access this information at the one moment they may be left alone by their captors—in the bathroom—and then to flush away all but the telephone number, which can be pocketed for future use. Pivot is designed to be distributed by shelters, doctors, and community centers. Public Practice Studio is led by Tad Hirsch, assistant professor of interaction design, and, at the time Pivot was conceptualized, the studio's members included Mike Fretto, Kari Gaynor, Josh Nelson, Adriel Rollins, and Melanie Wang—all students in the University of Washington's Division of Design.

Shandra Woworuntu and Christopher L. Heuertz

I'm a little girl dancing with butterflies in the garden. I hold a blossom and lift up the corner of my tiny, floral-print summer dress while singing, "Little butterfly, where do you go?" I'm a typical ten-year-old girl who loves to play in the river, letting the current take me out to sea. Climbing to the top of an oak tree, looking down at what seems to be the bottom of the earth, I reach out to grab the stars under the moonlight of the Indonesian night sky.

Everything is beautiful.
Everything is perfect.
Suddenly I awake. Not in a garden or by the banks of a river, and certainly not in an old oak tree. Not even in Indonesia. I find myself locked in a cold, dark room. Cigarette smoke burns my eyes. The smell of sweat on the sheet I lie on is repulsive.
From a dream to a living nightmare, in an instant.
Just months earlier my anxious fingers danced on the keyboard at the international bank where I worked. Then my concern was tracking the stock market's pulse. Currency and exchange-rate speculation kept me awake at night. Now what keeps me up is fear.
I'm not alone. I scan the room and notice that many of the other trapped women are much younger than I am. I'm no longer surprised to see their bruised faces, fresh wounds, and pale complexions due to untreated illnesses and malnourishment. One of the younger girls starts sobbing. There's nothing I can do; there's nothing anyone can do. Unlike her, I've learned to cry on the inside, keeping my tears to myself.
And the guns. My traffickers think the guns are what scare us, what keep us subservient. But for some of us a bullet would bring relief. At least death by bullet would offer a quicker, more humane death than the one we die slowly as sex slaves. Still the guns are a symbol of control, an illusion of power.
The humiliation I feel from strangers gazing at my naked body forces me back to the dream. The memories of dancing with those butterflies keep me

distracted, keep part of me alive. When they put a gun to my head, I return to those butterflies, asking them to chase the fear away.
I feel so small.
I am nothing.
I am lost.
My life is over.
What have they done to me? Deprived of food, locked in darkness, barely clothed . . . I am powerless.
My nose is filled with the residue of the cocaine they've forced me to sniff, the lingering odor of marijuana smoke hanging in the air, and the bittersweet traces of the crack I was made to smoke. My throat burns with the taste of stiff, cheap whiskey—one of the only things they offer to nourish my weak body.
Sleep deprived and fading in and out of consciousness, I'm forced to serve any paying client, men old and young, fat and lean—their money unites them as buyers, reducing me to a commodity.
They throw me down on the dirty mattress; the stench of it has made me vomit more than once. Sometimes they turn me around and have their way with me; at least like this, I don't have to see the evil in their eyes. When I'm on my back, I blankly stare at the ceiling, allowing my tears to fall down the sides of my face while praying the clients will finish quickly. I've become their human rag doll, one with a $30,000 debt.
When they're finished, I'm moved to another room; maybe it's a hotel or an apartment building. All I know is that my captors' routine is to transfer me under a cloak of darkness. Always at night when the city seems so quiet, so distant.
I wonder: How many others suffer this same hell? How many more were lied to? How many young women in New York are hidden away and forced to give up tiny pieces of their soul one trick at a time?
And then—a glimmer of hope. A spark of courage ignites something within me. I am determined. I will find a way out. I will find my way home.
From a tiny bathroom window in a second-story apartment building I jump. The fresh air. A split-second of freedom. I am that butterfly from my dreams.
I am free.

Shandra Woworuntu is a legislative lobbyist in Washington, D.C., and an advocate on behalf of anti-human-trafficking groups. Christopher L. Heuertz is an activist who has worked alongside organizations in Bolivia, India, Moldova, Romania, and Thailand to establish small businesses and microenterprise initiatives as alternative incomes for women working in the sex industry.

Q: Can humankind's capacity to enslave fellow humans ever be mitigated or stopped through design?

COMMENT 1. Kristina Parsons:
Perhaps effectively combating this violence is a question of access and disruption. Pivot addresses the issue of communicating help to those who are brutally and forcibly cut off from the world through a simple, informative graphic. This covert slip of paper is able to infiltrate a system that subjugates and dehumanizes people through the human-trafficking trade. What if we could imagine a world where disruptive innovation isn't just targeted toward subverting commercial systems like taxi or entertainment services, but rather toward dismantling the ubiquitous violence that too often goes unseen? In the end, disrupting the trafficking industry not only has the ability to rescue and empower, but to liberate.

Opposite and right: Mike Fretto (American, born 1982), Kari Gaynor (American, born 1984), Tad Hirsch (American, born 1970), Josh Nelson (American, born 1978), Adriel Rollins (American, born 1976), and Melanie Wang (American, born 1975) of Public Practice Studio (USA, est. 2012). Pivot. 2012–13. Sanitary pad, water-soluble paper, cardboard box, overall 4 ⅜ x 3 x 1" (11.1 x 7.6 x 2.5 cm)

Below: Contact information for a national human-trafficking hotline disguised as a fortune-cookie slip

Hacked Protest Objects
(Various designers, ongoing)

Tunisian street vendor Mohamed Bouazizi set himself alight on December 17, 2010, after being repeatedly harassed by Tunisian authorities. His act galvanized the Tunisian revolution, the wider Arab Spring, and, in part, the Occupy protests across Europe and America. Although each of these movements adopted a unique set of goals and yielded varied consequences, the protests remain connected in many ways, including, as designer Carlotta Werner and artist Johanna Sunder-Plassmann highlight here, their use of everyday objects that have been hacked. These objects take many forms and are created for various ends. In Cairo, chemical spray bottles held to the eyes of protesters may at first suggest violence but are revealed instead to mitigate its effects. In Hamburg, the seemingly benign toilet brush symbolizes public anger. In Kiev, the baseball bat morphs from a sporting implement into a punitive weapon decorated with protest slogans. Bouazizi's self-immolation underscores the grassroots and often desperate nature of these acts of repurposing: as unrest continues in Syria, Nigeria, Thailand, and elsewhere, protesters will use any means at their disposal, from mundane objects to their own invaluable lives.

Carlotta Werner and Johanna Sunder-Plassmann

Istanbul, September 2013, nighttime: I find myself among a crowd, unaware that the ongoing Taksim Gezi Park protests against Prime Minister Recep Tayyip Erdoğan's government have shifted to the Asian quarter of the city. Tear gas—my lungs are burning. A man next to me holds a bottle of household cleaner and sprays its contents into his girlfriend's eyes. I am shocked by his violent act but no one else is, and soon it's clear why: the cleaning agent is actually milk mixed with water and is used to ease the effect of tear gas on the eyes.

During the next few days, I notice that many more everyday objects have been modified or hacked for use in the protests. Although I am visiting from my native Germany, from 2010 to 2011 I lived in Istanbul, and so share with my Turkish friends a common understanding of the objects around us. Since the protests started, however, many everyday objects have taken on an added layer of meaning. Cleaning-spray bottles have turned into medical supplies. Painting respirators have become teargas protectors, as well as fashionable accessories that identify people as protesters. Later, these respirators would become decorative objects in the protesters' flats. Goggles, scarves, and plastic bottles—their intended uses have also changed.

The emergence of these modified everyday objects is an epiphenomenon of the political protests in Istanbul. Born of necessity, these newly transformed objects help the protesters cope with many different tasks. They protect the body and provide first aid. They allow individuals to announce events and to organize demonstrations; to identify with or dissociate from a group; to defend, attack, and provoke.

Designed by individuals outgunned and facing professional, well-equipped forces, the hacked objects share some common features: they are readily and cheaply available, and they appear and disappear as they change their symbolic and practical meanings. Made in reaction to suddenly changing social circumstances, these objects convey information about the mode and nature of the protests themselves, including their level of violence; their subgroups and organizational forms; and the protestors' means of communication. They also recall, or stand in as symbols for, past events of particular significance, as well as the changed nature of civic and social relationships among protesters and in the city at large.

The phenomenon of hacked objects is not unique to Taksim. Protesters in Tahrir Square in Cairo used reflective safety vests to identify themselves as members of the self-organized community group Tahrir Bodyguards. Reacting to the numerous instances of sexual harassment that occurred during the protests, the group organized in order to protect female demonstrators. In Maidan, the central square in Kiev, self-made and archaic-looking weapons speak to the brutal violence of this protest-turned-conflict. Some of the altered clubs and bats are decorated with nationalistic writings or Christian symbols, revealing the personal attachments of the owners to their objects. In Hamburg's so-called danger zone, toilet brushes became an ironic symbol of unjustified police control. Hours after a short video aired on national television showing a policeman confiscating a toilet brush from a demonstrator—the person had legally obtained the brush and was doing no harm with it—toilet brushes sold out of stores as demonstrators carried them into the streets. This event evoked a creative wave of digital image alterations, graphic illustrations, and caricatures.

The sheer variety of repurposed objects is proof of the creativity and ingenuity that arise in mass movements. What do these objects reveal about both the differences and similarities among the various protests and their respective geographic locations? How do social media influence the distribution of these objects and their local adaptations?

The research project Hacked Objects in Political Protests invites everyone to contribute images, videos, objects, and stories of participation from protests around the world, along with the designs born in tandem with these protests. The project will discuss and reflect on this globally crowdsourced design process. A spray bottle is not just a spray bottle anymore.

Carlotta Werner and Johanna Sunder-Plassmann are a German product-designer and media-artist team.

Q: Do you know of any other seemingly neutral objects that can step up and become heroes in times of need?

COMMENT 1. Josh MacPhee:
Social movements have been repurposing everyday items for as long as capitalism has been producing them. The wooden shoe, or sabot, was shoved into early machinery at the advent of the Industrial Revolution. The mass-produced glass bottle was likely converted into the molotov cocktail early on in its lifespan (at least as early as the 1930s). For that matter, the Christian cross was repurposed by the Romans as a tool to punish enemies of the state—long before the advent of capitalism or mass production. . . . Struggles to create and uphold systems of value other than monetary profit are always in tension with the capitalist economic imperative to crush and/or recuperate these alternative systems.

Assorted consumer-product bottles
hacked for use in protests, Istanbul,
Turkey. 2014

Hacked spray bottle filled with milk and water, Istanbul, Turkey. 2013

Toilet brush at a protest, Hamburg, Germany. 2014

The Crisis of Credit Visualized
(Jonathan Jarvis, 2009)

It is hard to think of a single institution or individual who has not been affected by the global economic crisis that began in 2007. Yet, for many, including those who suffered the consequences most directly, deciphering the complex systems that caused the collapse seems nearly impossible. But knowledge is power, even as these shadowy banking practices continue. Jonathan Jarvis's animated video *The Crisis of Credit Visualized* demystifies terms such as the Glass-Steagall Act and subprime lending; the fraught relationships between the banking system's various stakeholders; and the casualties left in the wake of the system's collapse. His is design in the service of public good, one weapon among many in the arsenal sorely needed to combat the economic violence preoccupying us all.

Gillian Tett

Knowledge is power. Or so the old adage goes. And during recent decades, Wall Street has utilized that timeless principle to its benefit—and to its vast profit. For as finance has swelled in scale and complexity, the number of people who actually understand how this modern, shadowy behemoth works has shrunk.

Little wonder, then, that most politicians, journalists, pundits, and ordinary voters failed to see the size of the credit bubble last decade; or that most people were utterly shocked and baffled when that bubble burst, causing pain for millions of Americans. In our twenty-first-century society, finance has become akin to weather: something deeply capricious that affects all of our lives, but which few of us can understand or predict. Control has sat in the hands of a tiny, technocratic elite.

But this is what makes Jonathan Jarvis's animated video *The Crisis of Credit Visualized* so interesting and compelling, if not subversive. His art uses simple graphics, catchy images, striking messages—and a wonderfully irreverent shade of green. And by combining these everyday images, he makes the complexities of finance seem accessible. Breezy cartoons blow apart gravitas, undermining the aura of experts. This is pop banking as it affects us all.

By stripping finance of its pretension and complexity, his video makes two important points: Firstly, the madness of the credit bubble cannot be blamed on just one or two people; an entire system was at fault, interlinked through financial flows (or, in the case of his art, stick figures, boxes, and arrows). Secondly, when the aura of mystery is stripped away from this network of financial flows, it is clear just how unsustainable the entire system had become; the comic nature of the trading patterns shows us that a collapse was inevitable.

Indeed, in retrospect, the only thing that is more striking than the scale of last decade's credit bubble is the fact that the madness went unnoticed so long. Or to put it another way: if more people such as Jarvis had produced videos like this one a decade ago, with chirpy green screens and laughable stick-figure bankers, the public might never have turned such a blind eye to finance and allowed the bubble swell to such a monstrous size. And that would have been better for us all; even (or especially) those stick-figure bankers.

As assistant editor and columnist, Gillian Tett writes two weekly columns for the *Financial Times*, covering a range of economic, financial, political, and social issues throughout the globe.

Jonathan Jarvis (American, born 1984). Media Design Program (est. 2000). Art Center College of Design, Pasadena, California (est. 1930). *The Crisis of Credit Visualized*. 2009. Digital video (color, sound), 11:10 min.

Q: This project defines violence as a manifestation of the power to alter circumstances against the will of others and to their detriment. In light of this definition, can we regard the financial sector's actions that led to the credit bubble as overt violence?

COMMENT 1. B Comenius:
Ancient teachings equate the game of credit creation and erasure to violence. You can find that interest-bearing money was banned in Vedas, Buddhist, and Muslim teachings. It was banned in Christian teachings, too. There was a reason for this.

COMMENT 2. Steffi Duarte:
Like the interconnected web of motivations and systems that triggered the credit bubble itself, the classification of the financial sector's actions as overtly violent may seem complex. Yet, through actions and illustrations like those of Jonathan Jarvis—through design—we can come closer to an answer, and eliminate the information asymmetry that made so many people unwilling players.

The Liberator
(Defense Distributed, 2013)

Defense Distributed, a Texas-based nonprofit group, was formed in 2012 with the goal of creating a firearm that anyone could fabricate using a 3-D printer. Invoking civil liberties, and challenging notions of gun control and perceived information censorship, the group created a block-like, .380-caliber polymer gun printed in sixteen pieces, now known as The Liberator. Their project trumpeted newly available 3-D-printing technologies as tools of political and social subversion. The 3-D weapon's fabrication files were immediately made available online where they were downloaded over one hundred thousand times before the State Department Office of Defense Trade Controls Compliance, adhering to arms-export control regulations, forced their removal from the web. On May 1, 2014, Defense Distributed released a Bitcoin application called Dark Wallet that allows the digital currency to change hands anonymously. Part of a larger umbrella strategy called Dark Market, this crypto-anarchist provocation highlights The Liberator as but one design in an arsenal of weapons built to disrupt regulatory systems and entrenched modes of governance.

Rob Walker

Cody Wilson first demonstrated The Liberator for the masses on May 5, 2013, by way of a YouTube video and a barrage of media coverage. It was a curious-looking pistol, cream colored and blocky, but it appeared to work. This was remarkable, because this deadly object was built almost entirely from plastic parts produced by a 3-D printer. ("Almost" because its design included a common nail that served as the firing pin.)

The implications were clear enough. We'd already been hearing, for years, how 3-D printers could enter our lives as an efficient, humane, and empowering alternative to mass manufacturing. Now Wilson's video suggested that the very same techno-magic that produced fun toys and handy housewares could also be used to whip up a functioning firearm. The design plans were made available online and downloaded one hundred thousand times before the government intervened (and the plans, of course, resurfaced via unofficial channels).

It's possible that, as an actual weapon, The Liberator is overrated. It still requires traditional ammunition, not to mention a rather expensive 3-D printer. And at least one set of police tests found it had a tendency to essentially blow up on discharge. But if we concede that it nevertheless appears capable of the core task of inflicting violent damage, then I think we can only conclude that it is a highly successful design.

That's because the real function of The Liberator has very little to do with making an excellent weapon and everything to do with making a point. Wilson, whose work on the gun competed with his law school studies, is a strident libertarian. He might choose a different label, but clearly his project means to express a point of view about the individual's relationship to the state in general and to gun regulation specifically. Thus The Liberator—consistent with its self-important name—has been promoted with bombastic, sometimes bellicose, and essentially propagandistic rhetoric and aesthetics. Wilson and his associates, for instance, operate under the name Defense Distributed. They are freedom-loving rebels, you see.

This is why it's almost more useful to think of The Liberator not as an object but as an example of "design fiction"—the practice of devising plans for or prototypes of objects and systems that, while impractical, express some critique

Partial components of The Liberator (clockwise from top left): ABSplus thermoplastic frame, barrel, hammer body, frame pins, springs, grip; aluminum nail (center)

of the present or vision of the future. It's a trendy strategy these days, but the politics behind it tend toward the progressive. Similarly, tech enthusiasts who have rhapsodized about the "disruptive" possibilities of 3-D printing and who frequently strike quasi-libertarian notes have largely recoiled from Wilson and his Liberator, preferring to focus on happy and optimistic scenarios involving home-made alternatives to mass consumer goods or the creation of clever art objects. To them, Wilson and the controversies he courts are mucking up their project, setting back their progress, spoiling their utopia.

But really, Wilson has done nothing more than call the enthusiasts' bluff. He didn't subvert the dream of a future where we can all manufacture whatever we want, whenever we like—he hijacked it. And in doing so, he made plain the full stakes of that dream, something that should probably happen more often in our global discourse about how to reckon with technology's powers.

I don't share Wilson's politics, so I'm somewhat sympathetic to the tech-nologists' frustration with his effect on 3-D printing as an idea. But I wish they would recognize that there's something more important going on here: Wilson is not out to thwart someone else's utopia; he is pursuing his own. And with The Liberator, he's made his vision so clear that it deserves—demands, even—a considered and reasoned response that accounts for the full implications of the system he has so cunningly exploited.

For a design provocation, there is no higher goal.

Rob Walker is a technology and culture columnist for *Yahoo Tech.*

Q: Is there such a thing as a right to violence?

COMMENT 1. Anne Burdick:
The real threat behind this gun—and behind all open systems—is to the governments, corporations, and institutions that have histori-cally controlled the means of production, distribution, and access. Regardless of whether the gun works right now, crowdsourcing has proven to be quite reliable, and a 3-D gun better than you can imagine will appear soon enough.

COMMENT 2. James Auger:
I have to admit that I am jealous—The Liberator is the perfect speculative-design piece, extrapolating the potential of a disruptive technology to suggest and communicate a plausible future use.

Defense Distributed. The Liberator
(barrel view). 2013

Contributors

Ahmed Ansari, p. 88

Ahmed Ansari teaches courses in design and in science and technology studies in Karachi, Pakistan. His academic interests involve exploring the philosophical and political implications of designed artifacts, and what design (always human-centric) can learn from disciplines that deal with the nonhuman. When not teaching, he spends most of his time traveling around the country evangelizing design research at workshops and lectures for local organizations, and consulting with local start-ups. Of particular fascination to him are the child laborers in Karachi's Saddar Market, who ingeniously use whetstones to buff scratched phone screens, making them as good as new for less than two dollars.

Ayssar Arida, p. 74

Ayssar Arida is a practicing "urbatect," writer, educator, and entrepreneur. His award-winning work ranges from digital design to large-scale city planning and strategy, including video-game development and toy design. He is author of the influential book *Quantum City* (Oxon, U.K., and New York: Architectural Press, 2002) and cocreator of urbacraft, the hackable urban-design construction toy. In 2013, in Beirut, he founded Urbatecture, the first urban-design-thinking agency, after running Q-DAR design agency in London and Paris for thirteen years. Ayssar holds a master of arts in urban design with distinction from Oxford Brookes University and a bachelor of architecture from the American University of Beirut.

Brian Ashcraft, p. 206

Brian Ashcraft is a senior contributing editor for the video-game website *Kotaku* and a columnist at the *Japan Times*. His work has also appeared in *Popular Science*, the *Guardian*, and *Metropolis*. Ashcraft was previously a contributing editor at *Wired*. Ashcraft is author of three books: *Arcade Mania!* (Tokyo: Kodansha International, 2008); *Japanese Schoolgirl Confidential* (North Clarendon, Vt.: Tuttle, 2014), with Shoko Ueda; and *Cosplay World* (Munich: Prestel, 2014), with Luke Plunkett. He is currently writing a book on Japanese tattoos for Tuttle. Originally from Texas, Ashcraft has called Japan home since 2001. He lives in Osaka with his wife and three sons.

Alison Bancroft, p. 108

Alison Bancroft is a writer and cultural critic, specializing in interdisciplinary approaches to modern culture and media. Her interests include art, design, and culture; also psychoanalytic thought, sex, and gender. She is the author of *Fashion and Psychoanalysis: Styling the Self* (London: I.B.Tauris & Co Ltd, 2012)—her first book, and a topic that she has published and spoken about widely—and is now working on her second book. Bancroft holds a doctorate from the University of London.

JC Cahill, p. 184

JC Cahill teaches at the University of Alberta, where he heads the Lab of Experimental Plant Ecology. Research in the lab addresses a diversity of fundamental questions in plant ecology. Cahill takes a broad approach to research, with interest in plant behavioral ecology, competition, plant-pollinator interactions, insect and mammalian herbivory, evolutionary and functional ecology, climate change, and mycorrhizae. Curious and open-minded, Cahill and his students study whatever sounds fun and interesting. He is adept at presenting hard science to the general public in a fun, inviting, easy-to-understand manner.

Laura Antrim Caskey, p. 165

Laura Antrim Caskey is an independent photojournalist. Caskey has spent the last decade reporting on the human and environmental costs of mountaintop-removal coal mining in Appalachia. In 2010, Caskey published *Dragline*, an award-winning photojournalistic exposé of the conflict between the coal industry and residents of West Virginia's coal river valley designed to educate people and spur them to action. Caskey distributed thousands of copies of *Dragline* across the planet in partnership with Climate Ground Zero, a grassroots organization, whose campaign of non-violent civil disobedience she chronicled. Her photographs have been published in the *New York Times*, the *Wall Street Journal*, *Rolling Stone*, the *Smithsonian*, and *Nature*, and featured in documentary films, including *The Last Mountain* (2011).

Gabriella Coleman, p. 134

Gabriella Coleman is an author and professor. Trained as an anthropologist, she holds the Wolfe Chair in Scientific and Technological Literacy at McGill University, Montreal. Her research, teaching, and writing covers the ethics and politics of digital activism and computer hackers. She is the author of two books: *Coding Freedom: the Ethics and Aesthetics of Hacking* (Princeton, N.J.: Princeton University Press, 2012) and *Hacker, Hoaxer, Whistleblower, Spy: The Many Faces of Anonymous* (New York: Verso, 2014)

Antonio Damasio, p. 194

Antonio Damasio is university professor, David Dornsife Professor of Neuroscience and director of the Brain and Creativity Institute at the University of Southern California in Los Angeles. Damasio has made seminal contributions to the understanding of brain processes underlying emotions, feelings, decision making, and consciousness. He is the author of numerous scientific articles and the recipient of many awards. He is also the author of *Descartes' Error: Emotion, Reason, and the Human Brain* (New York: G.P. Putnam's Sons, 1994), *The Feeling of What Happens: Body and Emotion in the Making of Consciousness* (New York: Harcourt Brace & Company, 1999), *Looking for Spinoza: Joy, Sorrow, and the Feeling Brain* (New York: Harcourt Brace & Company, 1999), and *Self Comes to Mind: Constructing the Conscious Brain* (New York: Vintage Books, 2010).

Clive Dilnot, p. 176

Clive Dilnot is professor of design studies at Parsons The New School for Design. Originally educated as a fine artist, he later studied social philosophy with Polish sociologist Zygmunt Bauman. Apart from design topics, Dilnot has also written and taught in fields ranging from aesthetics and art theory to photography, the decorative arts, museums and their framing of objects, the economics of the current crisis, and the question of how we can contend with the world we have made. A coauthored book, *Design and the Question of History*, is forthcoming in from Bloomsbury Academic in 2015.

Aminatta Forna, p. 84

Aminatta Forna is the award-winning author of the novels *The Hired Man* (London: Bloomsbury Publishing, 2013), *The Memory of Love* (London: Bloomsbury Publishing, 2010), and *Ancestor Stones* (London: Bloomsbury Publishing, 2006) and the memoir *The Devil that Danced on the Water* (London: HarperCollins Publishers, 2002). She is professor of creative writing at Bath Spa University in the United Kingdom. She has acted as judge for a number of literary awards, most recently for the 2013 International Man Booker Prize. In 2003, Forna established the Rogbonko Project to build a school in a village in Sierra Leone. The charity now runs a number of projects in the spheres of education, sanitation, and maternal health.

William Gibson, p. 154

William Gibson's first novel, *Neuromancer* (New York: Ace Books, 1984), won the Hugo Award, the Philip K. Dick Memorial Award, and the Nebula Award in 1984. He is credited with having coined the term "cyberspace," and having envisioned both the Internet and virtual reality before either existed. His other novels include *Pattern Recognition* (New York: G.P. Putnam's Sons, 2003), *Spook Country* (New York: G.P. Putnam's Sons,

2007), *Zero History* (New York: G.P. Putnam's Sons, 2010), and his most recent, *The Peripheral* (New York: G.P. Putnam's Sons, 2014). He lives in Vancouver, British Columbia.

Elizabeth Grosz, p. 52

Elizabeth Grosz is the Jean Fox O'Barr Women's Studies Professor in Trinity College of Arts and Sciences in the Women's Studies and Literature programs at Duke University. She is the author of *Sexual Subversions: Three French Feminists* (Crows Nest, New South Wales: Allen & Unwin, 1989) and, most recently, *Becoming Undone* (Durham, N.C.: Duke University Press, 2011).

António Guterres, p. 144

António Guterres became the tenth U.N. High Commissioner for Refugees on June 15, 2005. Guterres was elected by the U.N. General Assembly to a five-year term. In April 2010, the General Assembly reelected Guterres to a second five-year term. As High Commissioner, Guterres heads one of the world's foremost humanitarian organizations providing protection and assistance to millions of refugees, returnees, internally displaced people, and stateless persons. The UNHCR has twice won the Nobel Peace Prize. Some 88 percent of its staff work in the field, often in difficult and dangerous duty stations.

John Hockenberry, p. 19

John Hockenberry is host of public radio's live morning news program *The Takeaway*. An Emmy and Peabody Award–winning journalist, he is a former correspondent for NBC News, ABC News, and NPR, and has traveled the globe reporting on a wide variety of stories in virtually every medium for more than three decades. He has written dozens of magazine and newspaper articles, a play, and two books, including the novel *A River Out of Eden* (New York: Anchor Books, 2001), and the best-selling memoir *Moving Violations: War Zones, Wheelchairs, and Declarations of Independence* (New York: Hyperion, 1995), which was a finalist for the National Book Critics Circle Award.

Christopher L. Heuertz, p. 26

Christopher L. Heuertz is an activist fighting for freedom and justice among some of the world's poorest people. He has worked alongside organizations in Bolivia, India, Moldova, Romania, and Thailand to establish small businesses and micro-enterprise initiatives as alternative incomes for women working in the sex industry. He has been featured in publications such as the *Washington Post* and has contributed to the book *Sexually Exploited Children: Working to Protect and Heal* (Pasadena, Calif.: William Carey Library Publishers, 2013). Chris has also been a featured speaker at numerous anti-human-trafficking events. He is the cofounder of Gravity, A Center for Contemplative Activism.

Arianna Huffington, p. 128

Arianna Huffington is the chair, president, and editor in chief of the Huffington Post Media Group; a nationally syndicated columnist; and the author of thirteen books. In May 2005, she launched the *Huffington Post*, a news and blog site that quickly became one of the most widely read, linked to, and frequently cited media brands on the Internet. In 2012, the site won a Pulitzer Prize for national reporting. In 2006, and again in 2011, she was named to the "Time 100," *Time* magazine's list of the world's one hundred most influential people. She holds an master of arts in economics from Cambridge University.

Harry Jones, p. 160

Harry Jones is a lieutenant colonel in the U.S. Army who has served in both Iraq and Afghanistan. He is currently assigned to the U.S. Military Academy at West Point as an instructor of philosophy. He teaches an introductory course on philosophy and ethics where special attention is given to the subject of war and morality. He is currently working at the intersection of creativity and ethics and is exploring various ways the military can learn from designers. He holds an MA in philosophy from the University of Virginia.

China Keitetsi, p. 214

China Keitetsi was born in Uganda. At the age of nine, she was recruited by Uganda's National Resistance Army (NRA). There, she was given a new name, "China"—her instructor interpreted her visage as Asian—and a gun. In 2004, Keitetsi founded the African Child Soldiers and War Victims Charity, a center to help reintegrate orphans and former child soldiers. She currently lives in Denmark.

Nama Khalil, p. 148

Nama Khalil is an artist and academic. In her work, she explores notions of "otherness" while attempting to speak for herself as an Other, acting as mediator between subject and viewer. Her work has been exhibited in numerous galleries, including in Cleveland, Ohio, and in both Dearborn and Ann Arbor, Michigan, as well as in online exhibitions. She received her master of arts in Middle East studies from the University of Michigan, where she is currently pursuing a doctorate in sociocultural anthropology. Nama's academic work has focused on transnational Islam, media, cultural production, and visual culture in Egypt, and identity politics and art in Arab American and Muslim American communities.

Angélique Kidjo, p. 96

Angélique Kidjo is a Grammy Award–winning Beninoise singer-songwriter and activist. She has been recognized as an iconic figure by the BBC and the *Guardian*, and is the first woman to be listed among "The 40 Most Powerful Celebrities in Africa" by *Forbes*. Kidjo has been a UNICEF Goodwill Ambassador since 2002 and vice president of the International Confederation of Societies of Authors and Composers (CISAC) since 2013. For a number of years, Kidjo has been campaigning for Africa for Women's Rights, a campaign launched by the International Federation of Human Rights (FIDH). She is the cofounder of the Batonga Foundation, which supports both secondary-school and higher education for girls in Africa so they can assume leadership roles and create change.

André Lepecki, p. 100

André Lepecki is an associate professor at the Department of Performance Studies at New York University and artistic professor at Stockholm University of the Arts. He is author of *Exhausting Dance: Performance and the Politics of Movement* and editor of several anthologies, including *Dance* for the Whitechapel series Documents of Contemporary Art. In 2008, he cocurated and directed a "re-doing" of Allan Kaprow's *18 Happenings in 6 Parts*. Commissioned by Haus der Kunst, Munich, and presented at Performa 7, *Happenings* received the International Association of Art Critics Award for Best Performance.

Lev Manovich, p. 22

Lev Manovich is the author of *Software Takes Command* (New York: Bloomsbury Academic, 2013), *Soft Cinema: Navigating the Database* (2005), and *The Language of New Media* (Cambridge, Mass.: The MIT Press, 2001); the latter was described as "the most suggestive and broad ranging media history since Marshall McLuhan." Manovich is a professor at The Graduate Center, CUNY, and a director of the Software Studies Initiative, which analyzes and visualizes culture-related big data. In 2013, he was named one of *Complex* magazine's "25 People Shaping the Future of Design."

Nivedita Menon, p. 57

Nivedita Menon is a professor at the Centre for Comparative Politics and Political Theory at Jawaharlal Nehru University, Delhi. She writes with a feminist perspective on political theory and contemporary politics and has published widely in both Indian and international academic journals. Menon regularly contributes to debates on current issues in newspapers and on the team blog *Kafila*. Her books are *Seeing Like a Feminist* (New Delhi: Penguin/Zubaan, 2012), the edited volume *Sexualities* (London: Palgrave MacMillan, 2007), *Power and Contestation: India Since 1989* (London: Zed Books, 2007, coauthored with Aditya Nigam), and *Recovering Subversion: Feminist Politics beyond the Law* (Champaign, Ill.: Permanent Black/University of Illinois Press, 2004). Menon also translates fiction between Hindi, Malayalam, and English and has been involved in a wide range of political and social movements.

Geoff Manaugh, p. 210

Geoff Manaugh is a freelance writer, curator, and architecture blogger based in Brooklyn, New York. He is the author of *BLDGBLOG* (http://bldgblog.blogspot.com), a long-running exploration of spatial ideas from archaeology to urban planning and science fiction to geology; and he is currently exploring the relationship between burglary and architecture for a new book forthcoming from Farrar, Straus and Giroux. He has curated exhibitions at the Nevada Museum of Art and New York's Storefront for Art and Architecture.

Ingrid Newkirk, p. 188

Ingrid Newkirk is founder and president of People for the Ethical Treatment of Animals (PETA) and its international affiliates, and author of over a dozen books on the philosophy of animal rights and its practical application, including *The Compassionate Cook, or, Please Don't Eat the Animals* (New York: Warner Books, Inc., 1993) and *Making Kind Choices: Everyday Ways to Enhance*

Your Life Through Earth- and Animal-Friendly Living (New York: St. Martin's Press, 2005). She is the subject of the 2007 HBO special *I Am an Animal: The Story of Ingrid Newkirk*.

Bruce Nussbaum, p. 48
Bruce Nussbaum is the author of the book *Creative Intelligence: Harnessing the Power to Create, Connect, and Inspire* (New York: HarperCollins Publishers, 2013). He blogs, tweets, and writes on innovation, design, and creativity. The former assistant managing editor for *Business Week* (now *Bloomberg Businessweek*), he is professor of innovation and design at Parsons The New School for Design. Nussbaum also previously served as a Peace Corps volunteer in the Philippines.

Steven Pinker, p. 140
Steven Pinker is Johnstone Family Professor in the Department of Psychology at Harvard University. Until 2003, he taught in the Department of Brain and Cognitive Sciences at the Massachusetts Institute of Technology. He conducts research on language and cognition, writes for publications such as the *New York Times*, *Time*, and the *New Republic*, and is the author of seven books, including *The Language Instinct* (New York: William Morrow and Company, 1994), *How the Mind Works* (New York: W.W. Norton & Company, Inc., 1997), *Words and Rules: The Ingredients of Language* (New York: HarperCollins Publishers, Inc., 1999), *The Blank Slate: The Modern Denial of Human Nature* (New York: Viking Penguin, 2002), *The Stuff of Thought: Language as a Window into Human Nature* (New York: Viking Penguin, 2007), *The Better Angels of Our Nature: Why Violence Has Declined* (New York: Viking Penguin, 2011), and his latest *The Sense of Style: The Thinking Person's Guide to Writing in the 21st Century* (New York: Viking Penguin, 2014).

Camille Paglia, p. 122
Camille Paglia is the University Professor of Humanities and Media Studies at the University of the Arts in Philadelphia, where she has taught since 1984. She is the author of *Sexual Personae* and her third essay collection is under contract to Pantheon Books.
She has written numerous articles on art, literature, popular culture, feminism, politics, and religion for publications around the world. Her essay "Theater of Gender: David Bowie at the Climax of the Sexual Revolution" was commissioned by the Victoria and Albert Museum for the catalogue of its exhibition of Bowie costumes, which opened in London on March 2013 and is touring internationally.

Hugh Raffles, p. 198
Hugh Raffles is an anthropologist at The New School whose work explores relationships among people, animals, and things. His writing has appeared in academic and popular venues, including *Granta*, *Public Culture*, *Natural History*, *Orion*, and the *New York Times*. His most recent book, *Insectopedia* (New York: Pantheon Books, 2010), was selected as a *New York Times* notable book and will be published this year in French and Chinese. In 2010, he received a Whiting Writers' Award. He is currently working on an ethnography of rocks and stones.

Alice Rawsthorn, p. 180
Alice Rawsthorn writes about design in the *International New York Times*, which syndicates her articles worldwide. She is also a columnist for *Frieze* magazine and a prominent public speaker on design. Her latest book, *Hello World: Where Design Meets Life* (2014), explores design's influence on our lives. Described by the curator Hans Ulrich Obrist as "panoramic in scope, passionately argued and highly addictive to read," *Hello World* is published by Hamish Hamilton in the U.K. and in multiple foreign-language editions. A graduate in art and architectural history from Cambridge University, Rawsthorn was awarded an OBE (Officer of the Order of the British Empire) in 2014 for services to design and the arts.

Leslie Savan, p. 46
Leslie Savan is a writer and critic currently blogging about media and politics for the *Nation*. A three-time Pulitzer Prize finalist for her *Village Voice* column about advertising, Savan is the author of *Slam Dunks and No Brainers: Pop Language in Your Life, the Media, and, Like . . . Whatever* (New York: Vintage Books, 2005) and *The Sponsored Life: Ads, TV, and American Culture* (Philadelphia: Temple University Press, 1994). She has been widely published, including in the *New York Times Magazine*, the *New Yorker*, *Salon*, and the *Huffington Post*.

Shira A. Scheindlin, p. 64
Shira A. Scheindlin is a United States District Judge for the Southern District of New York. She was nominated by President Bill Clinton in 1994. She also has been a member of the Judicial Conference of the United States Advisory Committee on the Federal Rules of Civil Procedure (1998–2005). She is known for her intellectual acumen, demanding courtroom demeanor, aggressive interpretations of the law, and expertise in mass torts, electronic discovery, and complex litigation. During her tenure, Judge Scheindlin has presided over a number of high-profile cases, many of which advanced important new positions in the common law. Judge Scheindlin issued two notable and highly publicized rulings in 2013 in regards to New York City's controversial stop-and-frisk procedures: one found the NYPD's procedures unconstitutional, and the other ordered the city to implement reforms under the supervision of a court-appointed monitor.

Anne-Marie Slaughter, p. 118
Anne-Marie Slaughter is the president and CEO of New America and the Bert G. Kerstetter '66 University Professor Emerita of Politics and International Affairs at Princeton University. She has written or edited six books, including *A New World Order* (New Jersey: Princeton University Press, 2004) and *The Idea That Is America: Keeping Faith with Our Values in a Dangerous World* (New York: Basic Books, 2007), and is a frequent contributor to a number of publications, including the *Atlantic* and *Project Syndicate*. In 2012, she published "Why Women Still Can't Have It All" in the *Atlantic*, which quickly became the most read article in the history of the magazine and helped spark a renewed national debate on the continued obstacles to genuine full male-female equality.

Raphael Sperry, p. 68
Raphael Sperry, AIA, LEED AP, is president of Architects/Designers/Planners for Social Responsibility (ADPSR), and the first architect to receive a Soros Justice Fellowship from the Open Society Foundations. He researches the intersection of architecture, planning, and human rights, with a special focus on prisons and jails, and advocates for design professionals to play a larger role in supporting human rights in the built environment. Sperry has taught courses on green architecture, building systems, and building energy use. He holds a master of architecture from the Yale School of Architecture and a bachelor of arts summa cum laude from Harvard University.

Gillian Tett, p. 36
As assistant editor and columnist, Gillian Tett writes two weekly columns for the *Financial Times*, covering a range of economic, financial, political, and social issues throughout the globe. Winner of several reputable awards—the most recent of which is a Society of American Business Editors and Writers award for best feature article in 2012—she is the author of *New York Times* bestseller *Fool's Gold: How Unrestrained Greed Corrupted a Dream, Shattered Global Markets and Unleashed a Catastrophe* (London: Little, Brown, 2009). Before joining the *Financial Times* in 1993, Tett was awarded a PhD in social anthropology from Cambridge University based on field work in the former Soviet Union.

John Thackara, p. 60
John Thackara is an British writer, philosopher, and event producer. He writes online and in books about examples of what a sustainable future can be like; he uses these examples in talks and workshops for cities, universities, and business; and he organizes social harvest festivals in which project leaders share experiences with each other. Thackara is the author of a widely read column at *Design Observer* and of the best-selling book *In the Bubble: Designing in a Complex World* (Cambridge, Mass.: MIT Press, 2006). He is a visiting professor at the School of Visual Arts in New York and the Ambedkar University, Delhi, in India, and a member of the Design Commission of the U.K. Parliament.

Judith Torrea, p. 78
Judith Torrea is an award-winning investigative blogger, journalist, and author who has covered the Mexico-U.S. border for sixteen years. Her work focuses on women's-rights issues, such as femicide, human trafficking, and immigration. Torrea's work spotlights some of the most dire human-rights cases in Ciudad Juárez and analyzes the impact of the war on drugs on marginalized and poor communities. Her book *Juárez en la sombra: Crónicas de una ciudad que se resiste a morir* (Mexico City: Aguilar Press, 2011) was released in Latin America and Spain. A pioneer blogger in conflict zones, Torrea is the author of the respected blog *Ciudad Juárez, en la sombra del narcotráfico* (*Ciudad Juárez: In the Shadow of Drug Trafficking*).

Rob Walker, p. 40
Rob Walker is a technology and culture columnist for *Yahoo Tech*. He is also a contributor to *Design Observer* and writes the Workologist column in the Sunday Business section of the *New York Times*. His most recent book, coedited with Joshua Glenn, is the collection *Significant Objects: 100 Extraordinary Stories about Ordinary Things* (Seattle: Fantagraphics, 2012).

Jamin Warren, p. 202
Jamin Warren founded video-game arts and culture company Kill Screen. Formerly a culture reporter for the *Wall Street Journal*, he serves as an advisor to The Museum of Modern Art's Department of Architecture and Design. Jamin also hosts the PBS web series *Game/Show*.

Carlotta Werner and Johanna Sunder-Plassmann, p. 30
Carlotta Werner and Johanna Sunder-Plassmann are a German product-designer and media-artist team. Their collaboration began as artistic directors for Turkish Nobel laureate Orhan Pamuk's Museum of Innocence, a museum in Istanbul inspired by his 2008 novel of the same name. Other projects include the design of charcoal stoves for use in West Africa and adapted for local cooking behaviors, as well as the documentary film *Istanbul Collecting*, which follows the designers as they seek out Istanbul's hidden collections of cinema tickets, toys, and diving helmets in preparation for the Museum of Innocence. Through their study of the emotional value assigned by individuals to everyday objects, the team aims to better understand social environments. Currently, they are working on an exhibition about hacked objects emerging in political protests worldwide.

Jody Williams, p. 170
Jody Williams received the Nobel Peace Prize in 1997 for her work to ban land mines through the International Campaign to Ban Landmines, which shared the Peace Prize with her that year. Beginning with her protests of the Vietnam War, she became a life-long advocate of freedom, self-determination, and human and civil rights. Since the launch of the Nobel Women's Initiative in January 2006, Williams has served as its chair. The initiative is made up of six women recipients of the Nobel Peace Prize who support the work of women around the world to achieve sustainable peace with justice and equality.

Cintra Wilson, p. 126
Author, performer, and disgraced *New York Times* fashion critic Cintra Wilson is the author of three books denouncing the hypocrisies of our age, including *A Massive Swelling: Celebrity Re-Examined as a Grotesque, Crippling Disease* (New York: Viking Penguin, 2000). Her articles can occasionally be found in exceptionally brave magazines. Her fourth book, *Fear and Clothing: Unbuckling America's Fashion Destiny*, will be published by W.W. Norton & Company.

Shandra Woworuntu, p. 26
Shandra Woworuntu is a legislative lobbyist in Washington, D.C., and an advocate on behalf of anti-human-trafficking groups. In 1998, she lost a job as a financial analyst in her native Indonesia due to political turmoil. Soon after, she responded to an opportunity to work in the hotel industry in Chicago. In 2001, upon arriving in the United States, Woworuntu was kidnapped and forced into prostitution; eventually she escaped her captors. Woworuntu now works to bring to justice those who engage in criminal trafficking with the help of Safe Horizon, a victim-assistance agency in New York. In 2014, she also established Mentari, a support group to empower trafficking survivors. Woworuntu holds a degree in finance and bank management.

Susan Yelavich, p. 113
Susan Yelavich is an associate professor and director of the MA Design Studies program in the School of Art and Design History and Theory at Parsons The New School for Design. A Fellow of the American Academy in Rome, Yelavich awarded the Academy's Rolland Prize in Design in 2003. Her newest book is *Design as Future-Making* (London: Bloomsbury Publishing, 2014); she is also the author of *Contemporary World Interiors* (London and New York: Phaidon, 2007). In addition she is an independent curator; her most recent exhibition was *Deep Surface: Contemporary Ornament and Pattern* at the Contemporary Art Museum in Raleigh, North Carolina, in 2011. Previously, she was the assistant director for public programs at Cooper Hewitt, Smithsonian Design Museum in New York.

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