

CHAPTER TWELVE



Steve Jobs versus the Victorians: Steampunk, Design, and the History of Technology in Society

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Steampunk aficionados often appreciate fantastically designed submarines, robot dirigibles, and even modified Victorian-style laptops for their own sake, as expressions of technological fun and creative energy. But on closer analysis, steampunk literature, film, and art also supply excellent commentary on important issues regarding the past, present, and future of technologies. How should objects be designed? Should they follow established historically inspired lines, or try to establish an innovative language of modernity? Who shapes our machines, and what establishes our context of technological choice? What values does technology reflect and/or impose? Who decides and who benefits; as historian David Noble has asked, “Progress for whom? Progress for what?”¹

The book accompanying the 2009–2010 steampunk exhibit at Oxford University’s Museum of the History of Science explained, “Steampunk is a unique fantasy version of nineteenth century Victorian England, now imbued with high-tech digital devices, fantastic steam-powered machines, and all manner of surreal electro-mechanical contraptions. . . .”² Those familiar with the genre will know of a multitude of other reference points, from jewelry and costumes available through online craft outlets, to Hollywood’s version of *The League of Extraordinary Gentlemen* (2003), television shows such as *The Wild, Wild West* (1965–1969), and a wealth of books, graphic novels, and fan-fiction versions of *Star Wars* robots and weaponry.³

Engineers, artists, and designers themselves frequently represent the ultimate visual thinkers, both by nature and educated professional preference.

Accordingly, this chapter focuses on the artifacts of steampunk, primarily (but never apart from) its literature, films, or do-it-yourself costuming and role-playing subculture. To open with an instant-classic example, the 2007 “Datamancer steampunk laptop,” created by Richard Nagy, embeds a modern computer within a gleaming copper and brass case, lifted on small claw-foot legs. Instead of pressing an unobtrusive “on” button, a gesture so automatic today as to become meaningless, users activate the laptop through the more hands-on, conscious effort of turning a scrolled key.⁴

This chapter poses two major questions: first, what were the real-life Victorians’ ideas about what machines should look like, and how does that historical depth connect to steampunk? Second, what does the emergence of steampunk reveal about the history of how our technological aesthetics have evolved? What was the mind-set that brought design from ornately detailed brass and glass to today’s “bobjects,” as Scott Westerfeld has called them, or “jellybeans,” to use Jake von Slatt’s disparaging term?⁵ Steampunk can serve as an excellent subject of reflection for historians of technology, precisely because steampunk writing, art, and design all place material technologies at the center of their conceptions. Stefania Forlini has written:

As a sub-genre of science fiction, [steampunk] explores the difference an object can make. . . . As a craft and lifestyle movement, it produces material things . . . to challenge contemporary technological design and help us reconsider the value of things. In both its literary and material manifestations, steampunk is about learning to read all that is folded into any particular created thing—that is, learning to connect the source materials to particular cultural, technical, and environmental practices, skills, histories, and economies of meaning and value.⁶

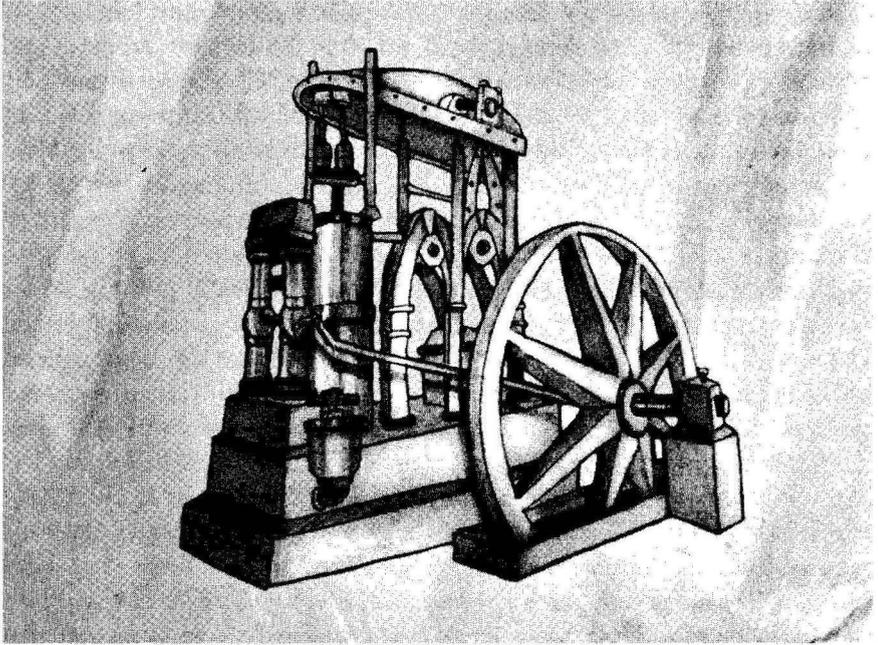
Victorians’ Machine Vocabulary

At its best, steampunk captures and re-creates Victorians’ love of what historian David Nye calls the “technological sublime.”⁷ Iron and glass combined as fundamental materials to form England’s then-radical Iron Bridge (first completely made of cast iron, 1779) and the Crystal Palace of London’s Great Exhibition of 1851, both entrancing crowds. Symbolizing the wonders of new machinery, President Ulysses Grant personally started the giant Corliss engine that powered Philadelphia’s 1876 Centennial Exposition.⁸ Steampunk imagery draws on essential sources in Victorian and Edwardian machinery, both actual historical developments (steam locomotives, airships) and classic science fiction (notably, H. G. Wells and Jules Verne).⁹

Steampunk's pseudo-celebration of nineteenth-century material technology engages basic questions about design aesthetics. To borrow a phrase made popular in the title of Owen Jones's influential 1856 design sourcebook, what was the Victorians' "grammar of ornament"?¹⁰ How have our default assumptions about technological appearance evolved over the decades? Who decides what is visually attractive, socially relevant, and/or functionally appropriate, and how can we prioritize or balance those sometimes compatible, perhaps contradictory goals?

In hearkening back to the Victorian era, steampunk pays tribute to nineteenth-century leaders' enthusiasm for technology and their efforts to champion and accelerate invention. New patent legislation passed in Britain, France, and elsewhere aimed to clarify procedures and make registration more accessible. By the 1880s, the British patent office received more than twenty thousand applications each year, and by 1911, the United States had issued more than one million patents. Many real-life Victorian inventions, of course, relied on the gears, flywheels, pistons, levers, and gauges that have become the visual identifiers of steampunk. To take a few examples, in the 1870s, after watching a device in a steamship's engine room count the turns of a propeller, Ohio bar owner James Ritty invented the cash register that used internal wheels to track transactions and stop dishonest clerks from pocketing profits. Victorians loved toy automatons, dancing figures powered by clockwork and balances, or mechanical savings banks in the form of elephants or dogs that mechanically grabbed and deposited coins. Some inventions predated Rube Goldberg in the extended intricacy of their steps; in 1893, two British men patented a device to brew tea automatically; the ringing of a preset alarm clock triggered rods, levers, and bars that turned on the gas, poured water down a pipe into the teapot, and finally turned off the burner.¹¹ In creating and manufacturing new machines, Victorians had to decide on a vocabulary of appearance. Their technological design did not start from scratch. It was no coincidence that early railway passenger coaches and automobiles often imitated the shape and decorations of horse-drawn carriages, often manufactured by the same firms; the same workmen alternated between painting stripes and curlicues on carriages and cars.¹²

While today's steampunk speaks a visual language symbolizing possible future paths of older technology, it is vital to realize that Victorians themselves wrestled with the same challenge of inventing an iconography of machine design, without converging on consensus. Far from reveling in the metal of steam-engine boilers, many Victorian designers sought to disguise it behind Egyptian, Napoleonic, or other fanciful excess. Boulton and Watt



The iconic Victorian machine: every lever, wheel, and cylinder in view. *Copyright Jody Steel*

themselves encased steam engines inside an architectural frame of Tuscan or Doric columns. Other nineteenth-century manufacturers transformed steam engines into “miniature Greek temples,” using elaborately curved Corinthian capitals to support the working beam, or even adding laurel wreaths. The circa 1855 “Gothic steam engine” (displayed now at Dearborn’s Henry Ford Museum) features soaring pointed arches and pierced geometric ornamentation, all coated in pure white.¹³ Design historian Julie Wosk suggests that in the days when newspapers headlined gory accounts of steam-boiler explosions and train derailments, manufacturers embraced such visually familiar ornamentation as a way to reassure a terrified public. By linking intimidating machinery to classical Greece and Rome, Victorians sought to present steam engines as “enduring, stately, and, most important, safe additions to the social milieu.”¹⁴ As art historians Charlotte Gere and Michael Whiteway explain, “Nineteenth-century designers assumed a culturally sophisticated and well-informed audience . . . and expected subtle references to earlier civilizations to be understood and appreciated.” For a twenty-first-century Western audience, trained to expect flimsy plastic and particle board in Walmart-ized forgettable consumer form, it is now Victorian iron itself that represents

dignity and impressiveness, even (or perhaps, especially) when lacking the incongruous ornamentation.¹⁵

Victorian buildings that housed the new technologies, from water-pumping stations to railroad stations, similarly embraced romanticized foreign camouflage, presenting “factory chimneys as Italian campaniles and warehouses as Egyptian palaces.”¹⁶ Robert Stephenson’s 1850 Britannia railway bridge crossing the Menai Strait echoed the colossal lines of Egyptian design, while Isambard Kingdom Brunel wanted to decorate some of his bridges with sphinxes. Train stations incorporated medieval castle towers, Moorish-style arches, or secularized Gothic pinnacles. Brunel’s 1841 Great Western Railway train shed in Bristol featured a Tudor-style roof complete with fake hammer beams, but later urban terminals dramatically covered platforms with arching metal girders and impressive spans of glass, reflecting the aesthetic and technical influence of Crystal Palace architecture.¹⁷

Numerous commentators, including Bruce Sterling and Jake von Slatt, have suggested that modern steampunk’s appeal lies partly in its celebration of vintage workmanship.¹⁸ Steampunk designer Art Donovan has written, “No longer satisfied with the injection-molded plastic design of today’s mass-produced products, steampunk artists are crafting a romantic new standard for modern goods by taking traditional nineteenth century materials and applying them to twenty-first century technology. . . . These artists prefer the ‘transparent’ honesty of the handcrafted object. . . .”¹⁹ Ironically, the Victorians themselves were caught up in parallel debates over art versus factory, individual creativity versus mass production. An aesthetic and philosophical backlash against both the process and products of mechanized industry spawned John Ruskin’s Arts and Crafts movement. Ruskin, Augustus Pugin, William Morris, and others proclaimed a new artistic taste that fetishized a preindustrial dignity of labor and attempted to recapture the seemingly superior tradition, soul, harmony, and high quality of handmade goods.²⁰

Steampunkers often portray the Victorian era as the last refuge of fine craftsmanship, an image brought to life in the clocks with hand-cut gears and chains made by Eric Freitas.²¹ But in reality, mass production was already well under way by the early Victorian era. To take just one example, by the 1820s, clockmaker Eli Terry had improved and patented water-powered machinery for cutting wooden clockwork parts. By dramatically reducing the cost and increasing the volume of production, Terry and other early-nineteenth-century manufacturers transformed clocks from a handcrafted luxury item into a smaller, affordable purchase brought to even rural families by a network of peddlers.²² United States firms especially came to specialize in what historians have called “armory practice,” embracing the shop use

of jigs, fixtures, and “go/no-go” gauges, plus pattern pieces and machines such as the Blanchard copying lathe. Though in practice manufacturers still could not always meet the goal of producing perfectly interchangeable parts, the system allowed factory owners to replace experienced craftsmen with cheaper, unskilled machine tenders. Indeed, it was this “American system of manufactures” that intrigued observers at the 1851 Crystal Palace exhibition, not just the items on display but the process of production with special-purpose machines.²³

The aesthetics of Victorian design actually grew quite chaotic, borrowing and mixing elements of Queen Anne style, Gothic Revival, medievalized, Renaissance, and Baroque principles. Owen Jones modeled the interior decoration of the 1851 Great Exhibition on the bold color combinations of Spain’s Alhambra, making it a garish parade of multicolored stripes rather than a more sober wood and metal monotone. Oscar Wilde’s Aesthetic movement added an exoticist obsession with India, Japan, China, Persia, and other non-Western civilizations.²⁴

As a self-consciously individualized aesthetic, steampunked machine creations, movie imagery, and book illustrations accommodate substantial scope for variation and brightness, especially in the realm of fashion and accessories. But in practice, generalizations of shadowy colors, dark woods, and metallic tones often dominate. Steampunk sculptors, writers, and designers, of course, are not historic reenactors; artistic license permits them a certain fluidity in interpreting Victorian machine style. Yet in its way, the common steampunk definition of nineteenth-century technology as brass and glass, gears and levers, is as narrowly blinded as the popular cultural stereotype of the Victorian era as scared of sexuality. Just as modern scholarship has shown the wide existence and variation in Victorian sex lives, Victorian technological life proves more complex and often contradictory than commonly recognized. Long term, the rich potential of steampunk lies in recapturing and building on the Victorians’ true diversity of design, meant to convey varying ideas of beauty and cultural gravitas. Steampunk designs, such as Ian Crichton’s 2009 spaceship model “Celestial Sphere ‘Britannia’” or Jesse Newhouse’s 2008 steampunked iPod dock “Gramophonobox MKII” might well, if built by actual Victorians, have incorporated classical columns in their structures. Some steampunk artists have created objects that reflect the Victorians’ eclecticism; for instance, the 2008 “Victrola Eye-Pod” built by Joey Marsocci (“Dr. Grymm”) incorporates classically scrolled legs, while Richard Nagy’s 2008 “Archbishop” PC suite beautifully reflects the nineteenth century’s infatuation with Gothic influences.²⁵

The Evolution of Machine Aesthetics

It was the real-life Victorians' wealth of aesthetic influences and the intellectual vigor of the design debate that fostered the continued evolution of design ideals into the twentieth century. Breaking with Ruskin's hatred of mechanization, many Americans in the Arts and Crafts movement, such as Frank Lloyd Wright, sought to reconcile industrial modernization with quality.²⁶ An emerging horror of ornamental overabundance led to a fascination with simplicity, the inherent grace of technology itself. By the post-World War I period, Americans especially saw themselves as shaping a new Machine Age. As a 1980s Brooklyn Museum of Art exhibit demonstrated, in "this new consciousness . . . history seemed irrelevant, traditional styles and pieties outmoded. The machine in all its manifestations—as an object, a process, and ultimately a symbol—became the fundamental fact of modernism."²⁷ From the record-setting flights of Charles Lindbergh, to the reverential machine photographs of Margaret Bourke-White, from experimental television sets to Buckminster Fuller's Dymaxion automobile, the interwar era headlined the glories of modernized technology. Even the Great Crash of 1929 failed to fatally dent excitement over the opening of the Golden Gate Bridge, Hoover Dam, the Empire State Building, the Tennessee Valley Authority, and the 1939–1940 New York World's Fair, with its Depression-proof theme, "Building the World of Tomorrow."

European and American Machine Age aesthetics embraced mass production, clean lines, and new materials such as Bakelite and aluminum. Reflecting the Bauhaus maxim, "Art and Technology: A New Unity," designers such as Ludwig Mies van der Rohe, Le Corbusier, and Marcel Breuer incorporated the chrome and tubular steel of bicycles into minimalized chairs and cantilevered tables.²⁸ Futurist artists, such as Giacomo Balla, painted lines of the automobile to signify the transformation of the world by speed itself, a value later reaffirmed by the airplane, radio, and Space Age modernism. The later American art movement, Precisionism, celebrated an industrialized world as peaceful and powerful. In the 1920s and 1930s, the Ford Motor Company paid Charles Sheeler to document its vast River Rouge factory. His resulting photographs and paintings showed a world dominated by crossed conveyor belts and other industrial machinery, with human presence minimized or altogether absent. The 1930 image tellingly titled "American Landscape" showed impressive smokestacks replacing trees, an industrial canal rather than a meandering river, but as a polished construction that did not mourn the absence of either individual humanity or untouched nature. Other Precisionists, such as Ralston Crawford, went even further in showing

water towers, grain elevators, factories, and endless roadways as clean and bright geometric abstractions, glorious for their very starkness.²⁹

Steampunk in many ways represents a rejection of this modernist sensibility, relishing roughness and often a patched-together appearance as more honest than prefabricated pseudo-perfection. Art Donovan declared, "Due to the modern methods of mass production and the need to cheaply produce billions of units, modern design now suffers from an androgynous 'digital silhouette' whereby one cannot visually tell the difference between a cell phone and a remote, or even a flat screen TV and a computer."³⁰ Yet steampunk's very popularity underscores the value of a historical understanding of how our pared-down iPod design mentality evolved. Steampunk represents commentary not just on nineteenth-century versus twenty-first-century technologies, but on what came in between. For instance, the transition is readily apparent in electric kettles and other new appliances made by Berlin's Allgemeine Elektrizitäts-Gesellschaft around 1910, which stripped away all decorative links to traditional domestic possessions of the elite, embracing a standardized geometric form that implied accessibility to all owners.

Early-twentieth-century industrial designers, such as Raymond Loewy, Henry Dreyfuss, Norman Bel Geddes, and Walter Dorwin Teague, defined "the modern" specifically by its contrast to older aesthetics. They feverishly applied fluid streamlining (and its domestic equivalent, cleanlining) to create new icons: aerodynamic locomotives, tapered-front automobiles, even teardrop-shaped pencil sharpeners.³¹ It was no coincidence that American manufacturers passionately pursued industrial design, especially during the Depression. At a time when many ordinary people worried that rapid mechanization had displaced workers and helped spawn mass unemployment, innovative appearances reassured doubters that mechanization truly represented progress. Planned obsolescence suggested that mass production was ultimately necessary to restore mass consumption and a supposedly universal path to prosperity, defined by an abundance of possessions.³²

Plastic especially seemed to create its own aesthetic, from the smooth curves of stackable chairs, to the striking shapes of Bakelite jewelry, to glossy art deco radio cases. Corporate boosters touted the wonders of plastic, nylon, and other synthetic materials, presenting those novel substances as naturally superseding the Victorians' metals, silk, and wood, while offering better-than-natural characteristics of strength and versatility. Chicago's 1933 Century of Progress Exposition blazoned the promise/warning, "Science finds, industry applies, man conforms." DuPont adopted the slogan, "Better Things for Better Living Through Chemistry." Of course, today's environmentalists have made it impossible to ignore the global toll of pollution and oil depen-

dence. Designers created many products to be beyond repair; rather than fixing a broken Swatch watch, consumers were intended simply to purchase replacements. Steampunk underlines the immoral cast of such a disposable society, contrasting floods of cheap plastic to the romance of solid metal.³³

Similarly, when electricity was relatively new, ordinary people marveled at the silent, invisible force that lit rooms at the flick of a switch, safe (unlike candle or gaslight) for even children to operate. In the late nineteenth and early twentieth centuries, both physicians and patients placed faith in the miraculous magic of electricity to cure everything from headaches to impotence.³⁴ Today, electricity's mystery has been evaporated by its ubiquity, restoring retro allure to its dramatic opposite, the sheer physicality, noise, and novelty of steam.

Even the dangers of steam, remote in practice and, indeed, completely outside the awareness of most people today, have acquired a certain strange fascination, even retro glamor. Alarmed by reports of engineers who held down the safety valves to steamboats or locomotives to attain reckless velocity, nineteenth-century legislators passed pioneering safety regulations and inspection provisions. For the Victorians, *Frankenstein* (1818) underlined the simultaneous fear and admiration of change, with the danger that machinery might overpower man. To a modern audience jaded and cauterized by the potential for nuclear holocaust, chemical poisoning, global warming, and environmental degradation, nineteenth-century technologies have lost their horrors. We know now that Victorian industrialization did not destroy humanity; in fact, once steampunkers reenvision it to work around child labor, pollution, and poverty, the machinery itself, stripped of such realities, becomes benign, even charming.

Today's design aesthetic is machines without noise, machines without visible risk, machines without machinery. Automobile functioning has become opaque, forcing backyard mechanics to submit vehicles to dealer-controlled computer diagnostics. Steampunk ideals, therefore, restore machinery to a place of visible consciousness. Ideally, steampunk can invigorate delight in machinery and a brave fascination with both its potential and (mostly fictional) dangers. Steampunk reveals a sense of awe combined with a sense of humor and a sense of complex ambiguity about the relationship between technology and society. In portraying a Victorian-style technology often infused with twenty-first-century sensibilities, steampunk can also capture a consciousness of modern sustainability imperatives. Not coincidentally, it also links to the 1960s/1970s "appropriate technology" and computer-liberation movements, the ethic of technology by and for the people, freed from monopoly by corporate marketing.³⁵

Art Donovan maintains that steampunk “celebrates a time when new technology was produced not by large corporations, but by talented and independent artisans and inventors.”³⁶ Bricoleurs relish that user-created ideal both as a guarantee of intellectual freedom and as a statement against the dominance of commercialized mass production. But from a historical perspective, the image of the independent inventor proves more complex. In fact, the Victorian-era machine shop proved the catalyst for cooperative investigation and innovation. More than that, the nineteenth century fostered the birth of modern corporate organization, especially in the United States, where railroads and rapidly expanding firms such as DuPont embraced the “visible hand” of professional management hierarchies, horizontal mergers, and vertical integration. Victorian managers originated the idea of standardizing and governing the process of invention itself. German chemical companies created research laboratories to create synthetic dyes and pharmaceuticals. Thomas Edison, whose mythologized public image still defines what many people envision as the embodiment of a lone genius, created what some historians have considered the world’s first industrial research laboratory at Menlo Park, New Jersey, in 1876. In what Edison reportedly termed his “invention factory,” he explicitly aimed to turn out “a minor invention every ten days and a big thing every six months or so.” To compensate for his own lack of formal scientific education, Edison hired key staff such as theoretical physicist Francis Upton, who could ground Edison’s empirical brainstorming in formal mathematical reality. Providing his team with top-quality laboratory equipment, machine tools, and a technical library, Edison collaborated his way to the grand total of 1,093 patents filed under his name.³⁷ By the beginning of the twentieth century, the Bell Telephone Company, General Electric, DuPont, and Westinghouse had all established research laboratories that recruited engineers and scientists such as Charles Steinmetz and brilliant inventors such as Nikola Tesla to labor within the capital-intensive mega-organization.³⁸

Nevertheless, steampunk raises a deeper question: have modern trends of standardized test-centered education and cultural shifts in childhood squashed old-fashioned curiosity and the joy of technical exploration? The philosopher/motorcycle mechanic Matthew Crawford has written about the artificial separation of mental and manual skills, about the lost rewards of completing tangible tasks.³⁹ During the early twentieth century and through the Cold War, numerous radio operators, rocket scientists, and future mechanics honed their technical skills in attics, sheds, or basements by building radio sets from Heathkits or simply taking apart old clocks.⁴⁰ Gever Tulley, a cofounder of the Tinkering School, has advocated for letting youngsters

do “dangerous things,” such as playing with fire and zapping objects in microwave ovens, as learning exercises.⁴¹ Many engineering educators bemoan that current students lack the hands-on awareness of previous generations, and San Francisco’s Exploratorium, Stanford University, and numerous other institutions are attempting to reopen license for children to do manual experiments.⁴²

Steve Jobs, Steampunk, and Technological Desire

As many (though by no means all) fans of popular culture know, Steve Jobs was part of that cohort of self-taught tinkerers and hackers. The company he birthed, Apple, may appear the absolute antithesis of steampunk ideals, as the world’s most valuable company, measured by market capitalization, in summer 2011. But strikingly, Jobs was in many ways just as obsessed with the grammar of object design and technological art as are adherents of steampunk culture. It reveals a wealth of perspective on the history of technology to recognize that Jobs’s design ideals were situated 180 degrees apart from those of steampunk. One key mantra for Apple was “Simplicity is the ultimate sophistication.” Jobs commanded his staff to absorb design history, to take aesthetic cues from the streamlined “pure” forms of a classic Cuisinart or Porsche, mass-produced Tiffany glass, Bauhaus modernism, Braun electronics, and Eames chairs. He revered the Zen-inspired architecture of I. M. Pei and fashion sense of Issey Miyake, who personally created Jobs’s iconic black mock turtleneck. Along with designer Jonathan Ive, Jobs defined Apple through a philosophy of simplicity, connecting the entire conception of all products from manufacture, through packaging, to end-stage user experience.⁴³

Like steampunk artists, Jobs positioned his design as a conscious reaction against the (different) trends he detested among other technology creators. In contrast to the metallic high-tech hulks of other manufacturers, Apple housed its machines first in low-key beige cases, then in playfully shaped shells of eye-popping multicolor translucent plastic. Jobs designed his computers to appear “friendly”; not only did the start-up icon feature a smiling “Happy Mac” face, but the original Mac case itself echoed the contours of the user’s own head. Obsessive design vision led Jobs to focus attention on minute details of his products, refining them over successive iterations, even down to the precise lines of a chamfer. He took the quest for minimalism to extremes, even seeking to abolish an on/off switch and computer function keys as unnecessary clutter. Jobs insisted on eliminating noisy internal fans, creating a straightforward single-button mouse, and developing a white-background screen to

simulate the appearance of paper, all against the resistance of engineers who vowed those specifications were impossible. With a perfectionist personality, he even mandated ideal proportions for internal circuit boards, invisible to ordinary users.⁴⁴

Jobs and Steve Wozniak founded Apple as a deliberate democratization of technology, part of the great transformation of computers from behemoth mainframes into accessible, affordable home devices liberated for user-friendly writing, games, art, and music. Their 1975 Homebrew Computer Club hackers' unconventional subculture emerged from the West Coast hippie era, *Whole Earth* strain of revolutionary experimentation, reclaiming computers from banks, corporate monopoly, and the military-industrial complex.⁴⁵ That spirit of rebellion was condensed into the famous/infamous "1984" Super Bowl ad, with Apple representing the renegades smashing the Big Brother fascism of IBM. Such corporate history makes it all the more ironic that Jobs wound up merely redirecting the source of control, attempting to ensure that users could not violate his interpretations of the appropriate computer experience. Apple corporate culture became notably hostile to hackers, with machines that limited opportunities to add customized peripherals, with cases literally built to discourage nonspecialists from opening them.⁴⁶

Yet in the end, the mottos dear to Apple's self-definition, "insanely great" and "think different," also represent part of the imaginative ideal behind steampunk. Jobs believed that good technology must carry an emotional appeal to users, a design vision that nurtured the "cult" of Macintosh. Visually, there is a striking opposition between the pure-white, oversimplified cord marking advertising that introduced the iPod and the florid intricacies of steampunk creations. But though applied in radically different aesthetic and historical directions, that same sheer passion for design and an unembarrassed love of technology give steampunk its richness and resonance. Rebecca Onion has commented, "Steampunks express the sense that, when one is in the act of communing with a machine, one can access the pure pleasure of understanding."⁴⁷ Many early adopters and aficionados of Apple products also prize that sense of connecting to and through what they consider well-designed technology. To many design professionals and ordinary users, Apple devices exuded soul. Paola Antonelli, design curator at New York's Museum of Modern Art, remembered that upon first acquiring a Macintosh, she felt, "It was like a little pug dog looking at me. It wasn't just something I worked with; it kept me company. It had such personality and such life."⁴⁸

For hard-core steampunk artists, such notions represent anathema; to them, the iPod manifests the worst of dull or even dehumanizing design,

the isolation and isolating tendencies of contemporary techno-driven desire. The postmortem praise and even mythologizing of Steve Jobs reinforced the equally passionate feeling of those who love iPads, iPods, and iPhones that such devices, used with awareness and sensitivity, can reinforce self-expression and empower users. Clearly, such deeply held convictions resist reconciliation, yet in the end, both sides come back to the primacy of design choices and what they signify about technology's creators and users, and the cultures in which they are embedded. Not coincidentally, Jobs himself devoted careful attention to what he called the "magical" meeting points for dialogue between engineering/science and the humanities; his deep interest in liberal arts subjects, such as calligraphy and the history of font design, directly shaped his computer-age vision.

Intellectually, though the analogies are not perfect, it can be useful to think of steampunk as a history of technology running parallel to the "what if" strand of military history.⁴⁹ Robert Cowley writes, "Counterfactual history may be the history of what didn't happen, a shadow universe, but it casts a reflective light on what did. Why did certain events (and the trends and trajectories that grew out of them) dominate, and not others? At what point did possibilities become impossibilities?"⁵⁰ What if Charles Babbage had succeeded in producing functioning computers generations ago?⁵¹ In its exploration of alternate-reality technological possibilities, steampunk serves as a useful corrective to technological determinism, errors in assuming that technological "progress" autonomously develops along certain paths and people merely follow.⁵²

Steampunk provides excellent perspective on important ideas in the history of technology, including scholar Melvin Kranzberg's famous first "law of technology": "Technology is neither good nor bad; nor is it neutral."⁵³ Fundamentally, technology never develops in a vacuum. The steampunk genre provides useful insight into ways that technological development expresses the essential influence of human choice and social context. Like design in the Victorian era and ever since, steampunk still offers the heart of a creative dialogue between technological change and the contested mentality of modernity.

Notes

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of steampunk, see Jess Nevins, "Prescriptivists vs. Descriptivists: Defining Steampunk," *Science Fiction Studies* 38, no. 3 (November 2011): 513–518.

4. Donovan, *The Art of Steampunk*, 26.

5. "Scott Westerfeld on *Leviathan*," in *The Steampunk Bible*, ed. Jeff VanderMeer and S. J. Chambers (New York: Abrams, 2011), 66–68; Rebecca Onion, "Reclaiming the Machine: An Introductory Look at Steampunk in Everyday Practice," *Neo-Victorian Studies* 3, no. 1 (2010): 138–163, www.neovictorianstudies.com (29 February 2012).

6. Stefania Forlini, "Technology and Morality: The Stuff of Steampunk," *Neo-Victorian Studies* 3, no. 1 (2010): 72–98, www.neovictorianstudies.com (28 February 2012).

7. David Nye, *American Technological Sublime* (Cambridge: MIT Press, 1996).

8. For more on the history of actual Victorian technology, see William Rosen, *The Most Powerful Idea in the World: A Story of Steam, Industry, and Invention* (New York: Random House, 2010); Thomas J. Misa, *A Nation of Steel: The Making of Modern America, 1865–1925* (Baltimore: Johns Hopkins University Press, 1999); Maury Klein, *The Power Makers: Steam, Electricity, and the Men Who Invented Modern America* (New York: Bloomsbury Press, 2008); Alan Marcus and Howard Segal, *Technology in America: A Brief History* (New York: Wadsworth Publishing, 1998).

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11. Stephen van Dulken, *Inventing the 19th Century: 100 Inventions that Shaped the Victorian Age* (New York: New York University Press, 2001).

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15. Charlotte Gere and Michael Whiteway, *Nineteenth Century Design: From Pugin to Mackintosh* (New York: Abrams, 1993), 10, 13.

16. Gere and Whiteway, *Nineteenth Century Design*, 10–11.

17. Michael Freeman, *Railways and the Victorian Imagination* (New Haven: Yale University Press, 1999).

18. Bruce Sterling, "The User's Guide to Steampunk," and Jake von Slatt, "A Steampunk Manifesto," in VanderMeer and Chambers, *The Steampunk Bible*.

19. Donovan, *The Art of Steampunk*, 25–26.

20. Pamela Todd, *The Arts & Crafts Companion* (New York: Bulfinch Press, 2004).
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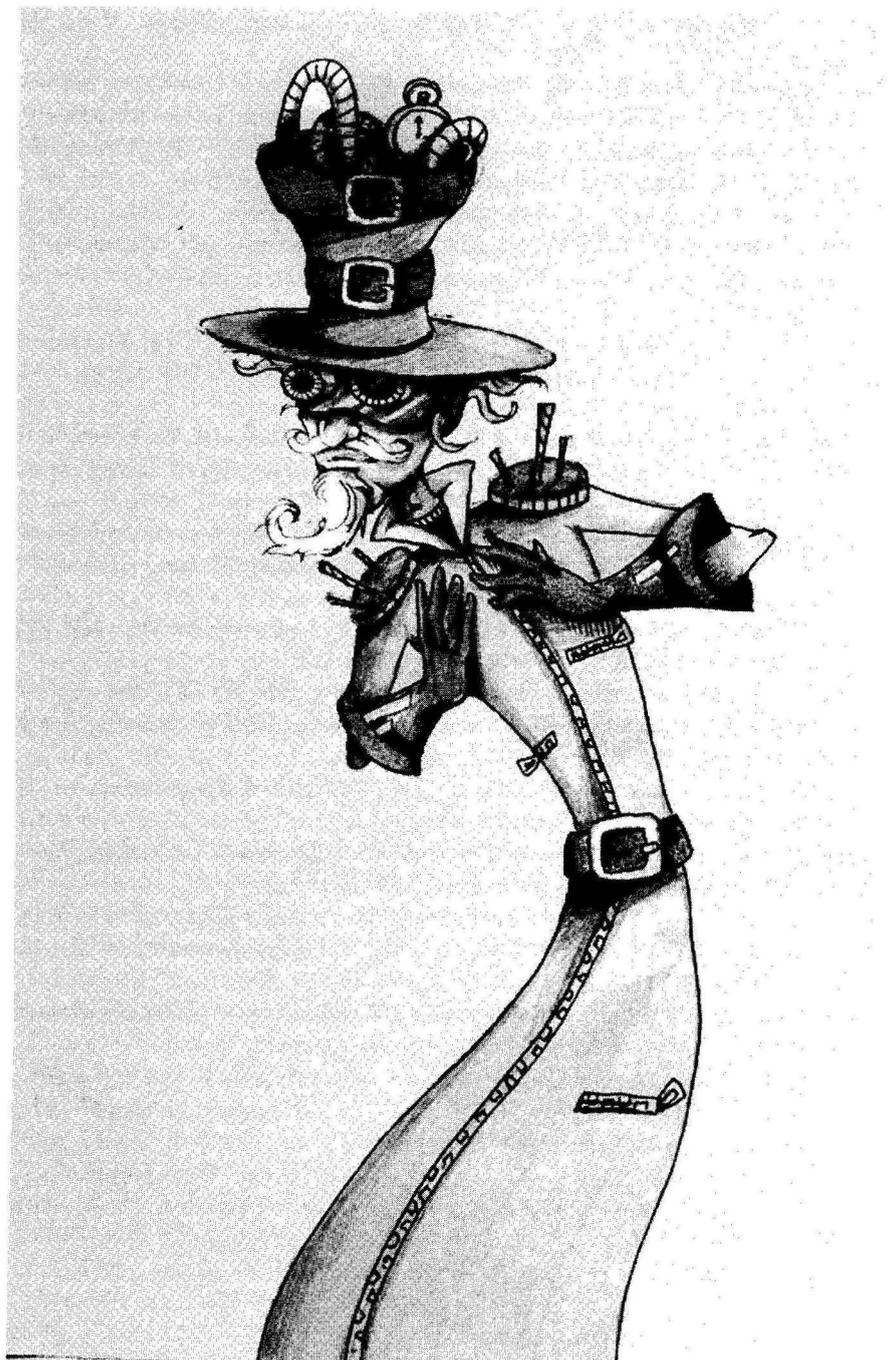
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