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Jesse Adams Stein

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IN MEMORIAM

Domesticity, Gender and the 1977 Apple II Personal Computer

Jesse Adams Stein

Jesse Adams Stein has taught design history and art history at the School of the Art Institute of Chicago, the University of New South Wales (UNSW), Sydney, and the University of Canberra. In 2009 she obtained a Masters (emphasis in design history) at the School of the Art Institute of Chicago, and was a University Medalist in Art Theory at UNSW in 2005. She is currently a Ph.D. candidate at the University of Technology, Sydney, with a research focus on twentieth-century Australian design history. jesse.stein@uts.edu.au

ABSTRACT This paper considers one of the first personal computers to be marketed to a mainstream American audience in the late 1970s: the Apple II. Lewis Mumford's notion of "ideological and social preparation" is adapted to describe this period as a preparatory phase for the later ubiquity and absorbing quality of our relationship with personal computers. In examining the Apple II's design alongside a key marketing image we can discern that domesticity and gender were crucial points of negotiation during this period. In the late 1970s marketing for Apple the image of idyllic domesticity quickly became a major context for computer promotion, a development that had gendered implications. The example of 1930s streamlining in the design of domestic

household appliances is used as a parallel with the Apple II's startling application of a plastic case: the concealing plastic exterior simultaneously simplified and obscured the device, transforming it from a "machine" into a "personal appliance."

KEYWORDS: Apple II, domesticity, gender, keyboard, personal computer, appliance, streamlining, Cuisinart

Personal computing: the preparatory phase

Technology commentator Donald Norman has argued that computers *ought* to be invisible in our lives, but that their malfunctions, technicalities and functional components make them far too present, in a disruptive manner (Norman 1998). When the beige, upright desktop PC was common in the late 1980s and 1990s, the object itself was ignored, with all focus given to the screen. It was easy to forget the computer's *materiality* as an object, particularly the early generation of PCs in the late 1970s and 1980s. In the media-saturated beginnings of the twenty-first century it is easy to forget that not so long ago the personal computer had a highly contested and malleable identity in the collective imagination, in relation to perceptions of its use value, and in relation to gender, status and domesticity (Atkinson 2000: 67–70). By examining and memorializing the industrial design of the Apple II, along with a key marketing image, this article considers the role that gender and domesticity played in the transformation of the PC from a "machine" to a fully-fledged, ubiquitous personal appliance.

During its relatively short lifespan, the personal computer transitioned from a "machine" into a "personal appliance," with a comfortable place in living rooms, kitchens, bedrooms and home offices. To clarify, the term "personal computer" refers to devices that were first commercially marketed in the mid-1970s – microcomputer units designed for individual use in multiple contexts (not to be confused with the other type of computer in use in the mid-twentieth century: large, room-sized data-processors intended for use in specialized workplaces). The conversion to appliance status was quite a self-conscious one – indeed it was something that computer sellers encouraged.¹ This does not mean that the design forms of personal computers that emerged in the late 1970s resulted from mere technological progression or a pre-given set of circumstances.

As the first company to release a "consumer appliance" microcomputer, Apple Computer offers us a clear view of this shift from a "machine" to an "appliance". While popular commentaries often emphasize Apple products' beauty and covetability,² this analysis moves away from questions of beauty or "good design." Instead this is a call for a more meaningful discussion about the communicated messages manifest within the industrial design of Apple's products.

In the late 1970s and early 1980s the marketing imagery used by Apple Computer instructed and directed interpretations of these hitherto unfamiliar objects, providing imagined contexts for the computer's infiltration into mainstream culture. It is helpful to think of the industrial design of Apple's devices in the late 1970s as a theatrical costume, which effectively performed the microcomputer's transition, presenting the safe *image* of a domestic appliance before such objects were altogether accepted in the changing social landscape of the 1970s and 1980s.

The birth of the Apple II, the first personal computer marketed at mainstream consumers, was a key moment of social and technological negotiation; viewed in retrospect, it informs how we make sense of the current ubiquity and absorbing quality of personal computer devices in the present.³ Apple Computer's successful leap into the production of consumer appliance computers was unavoidably accompanied by the baggage and biases of mainstream American society, and the economic and social changes happening within it. In other words, Apple – alongside technology corporations such as Hewlett Packard, IBM and Commodore – had to negotiate the attitudes of its potential buyers, bearing in mind social anxieties about the uptake of new technologies in multiple contexts. The office, the home and the “office-in-the-home” were implicated in these changing spheres of gender stereotypes and technological development. Notwithstanding the transformative impact of third-wave feminism, and changing values related to labor and tradition in the 1960s and 1970s, by the 1980s attitudes to gender roles in the home and workplace were in many ways still fraught with tension (Webster 1993: 119–20). The existence of new computing devices both challenged more traditional conventions *and* affirmed them, functioning as an assuring status symbol in some cases, and as a destabilizing or emasculating threat in others.

While this discussion has taken place elsewhere,⁴ when recalling the Apple II, Lewis Mumford's position in 1934 carries a revelatory spark. Opening *Technics and Civilization*, Mumford introduced the notion of the “cultural preparation” that society underwent before the industrial revolution, paving the way for the widespread embrace of technology:

Men had become mechanical before they perfected complicated machines to explain their bent and interest; and the will to order had appeared once more in the monastery and the army and the counting house before it finally manifested itself in the factory. (Mumford [1934] 1962: 3)

These “preparatory” stages are expressed in early decisions about the instrumentality of new technology, in the application of organized systems, and in decisions pertaining to design. If we were to broaden the historical period of the “monastery to the factory” to include the

time since Apple Computer began production, Mumford's observation about the "will to order" and the mechanical nature of humans provides a useful springboard for analyzing the computer in design history. The relationship of people to information technology – cultivated in the mid- to late twentieth century – can be seen as a form of preparation for the co-dependency and constancy that the personal computer enacts with its users in the present. Within this preparatory moment, ideologies and social conventions related to gender, domesticity and consumption were fully implicated.⁵

Accordingly we find ourselves examining this "preparatory" phase beginning in the late 1970s. At the time, the "personal computer" was a relatively new concept in a mainstream sense. Prior to the release of the Apple II microcomputer in 1977, computers were generally perceived as the concern of the "straight suits" at IBM, with their giant data-processors, or the obsession of computer hobbyists, who spoke another language entirely: computer code. Meanwhile, in the first half of the 1970s, keyboards belonged on typewriters, where they were used by (mostly female) secretaries and assistants (Webster 1993: 111–23; Lupton 1993). How could the "average American man" of the late 1970s or early 1980s become convinced that a personal computer fitted into his life? How could the "average American family" decide that they needed a personal computer as much as they needed a refrigerator or a vacuum cleaner?

In April 1977 Apple launched the first personal computer aimed at a consumer market, a wedge-shaped plastic device called the Apple II, a microcomputer that users plugged into their televisions (Figure 1).⁶ The product was a remarkable success – by 1978 Apple claimed to be the producer of the "world's best-selling computer" (Apple Computer 1978: 14–15), and the Apple II was a catalyst for an entire industry of personal computers and software marketed at consumers (Pollack 1981: 3). A crucial part of the Apple II's success was its industrial design, which attempted to bestow on the computer the identity of an efficient and reliable consumer appliance, not a hobbyist's machine. The hobbyist's machine lived in garages and basements – it was made up of a confusing array of exposed circuit-boards, microchips and wires, interpretable only to a small group of zealous computer engineers and hobbyists, such as those at the Homebrew Computer Club in Palo Alto, California. The Apple II, on the other hand, was to take bold steps up out of the basement, into the heart of the house: the living room, the kitchen, the home office and the bedroom.

The industrial design language of early personal computers has been connected to the visual vocabularies of space exploration, science fiction cinema and the forms of pre-existing data-processing technology (Atkinson 2000: 59–61). Apple designer Jerry Manock has noted the influence of Stanford's design programs, which balanced technical attention with aesthetic concerns, designing both from the "outside-in" and the "inside-out" (Manock 2007). The



Figure 1

Apple II computer, including disk drives and a monitor, first released in 1977 by Apple Computer. Photograph by Rama, courtesy of Rama and the Musée Bolo, Lausanne, France. Licensed under CeCILL, a Creative Commons Share Alike 2.0 France License.

German appliance company Braun and the Ulm School of Design are often described colloquially as being influential on Apple's design, though arguably this influence is easier to discern in Apple's design from the late 1990s onwards.⁷ But the role that the domestic realm played in Apple Computer's conceptual vocabulary in the 1970s and 1980s deserves further exploration, both in its industrial design and in Apple's marketing imagery.

By connecting the formerly mystifying and convoluted world of computing with the familiar and supposedly simple domestic sphere, Apple produced a line of personal computer devices that communicated modernist values of efficiency, productivity, order and stability. Moreover, once a product such as the Apple II entered the structured system of the home, its meaning was reshaped in the domestic context. The personal computer was literally and conceptually domesticated, a transition that had major consequences for how social patterns of domestic activity transformed over the following decades (Lally 2002: 15–17). With the introduction of the personal computer the home also became more like an office – a place of numbers and economic imperatives. In the context of the 1970s oil crisis and

the economic recession of the early 1980s, the American public was experiencing an unsteady labor market, and individuals were re-examining their personal economic situations. Modes of labor became more flexible, and the privatizing political momentum of the time encouraged people to look out for themselves, as individuals, over collective concerns. In this context, the personal computer (and accompanying software such as VisiCalc), held an important position as a “number-cruncher,” an answer-provider and a status-signifier *in the home* (Silverstone et al. 1992: 19). The Apple II began to operate as a mediator, effectively reproducing and amplifying – within the domestic context – the socially inscribed mechanistic and organized patterns of labor established in mid-twentieth-century corporate culture. Although introduced as a consumer product in 1977, it took almost a decade for the personal computer to be accepted as a domestic appliance.

When introducing the first personal computers for household use, Apple Computer tried to remove the alien or threatening image of computers left over from the mid-twentieth century. Alleviating public fears and misconceptions about computers was an issue that other computer companies faced, such as IBM. Design historian Pat Kirkham used the phrase the “vernacular of tomorrow” when discussing the mid-twentieth-century relationship between the IBM corporation and the work of the designers Charles and Ray Eames:

Realizing that computers, the “vernacular of tomorrow,” would have to be made “user friendly,” the Eameses devoted themselves to explaining their forms and language to non-specialists. (Kirkham 1995: 347)

Kirkham claims that the Eames Office presented computer technology in a way that balanced a so-called “functionalist” machine aesthetic with older vernacular forms. This was done supposedly to “humanize” and “demystify” IBM’s data-processing machines, thereby making people less perturbed by computers (*ibid.*). The perceived need for people to be closer to computers, and the fear of computers as “powerful, incomprehensible machines,” is a narrative that runs at the heart of computing history.⁸ In borrowing Kirkham’s idea of a “vernacular of tomorrow,” we can begin to understand the function of Apple’s design tactics, and the effectiveness of balancing humble, stable and familiar forms with indicators of technological sophistication and the “new.”

While the industrial design of other PC manufacturers of the late 1970s and 1980s presents a patchy lineage back to IBM’s giant, room-sized data-processors (as expressed in the use of primary colors, hard corners and box-like forms),⁹ Apple’s computer cases echo the simple, tame and hermetically sealed plastic shells of domestic appliances. Indeed Apple’s connection to domestic appliances can be further unpacked when it is paralleled with another period in

industrial design history: 1930s streamlining in domestic appliances. This parallel is not to suggest that Apple's industrial design was directly influenced by streamlined form, but that Apple's design echoes many of the values and communicated messages of this earlier style of modern industrial design. In other words, the ideological program operating in 1930s streamlined domestic appliances is repeated in Apple's design, rather than existing as an iteration of the style itself. An explication of this connection requires a brief contextual history of the birth of the Apple II.

Streamlining and the Apple II

In 1974 the computer hardware engineer Steve Wozniak built the Apple I personal computer, and in 1976 Wozniak and his entrepreneurial friend Steve Jobs presented it for sale to computer enthusiasts at the Homebrew Computer Club (Linzmayer 2004: 14) (Figure 2). The Apple I was essentially a computer motherboard kit that owners could choose to encase in whatever materials they desired. Like one of the first microcomputers, the Altair 8800, the Apple I catered to (and was part of) a subculture of computer hobbyists that had emerged in California in the late 1960s and early 1970s, enthusiasts who were eager to find uses for the newly released Intel microprocessor. In this world of exposed circuit-boards, chips and wiring, the microcomputer existed in labs, garages, hobbyist clubs and in a growing number of print publications devoted to microcomputer developments, such as *Byte* and *Interface Age*.¹⁰



Figure 2

Portrait of American businessmen and engineers Steve Jobs (left) and Steve Wozniak, co-founders of Apple Computer Inc., at the first West Coast Computer Faire, where the Apple II computer was debuted, in Brooks Hall, San Francisco, California, April 16 or 17, 1977. Photo by Tom Munnecke/Getty Images.

Although Apple I sales had been good within the hobbyist field, Jobs envisioned that the personal computer could be sold to consumers, a market that did not even exist at the time (Atkinson 2010a: 88). Technology journalist Leander Kahney suggests that Jobs “disliked [the] amateurish hobbyist aesthetic” of the Apple I and other contemporary motherboards, and aimed to market a “straight-out-of-the-box” personal computer that would appeal to a broader public, beyond the devoted hobbyist (Kahney 2008: 73–4). The “style” of the hobbyist industry was demonstrably anti-aesthetic; this group focused on developing circuitry and programming. To break into the broader consumer market, Jobs believed that the next Apple computer – the Apple II – had to look like a consumable (73). To be recognized as a consumer appliance, the Apple II needed to seem safe and familiar, and inspire confidence in the face of mystifying computer functions (Kunkel 1997: 13). This, Jobs decided, required a simple plastic case (ibid.; Atkinson 2010a: 88). By early 1977, several small companies much like Apple began creating personal computer units using new Intel chip technology. Nevertheless, virtually none chose to house their devices in manufactured plastic cases (Kahney 2008: 74).

By 1976 Apple Computer Inc. had only just been incorporated, and Wozniak and Jobs had little money to launch into large-scale manufacturing of motherboards, let alone plastic cases. However, Jobs managed to convince the out-of-work product designer Jerry Manock (who had just left Hewlett Packard, where he designed calculators) to create a simple design for the Apple II case that could be affordably and swiftly cast (ibid.). The need for speedy production was to prepare a set of twenty Apple II computers for the West Coast Computer Faire in San Francisco on April 17, 1977. Manock was hired only nine weeks before the fair (Linzmayr 2004: 12).

Several Apple commentators claim that Jobs hunted for design ideas for the Apple II case by wandering through the kitchen appliance section of Macy’s, looking at the plastic molds used for electric mixers and food processors (Linzmayr 2004: 13; Kahney 2008: 73–5).¹¹ One product that particularly appealed was the Cuisinart® electric mixer, which Jobs allegedly used as an example when instructing Manock to design the Apple II (Kahney 2008: 75). The sealed plastic edges of household appliances that Jobs gazed at in Macy’s expressed the same principles of domestic comfort, stylistic integrity, stability and efficiency that Jobs wished for in his first consumer-appliance microcomputer.

Anthropologist Daniel Miller reminds us that in modern design, “although functional purpose must impose a certain constraint on the shape and form of an object, that constraint is generally a very loose one” (Miller 1987: 116). Although modernist designers spoke a language that valued rationality and utility, Miller insists, the design of the modern artifact was “used to express not actual efficiency but an ideal of function” (117). In a similar vein, R.L. Rutsky argues that:

high tech can no longer be defined solely in terms of its instrumentality or function – as simply a tool or a means to an end. In high tech, rather, technology becomes more a matter of representation, of aesthetics. (Rutsky 1999: 4)

Apple II's plastic wedge form may be linked to earlier practices in design history – not through the form of the case, but through the conceptual program of its design. The form *appeared* to be utilitarian and functional; it spoke a visual language of rationality without necessarily enabling function. In a similar vein to Miller, design historian Jeffrey Meikle contends that major industrial designers of the 1930s eschewed the (often misunderstood) modernist dictum “form follows function” in favor of forms that expressed swiftness and dependability, communicating the “visual efficiency” of the machine (Meikle 2005: 115–16). The streamlining of product design in the 1930s prompted a confidence and assurance in the efficiency and dependability of the object, which was particularly desired at a time of instability and economic peril.¹² A streamlined case was soothing: smooth, all-in-one units concealed disparate parts under a unified skin, regardless of whether the device was a radio, a refrigerator or a toaster. Meikle describes how the streamlined casing for a household appliance served to inspire “a feeling of confidence in the face of complexity” (Meikle [1979] 2001: 186). He might as well have been discussing the Apple II's entrance into the home market. The assuring hum of the self-contained Apple II, the dull clack of its brown keys, and the comforting tactility of its beveled edges and chamfered corners conveys a sense of assurance, even as users attempted complex computational tasks.¹³

In 1936 a publicist for Loewy's streamlined Coldspot Refrigerator for Sears claimed that the Coldspot's design “dramatizes its outstanding virtues – ruggedness, dependability, efficiency – in visual form.”¹⁴ This terminology could easily describe the Apple II – a familiar yet “high-tech” object that performed its (supposed) strength and power through its bulk, width and plainness (Figure 3). Of course, it is necessary to reiterate that the social and economic contexts of these two periods differ greatly. However, the modernist desire for control continued through the 1970s and 1980s, when the personal computer hyper-individualized consumers' demand for control.

The 1977 Apple II

The 1977 Apple II is encased in an angular beige shell produced from two plastic components. It has a sloping wedge at the front, presenting an open face containing an in-built keyboard with brown keys. The sides have vertical vents wrapping around the edges, with chamfered, “grippable” corners (Kunkel 1997: 13). The vents and angled keyboard assured that the computer did not appear threateningly box-like. To us today, of course, it seems a large and graceless irregular prism. Manock's work for the Apple II was hardly an elegant



Figure 3

Apple II computer (keyboard detail). Photograph by Rama, courtesy of Rama and the Musée Bolo, Lausanne, France. Licensed under CeCILL, a Creative Commons Share Alike 2.0 France License.

design; it was a mold that echoed the then-familiar chiseled and angular casings of calculators, cash registers and kitchen appliances of the 1970s.¹⁵ When the Apple II was launched at the West Coast Computer Faire in April 1977, the appearance of these hermetically sealed consumables produced the hype, excitement (and trust) that Jobs had hoped to provoke (Kunkel 1997: 22; Kahney 2008: 75).

Sealed in a plastic case, the Apple II's concealment of internal mechanics obscured the nature of data-processing: users no longer had to understand how a computer functioned when using the device. Thus a certain "deskilling" and mystification took place – for both hobbyists and mainstream consumers. No longer could hobbyists pull apart their device and rewire the hardware (lest they lose their warranty). Indeed the "mainstream consumer" never fully understood the workings of the computer. The sealed case became what they understood the word *computer* to mean.¹⁶

Marketing the Apple II: The Thinking Man's "Food" Processor

Using the Apple II was a frustrating process that required patience, and users often had to rely on a lengthy manual of computer commands until they could finally learn all the commands they needed to run programs.¹⁷ Consequently, much of Apple's marketing strategy emphasized the computer's simplicity. Ironically, Apple's advertising contractors often tried to convince readers of the Apple II's simplicity by using large amounts of text in print advertisements: full pages of small-point, three-column copy often filled print ads, particularly

before 1982. From 1977 to 1981, Apple Computer used the Regis McKenna advertising agency. In 1981 Chiat/Day acquired Regis McKenna's advertising operations (Dougherty 1984). The styles of the two advertising firms differed markedly, and as Apple's industrial design became more refined and simplified in the early 1980s, so too did Chiat/Day's visual language for Apple.¹⁸ One thing that both advertising agencies agreed on, however, was that personal computers belonged in the *domestic* realm in promoting the personal computer.

The Apple II Introduction was a double-page print advertisement that first appeared in the magazine *Byte* in July 1977. Efforts were made to reproduce an image of the advertisement for this article, but Apple Inc. did not allow copyright permission. This article will endeavor, therefore, to describe the image in detail.¹⁹ Apple's choice to feature the Apple II in magazines such as *Byte* and *Interface Age* indicates where the company thought their easiest market was to be found: men who were already interested in machines, science and technology. Later, more mainstream magazines were selected, such as *Scientific American*. Large advertisements in mainstream "lifestyle" publications, such as *TIME* and *Newsweek*, would have been out of their budget range in the company's early years. In *Byte*, the central feature of *The Apple II Introduction* is a carefully composed, full-page photograph depicting the Apple II computer being used in a stylish but casual domestic environment. The computer is presented in a fashionable 1970s kitchen, sitting atop a wooden table, in use by a man in a blue turtleneck sweater. Let's call him Bob. His computer sits on the kitchen table, accompanied by a television monitor and a pile of papers. Bob, seen in profile, cocks his head at an angle and gazes at his Apple II. He rests his left hand affectionately on the Apple II keyboard, while his right hand holds an orange coffee mug. The apparent "normality" of the scene is reinforced by the choice to depict a woman, in soft focus, in the kitchen background. Presumably she is the man's wife; let's call her Norma. Norma stands in front of a kitchen chopping board and turns to smile at the scene of the Apple II in use. In the background to Norma's right, on the kitchen bench, is an appliance that looks remarkably like a Cuisinart electric mixer, the appliance that is said to have inspired Jobs at Macy's.

In *The Apple II Introduction*, the choice of the kitchen as the site of the computer's introduction is significant.²⁰ Although still more or less coded as a female domain, the 1970s American kitchen also inferred ideas of efficient productivity, and was understood as an informal site of social introduction in the popular image of the middle-class American home. This conscious informality and its references to efficient functionality tipped the Apple II as the thinking man's "food" processor.²¹

The idea of a kitchen appliance for women that was *also a computer* had already emerged; the Honeywell H316 (or Honeywell Kitchen Computer) was a concept microcomputer, promoted in

1969. It was never intended to sell commercially, but was included in a Neiman Marcus Christmas Catalogue as a “dream” gift – a publicity stunt – and a small number of very expensive units were manufactured (Atkinson 2010b: 163–77). The imagined uses of the Honeywell Kitchen Computer included storing recipes, assistance with meal planning and balancing the family checkbook. Marketing for the Honeywell Kitchen Computer frequently featured highly traditional and often patronizing depictions of obedient housewives. Atkinson notes that we must judge such representations with reference to their general social context: “the idealized notion of the ‘perfect’ subservient housewife ... was a very prevalent one at the time” (171). In this case, the Kitchen Computer appliance was arguably presented as having more authority, power and intelligence *than its female user*. In so doing it does not disrupt the present status quo. Davin Heckman observes that the H316 represents “a revolutionary step in the history of computing by marking a shift in the conception of the computer.” No longer solely seen as a device for business and engineering calculations, the computer’s domestic applications could be easily imagined (Heckman 2008: 55–6).

But *The Apple II Introduction* advertisement tells us much about Apple’s careful negotiation of existing gender roles and stereotypes, while also suggesting the emergence of men as appliance consumers.²² The parallels between Bob and Norma – as well as the Apple II and the electric mixer – are hardly subtle. Bob’s and Norma’s gaze and body language are themselves suggestive; Bob is positioned in a way that leads the eye diagonally up to the left, with a trajectory out towards the window. The advertisement suggests that any actions he makes in his home, on the Apple II, will have direct effects on the outside world. Norma, on the other hand, gazes inward, inside the house. There is a soft focus on the background area – the zone containing the kitchen, woman and nature (the trees outside the window). Conversely, Bob, with his technology, is exaggerated by crisp, bright lighting that casts strong shadows on his jaw and emphasizes a hardness in the foreground scene. The computer monitor displays a color image of a graph. Bob also wears a wristwatch, carefully positioned in the shot. It is the only timepiece in the image, reminding the viewer of Bob’s connection to the organizing nexus of modern “progress,” while also lending him the status of a graceful but powerful masculine subject – an empowered male consumer.²³ Mumford positioned the clock as deeply influential on the development of industrial capitalism: with it, time became commoditized. Then, as now, the clock held a symbolically civilizing presence (Mumford [1934] 1963: 14). Bob is presented as a man who is rational, in control and actively participating in the ordered economic framework of his time, even within the ease of his domestic environment.

The language of the advertisement takes into account labor conventions of the time, emphasizing that the user could be introduced to the Apple II in the evening, after work:

You can begin running your Apple II the first evening, entering your own instructions and watching them work, even if you've had no previous computer experience.²⁴

While Norma labors over dinner, employing household appliances such as the oven and the refrigerator, Bob uses his household appliance, the computer, for both relaxation *and* organization. The home, like a business, is “managed” economically, in an organized manner. The consumption of this organizational device connoted moral implications: the responsible modern family needed a computer. Indeed, it assisted patriarchs in their traditional role, managing and “protecting” the nuclear family. The idea of the “home office” is only loosely defined here: such an office could exist in the living room, the kitchen, the bedroom or the study. The home provided a “training ground” for users to engage with the device before having to perform their relationship with it in a public setting, such as an office. While the personal computer became domesticated, it also brought the office home, blurring the activities of working life and home life, and applying efficiency and organization to moments of leisure.

From the outset, Apple's marketers struggled to present a kind of mythical normalcy in which an entirely new form of technology was being used in a domestic context. Such a juxtaposition could easily have produced estrangement or humorous absurdity. However, the familiarity of the domestic scene, including its warm colors, recognizable kitchen interior, friendly typeface, reassuring instructional tone and the *approval of a woman* – makes this image safe for an unsure (male) consuming public.

In order to understand the need for Norma's approval, let us recall the historical context in relation to studies of gender stereotyping. Juliet Webster reminds us that:

In the days of the typewriter, the photocopier, and the filing cabinet (highly gendered technologies from which men kept their distance) ... men fostered their own ignorance of these technologies in order to successfully maintain this distance, eschewing, for instance, the operation of keyboards lest they be seen to be performing a “low grade” function. (Webster 1993: 119)

Men working in executive or managerial positions generally had secretaries or assistants generate their typed material; so they had neither the skills, nor the desire, to undermine their status by being seen “tapping away” on keyboards.²⁵ The tools that women used to enable their work, such as the typewriter, were correspondingly feminized.

Although second-wave feminism resulted in changes in workplace gender distribution, social attitudes attached to objects were often slower to transform. The feminization of the keyboard is a

case in point: some prewar memories and conventions take a long time to disappear, and up to the mid-1980s the act of typing continued to be associated with lower-level clerical work, and was a source of masculine anxiety (Webster 1993: 119; Atkinson 2000: 66–9; Atkinson 2010a: 137–54). Three disparate elements seemed to merge into a single, contested association: women, the act of data input and computer technology. N. Katherine Hayles (via Anne Balsamo) reminds us that:

In the 1930s and 1940s, people who were employed to do calculations – and it was predominantly women who performed this clerical labor – were called “computers”. (Hayles 2005: 1; Balsamo 1996: 133)

In the following decades computers were separated into multiple functions, which can (loosely) be separated by gender: computers for data input (clerical labor, typing) and computers for data searches and complex calculations (implicitly managerial and/or used by a whole company, not for individual use).²⁶ Although in many cases this resulted in women having more technical competence than their male supervisors, the act of typing continued to connote low-level clerical activity (Atkinson 2010a: 139). The keyboard – regardless of whether it was attached to a computer or a typewriter – continued to carry a latent emasculating threat.

Computer manufacturers were well aware of these attitudes, and companies such as Apple had to maintain an equilibrium whereby their products (and their marketing) gently encouraged and normalized keyboard use while maintaining the status quo. Atkinson describes the sexism inherent in computer technology literature of the 1970s to the early 1980s; in order to make the computer seem neutral and safe to a wide group of potential customers, staged photographs in marketing material were far from subtle in their gender role separation:

Men are portrayed as executives, managers, scientists or engineers, while women are portrayed as operators and assistants. ... Women are portrayed sitting at the computer, carrying out the work while men stand – handing work to the woman, or looking over her shoulder. (Atkinson 2000: 68–9)

Atkinson’s claims about gender biases in computer literature can be applied specifically to Apple, certainly up to 1984 (Atkinson 2007: 59). In much of Apple’s advertising and manual material up to 1983 (when Apple released its first computer with a mouse, the Lisa), men are rarely presented typing; they are frequently depicted as managers, either overlooking others working on the computer, or, if they are sitting directly at the computer, they tend to have only one hand on the keyboard, resting passively, while their other hand engages in an

action of some kind, such as writing on paper, or holding a clipboard or a drink.²⁷

The 1977 *Apple II Introduction* advertisement reinforced normative ideas about masculinity through the cultivation of distance between Bob and the computer keyboard. We have already established that this advertisement implies clear divisions in terms of gender. Moreover, Norma's gaze inside the home is also directed towards her husband, and towards us, the viewer – she regards us with an *assuring* smile. Norma's countenance indicates that she endorses Bob's activity on the computer, thereby returning him any status or masculinity that may have been diminished because he was using a keyboard. Apple was at pains to demonstrate that Bob is not specifically typing: his single hand on the keyboard and the graphs on the computer monitor imply that his actions on this computer are not associated with secretarial work. Bob is not typing passively, he is entering *commands*.

Essentially, the *Apple II Introduction* presents the promise of Bob's control over his various domains – at home and in terms of business. He is completely satisfied and in command. His graph-generating program answers the question, "What am I worth?" and "What am I worth in two years?" The images that surround him, his so-called possessions – his house, his wife, his technology – further enforce that sense of ownership and control. Thus the spheres of domesticity, labor, commercial interest and ownership overlap, muddling the distinctions between work and leisure, and between pleasure and control. The Apple II is an active artifact at the center of this shifting network.

But is *The Apple II Introduction* convincing? The domestic scene falls short of appearing blissful and altogether comfortable; the Apple II still does not seem perfectly "at home" in this scene. There is an awkwardness to Bob's pose compared to Norma's relaxed stance. The Apple II is still an angular, hulking thing, requiring the lugging of parts, the connection of a television, and the constant presence of the Apple BASIC manual next to the user. Even though it is clear that Apple Computer was trying very hard to transform the personal computer into an acceptable household appliance, this transition had not quite eventuated – in 1977.

The Apple II marks the beginning of this Mumfordian period of "preparation," the initial moment when the personal computer was finding its feet as an object with a structuring meaning within the household. *The Apple II Introduction* advertisement, although by no means a representation of "reality," is both indicative and symptomatic of the unsettling entry of the computer into the moral economy of the home. The Apple personal computer was at the center of both social and technological transformations over this period. Its developments were fundamental to the increasingly blurred distinctions between labor and leisure, to the emergence of the unconventional office context and to the redefinition of domestic productivity through

computerized systems. Arguably, this period of “preparation” transitioned to a new stage with the advent of the Macintosh in 1984. The advent of the 128k Macintosh Computer brought the mouse and the GUI (graphical user interface) to a mainstream audience in a way that thoroughly transformed perceptions of computing and human–computer interaction. Much has been written on the Macintosh’s design, and this article will not attend to these issues presently. Suffice to say, a combination of factors led to a perception of the Macintosh’s gender *neutrality* in the mid- to late 1980s. These factors included broad societal changes in gender-role perception and labor patterns, as well as transformations in advertising strategy. Atkinson has also suggested that the GUI and the computer mouse tempered the traditionally gendered associative triggers of the keyboard to the point of gender neutrality.²⁸ With the mouse, the act of typing was secondary, and the assertive act of “point and shoot” with a mouse button was perceived as an *active* engagement with computer technology.

Moving Beyond the Current Apple Hype

Since its incorporation, Apple Computer (now Apple Inc.) has imbued its hardware, software and marketing with a set of communicated values that address the perceived needs and desires of affluent people, particularly in the United States. With the return of Steve Jobs as CEO in 1997 (and his appointment of Jonathan Ive to head the Apple Industrial Design Group), the product output and design identity of Apple (and how consumers have responded to it) transformed dramatically. “Beauty” is now, colloquially, one of the main words used to describe recent Apple design. Indeed computer commentator David Gelernter has argued that beauty is “a happy marriage of simplicity and power.” Moreover, he asserts that this form of beauty is a central concept at the heart of the history of computing (Gelernter 1998: 2). Gelernter is right: power and control are major motives in the development and success of personal computers. An emphasis on beauty and simplicity, however, reduces the social complexity that shapes personal computers to this day.

Apple’s recent commercial success has increased popular interest in industrial design. While this general interest in design is often surface-oriented and blandly celebratory,²⁹ it forces us to consider Apple’s connection to normative behaviors as well as individual and social organization. Inevitably it also leads us to ponder the lineage of those ideals. It is my intention not only to memorialize the Apple II, but also to provide solid groundwork for other critical approaches to Apple’s industrial design, past and present. Detecting an (often deeply conservative) undercurrent of principles of control, assurance and efficiency helps us to interpret how Apple’s personal electronic devices actively function as artifacts in material culture. On the surface, Apple’s recent industrial design may seem to recall the slick, minimalist aesthetics of certain modes of mid-twentieth-century

modern architecture. However, it may be more significant to observe that the ideals communicated by Apple's design are (traditional) modernist values of efficiency and rationalization. This pattern did not start with the startling white "lampshade" iMac 2001; it began with the plastic case and marketing of the Apple II in 1977.

How did the cold and intimidating world of computer technology become so comfortable, so intimate, so all-consuming? It is not exclusively because Apple has "humanized," simplified or made its design "friendly." More interesting observations can be found when we deflect the question back to ourselves: as computer users we have become as organized, networked and efficient as the technological devices we depend on. Bruno Latour describes how, with designed objects, "prescriptions of the mechanism" are expressed both through directive language and through the object's form itself.³⁰ Latour also notes how mechanized objects benefit "those who are mechanized" (Latour 1992: 232). Such prescriptions, which include objects such as the Apple II or the Macintosh's mouse, effectively alter, direct and augment our behavior in a manner that may challenge our agency rather than enabling it. Computers have not become more "personal" from 1977 onwards; rather, people may have become more like computers. In other words, remarking on Apple's "user-friendly" nature could be another way of saying that the product swiftly and seamlessly integrates into the user's life, to the extent that the user becomes like the technology itself.

The attempt to imbue the Apple II with the assuring disposition of a personal appliance was only a small part of the revolution in computer design and engineering in the 1970s and 1980s. The Apple personal computer was at the center of both social and technological transformations through this period. Its developments were fundamental to the increasingly blurred distinctions between labor and leisure, to the emergence of the unconventional office context and to the redefinition of domestic productivity through computerized systems. At the time of the personal computer's infancy, Apple's industrial design and marketing imagery established increasingly individualized attitudes and mechanized practices, which have become fully entrenched social conventions in more recent decades.

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Notes

1. Computer journalists in the late 1970s and early 1980s made frequent reference to the microcomputer's fledgling status as an appliance. For example, in 1981 journalist Andrew Pollack discussed "a predicament facing many home computer owners – what to use the machine for. If useful applications are found

... computers could become a common household appliance” (Pollack 1983).

2. Some examples of popular commentaries describing Apple’s design include: Antonelli 2006: 188–9; Burrows 2006; Gelernter 1998; Levy 2006; Kahney 2008; Scanlon 2007; Sudjic 2009: 46; Walters 2008.
3. Atkinson notes that the Apple II was originally named the Apple II [(Atkinson 2010a: 87). This publication offers a brief history of the Apple II, with more discussion about hobbyist clubs and software programming than this article has the space to provide.
4. For discussions relating to the changing labor workforce and gender roles in the office and the home, see, for example, Lupton 1993; Kessler-Harris 1982; Webster 1993: 111–23; Wheelock 1992: 97–112; Hedstrom 1988: 155–6.
5. Again I acknowledge my debt to Paul Atkinson, whose studies on social codes and gender stereotypes in relation to computer design have informed this analysis of Apple. See, for example, Atkinson 1998: 1–32; Atkinson 2000: 59–72; Atkinson 2007: 46–61; Atkinson 2008: 3–25; Atkinson 2005: 191–205; Atkinson 2010b: 163–79. Atkinson’s examination of computers puts central emphasis on the social construction of the object’s meaning, with less acknowledgment of the object’s agency and its ability to function in a pattern-shaping manner, and positions the computer as a complex and coded response to and indicator of social patterns and conventions. Bruno Latour might argue that this approach prioritizes the human at the expense of an appreciation of the function of “nonhuman” elements. See, for example, Latour 1992: 227. Latour’s position demands that a full account of computers in society would consider, for instance, how a computer’s design form, mechanisms and interface circumscribe certain actions and deny others (see Latour 1992: 237). Following from Latour’s assertion that “nonhuman mechanisms” possess behavior-altering “prescriptions” that are encoded within them, archaeologist and theorist Michael Shanks also stresses the active relationship that objects have with their contexts (see Shanks 1998: 15).
6. Here the term “consumer” refers to buyers beyond the subculture of computer hobbyists: small businesses, family households and professionals such as writers, scientists, researchers and doctors – many of which made up a growing “office-in-the-home” market. Journalist David F. Salisbury quotes Apple’s 1985 CEO John Sculley: “There is no home market,” concluding that what actually exists is an “office-in-the-home” market (see Salisbury 1985: 29).
7. See, for example, Diaz 2008.
8. Mid-twentieth-century popular culture expresses both an enthusiasm for computers as well as an undercurrent of fear. Large data-processors in the 1950s and 1960s were frequently seen

as intimidating and uncontrollable. Films such as *Space Odyssey 2001* (1968) and *Deskset* (1957) suggest a fear that computers could overpower us, outsmart us. While this concern had definitely dissipated by the 1970s, it had not disappeared entirely. Computer companies were aware of this subtle public notion of the computer as threatening. Kirkham refers to this corporate awareness (Kirkham 1995: 347) and Paul Atkinson describes early computers as “forbidding” and “awe inspiring ... and potentially threatening” (Atkinson 2010a: 21). Equally, companies such as IBM were involved in work for US military operations (missile detection, etc.), and presenting computer companies as “friendly” and “family-oriented” was seen to improve their public image. See, for example, Highmore 2003: 128–48.

9. The organized, bureaucratic aesthetic of IBM, and its engagement with modern design, is discussed in nuanced ways in Martin 2003: 168–81. See also Atkinson 2010a: 56–7.
10. *Interface Age* published from 1975 to 1985, *Byte* from 1975 to 1998.
11. Levy quotes Jerry Manock: “It was a two-week exercise, Steve would go to Macy’s for four hours, looking at food processors” (Levy 1994: 140).
12. Of course, streamlining had other efficient functions in an economical sense – it was seen to speed up sales of products. Moreover, the term streamlining was ultimately adopted into the American lexicon to describe any smooth-operating transition and to describe the efficient integration of the production and consumption processes (see Meikle 2005: 114).
13. The author owes this observation to discussions with Dr Michael Golec. Close reading of Kunkel 1997 was also influential.
14. Loewy publicist for the Coldspot Refrigerator for Sears, quoted in Meikle 2005: 108.
15. Palton (1986: 55) describes the Apple II as having the “quiet look of a kitchen appliance.” Palton is also cited in Atkinson 2010a: 226. Davin Heckman makes some very useful observations about “smart” design, anthropomorphism and computers as appliances, as expressed in the design forms emerging in technologies in the 1970s and 1980s (Heckman 2008: 68, 71–4, 84, 92–4).
16. Atkinson notes that “the very word computer means different things to different people” (Atkinson 2010a: 9).
17. Steven Levy on the Apple II: “My first machine, it was a continual revelation, but in many ways it was frustrating to use. While the Apple II was a valuable tool, it bore in many ways its hobbyist roots. Not surprisingly, since the industry itself was still in swaddling clothes” (Levy 1994: 15). See also Norman 1998: 24.
18. One of Chiat/Day’s most well known campaigns was for the 1984 Macintosh. Apple’s 1984 Super Bowl commercial for

the Macintosh is an unsubtle example of the company's tactic of presenting itself as the resistant underdog against a domineering "Big Brother," in this case, IBM. The commercial first screened on January 22, 1984, during the Super Bowl – a peculiar sequence directed by Ridley Scott, written by Steve Hayden and Lee Clow, and in association with Chiat/Day. The advertisement played on George Orwell's classic novel *Nineteen Eighty-Four* to present Apple as the destroyer of the "Big Brother" supremacy of IBM. The advertisement was controversial and confusing – it did not depict the Macintosh computer directly, but symbolically represented its arrival through a young woman in a white T-shirt and orange running shorts. She runs past hundreds of IBM "drones" and hurls a hammer into the "Big Brother" screen. The arc of the hammer hits the screen in a glowing explosion, which is followed by scrolling text: "On January 24th, Apple Computer will introduce Macintosh. And you'll see why 1984 won't be like '1984.'" This text is followed by a graphic of the rainbow Apple logo. Nowhere in the advertisement is a computer pictured, unless you count the abstracted representation of a Macintosh computer on the T-shirt of the running woman – a small detail that is hard to notice on first viewing. The purchase of a Macintosh allowed consumers to buy into an alternative and creative mythos – an identity of a hacker, artist or renegade – all the while the status quo remained unchallenged. Consumption of products such as the Macintosh effectively maintained mainstream and conventional practices related to self-interestedness, efficiency and mechanized productivity in the 1980s. Thomas Frank notes that computer products promoted by companies such as Apple are often "touted as devices of liberation; and advertising", calling "upon consumers to break rules and find themselves" (Frank 1997: 5; also Heckman 2008: 72).

19. Images of *The Apple II Introduction* are relatively easy to find on the Internet. For example, see the Otis College of Art and Design's graphic design course webpage: <https://wikis.otis.edu/graphicdesigna/index.php/Image:Appleii.jpg>
20. Heckman has observed that "historically, discussions of home automation have always focused on the kitchen [but] it is in the rest of the home that the computer's force has most strongly been felt" (Heckman 2008: 120).
21. Heckman has noted that "computers had long been considered powerful 'thinking' machines, and so it was inevitable that these associations with the cultural practice of 'thinking' would filter more broadly into the popular imagination" (Heckman 2008: 68).
22. Atkinson has noted that there is an abundance of "innate sexism" in computer advertising imagery from the 1970s and early 1980s, which frequently confirms highly traditional gender

stereotypes, with regard to status, authority and technical skill (see Atkinson 2010a: 137–54). *The Apple II Introduction* is part of this pattern, but offers a particularly clear (and arguably quite complex) negotiation with these issues of gender, power and domestic behavior.

23. The latter observation is in reference to the language of mainstream watch advertising for men, particularly in the second half of the twentieth century. Pat Kirkham discusses how advertising catered to male consumers focused on seriousness, presenting their ideal subjects as rational, organized men. See Kirkham and Weller 1996: 197–9.
24. The second page of this double-page advertisement contains text about the Apple II. Notably, the tone is instructional.
25. Many studies have documented gendered identifications with technology of the 1970s and 1980s, describing the underlying biases that had been inherited from mid-twentieth-century gender divisions. To provide some background: with male labor shortages during the Second World War, the number of women in clerical positions increased, to the point that clerical and bookkeeping positions came to be seen as “women’s work.” See for example Webster 1993; Kirkup 1992; Haddon 1992 :82–96; Cockburn 1992: 32–47; Kirkham 1996; Wheelock 1992: 97–112; Hedstrom 1988: 155–6.
26. For the sake of brevity I have reduced the complexity of multiple computer functions here. See Atkinson 2010a: 139.
27. I make this observation from an assessment of a number of Apple manuals, print advertisements and brochures, for the Apple II, Apple II Plus, Apple IIe and Apple III. My analysis of these brochures has been influenced by Atkinson’s similar discussions of computer advertising (see Atkinson 2000: 66–70; Atkinson 2010a: 150).
28. Atkinson: “What the GUI and the computer mouse did achieve was to allow the association of the computer with the typewriter to disappear altogether” (Atkinson 2010a: 154). See also Atkinson 2007: 59–61.
29. See examples of this sort of writing in note 2.
30. By “directive language” I mean visual and linguistic markers of how to use an object. This may come in the form of labels, interface messages, instruction manuals and marketing. See Latour 1992: 232–3.

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