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Design Nationalism, Technological Pragmatism and the Performance of Canadian-ness: The Case of the Contempra Telephone

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The Contempra is widely considered to be the first telephone designed and manufactured in Canada. Designed in 1967, Canada's centennial year, it was a conspicuous departure from prevailing conventions of North American telephone styling in both its conception and design. It was designated as an icon of Canadian modern design and became a symbol of Canada's identity as a modern nation at home and abroad. Its popularity in domestic and international markets set the stage for the transformation of its developer, Northern Electric, into a global telecommunication leader and Canada's most valuable corporation, eventually renamed Nortel Networks. The history of the Contempra's design and development offers an opportunity to consider how designed technological artefacts take on cultural and ideological meaning. Most accounts celebrate the Contempra as a distinctly Canadian design story, but do not elaborate on or question its 'Canadian-ness', and they are silent on the circumstances and events that culminated in the telephone's development. This article examines the historical events, ideological discourses, human relationships, design values and material constraints that set the stage for what can be best described as the Contempra telephone's performance of modern Canadian nationalism.

Keywords: Canada—design history—industrial design—history of technology—nationalism—post-Second World War

Introduction

The Contempra is widely considered to be the first telephone designed and manufactured in Canada.[1] Designed in 1967, Canada's centennial year, it was a conspicuous departure from prevailing conventions of North American telephone styling in both its conception and design. It has been designated as an icon of Canadian modern design and has performed successfully at home and abroad as a symbol of Canada's identity as a modern nation.[2] Its popularity in domestic and international markets set the stage for the transformation of its developer, Northern Electric (at the time, the manufacturing subsidiary of Bell Telephone Company of Canada), into a global telecommunication leader and Canada's most valuable corporation, eventually renamed Nortel Networks.[3]

The history of the Contempra telephone's design and development offers an opportunity to consider how designed technological artefacts take on cultural and ideological meaning. Most accounts of the Contempra are found in surveys that celebrate it as a distinctly Canadian design story, an ingenious design solution put forward by a brilliant, albeit neophyte, industrial designer.[4] A number of business histories have also identified the Contempra as a successful manufacturing and marketing initiative.[5] These accounts do not elaborate on or question the Contempra's 'Canadian-ness', and they

are silent on the circumstances and events that culminated in the telephone's development and its identification as a national design icon. In this study, I examine the processes by which social meanings and values accrue to designed objects by looking at the extensive network of interactions, relationships, activities and actors that set the stage for what can be best described as the Contempra telephone's performance of modern Canadian nationalism.[6]

Implicit in my investigation is the argument that designed objects cannot be understood outside of the weight of their industrial, political and social histories. This is especially true of the design of technological artefacts, like the telephone, which are the result of long and complex processes involving many participants and numerous gatekeepers. The design process inevitably entails negotiations and sometimes power struggles between engineers and designers, manufacturers and marketers, corporations and citizen-consumers, and is always profoundly shaped by conditions grounded in and constrained by the realities of manufacturing capability, political and economic policies, and social reception. When studied this way, the ideological power of designed artefacts—especially technological artefacts—can be better recognized and understood. Rather than simply offering a historical narrative of the design of the Contempra telephone in conventional terms, I show how the Contempra came to be associated with Canadian national identity and nationalist sentiment. I am interested in identifying the ideas, events and relationships that created the conditions of possibility for the design and production of the Contempra by tracing the networks of Canadian and international actors—individuals, historical events, government agencies, policy decisions, discourses, corporations, technologies, geography, populations and markets—that coalesced prior to, during and after its production.

Design historians have shown that in the post-war years Western governments promoted design to manufacturers and consumers as a means to strengthen and expand industrial economies by building domestic markets and creating products for export.[7] These initiatives created the circumstances whereby designed goods came to be associated with national identity. Canada was part of this international trend, albeit with distinctive characteristics resulting from its traditional cultural and political ties to Britain and its proximity to the USA, the world's most powerful economy.[8] In Canada, the promotion of design was driven by government departments, agencies and initiatives, which perceived its potential to modernize a manufacturing sector that had long depended on copying goods produced in the USA. Design, via its relationship with technology, industry and the fine arts, was seen not only as a way to build markets but also as a means to cultivate a distinct Canadian national identity.

There is a resonance between the nation-building capabilities that these government agencies projected onto design and what communications scholar Maurice Charland identifies as technological nationalism, a 'power-laden discourse of a state seeking to legitimate itself politically by constructing a nation in its image'.[9] According to Charland, the rhetoric of technological nationalism equates the building of Canada's transportation and communication networks with the creation of the Canadian nation itself, 'and praises each with reference to the other'. I propose here that, like Canada's nineteenth-century telegraph and railway systems, design was similarly imagined in the mid-twentieth century as a means to construct a national identity or nationalism by design. Design nationalism—the idea that designed objects express national identity and values—was fostered by Canadian cultural and economic agencies during the 1950s, 1960s and 1970s. Much like technological nationalism posited a link between the building of transnational transportation and communication networks

and the constitution of the Canadian nation, Canadian design nationalism assumed a link between the production of distinctly Canadian goods made by Canadian companies and the production of a distinctly Canadian national identity and economy. And while design nationalism, like technological nationalism, may have originated as a discourse of the state, it was quickly adopted by economic nationalists in corporate and cultural spheres.[10]

Expo 67, the world exposition held in Montreal during the Canadian centennial year, is often identified as the event that catalysed Canadian nationalist sentiment and prompted Northern Electric to undertake the design of 'Canada's first telephone'. However, here I show that the perception of design's potential to articulate national values, promote national industries and create national and international markets for Canadian goods predated Expo 67 by at least two decades. The deployment of industrial design as a nation- and market-building strategy internationally in the post-Second World War years and the impact of US policy decisions on Canadian technology and science-based industries both played key roles in the development and the design of Canada's Contempra telephone.

The US Consent Decree of 1956

The most influential event in setting the conditions for the Contempra telephone's design and production had little to do with Canada. It was the 1949 decision by the US Department of Justice to file a complaint of monopoly control against American Telephone and Telegraph (AT&T). The resolution of the complaint against AT&T came in 1956 after lengthy negotiations, with the signing of a Consent Decree. This left AT&T largely intact, but restricted the international commercial activities of AT&T's Bell Labs and its manufacturing arm, Western Electric. This decision had significant implications for Bell Telephone of Canada (Bell) and its manufacturing arm, Northern Electric. Since their inception, Bell and Northern Electric had operated as *de facto* subsidiaries of the AT&T companies. Prior to the Consent Decree, Northern Electric had freely purchased the parts, apparatus, equipment and information it needed from Western Electric. Technical agreements signed between Western and Northern Electric stipulated that Western Electric not only receive a percentage of all Northern Electric's sales, but also gave the latter free access to Western Electric's Research and Development division and the engineering expertise of Bell Labs. Northern Electric produced telephone sets for the Canadian market under license from Western Electric with no discernable difference between, for example, the standard 500 set used by AT&T subscribers in the USA and those used by Bell subscribers in Canada.

In very real terms, it was these relationships with Western Electric and Bell Labs that gave Northern Electric and Bell Canada the capacity to boast of the high technical calibre of the Canadian telephone system. Under the terms of the Consent Decree, Northern Electric faced having to scramble to avoid rapid degradation of both its networks and its reputation. A ten-year technical agreement that had been signed in 1949 buffered Northern Electric from the full impact of the Consent Decree until 1959, but as a company that had developed and grown as a result of its dependence on imported expertise, Northern Electric managers were alarmed by the imminent withdrawal of Western Electric's guidance. Western had traditionally provided Northern Electric with technical bulletins outlining new projects and developments, design intentions and technical drawings for all equipment and apparatus, as well as ongoing updates, all for the relatively modest cost of 1 per cent of sales. That cost rose to 2.5 per cent under

the 1949 agreement, but after 1959, Western Electric's reluctance to risk the ire of US regulators would reduce Northern's access to the purchase of 'one-shot' drawings that did not include design intentions or development updates, at a punitive and escalating cost, rising to 10 per cent of sales by 1964.[11]

The apprehension that spread through Northern Electric's administrative offices and across its shop floors as a result of the Consent Decree was accompanied by a deep sense of betrayal. The relationship between Western and Northern Electric—much like the relationship between the USA and Canada—was hardly a partnership between equals, and Western's apparent indifference to Northern Electric's situation touched a sensitive nerve. Almost two decades later, then-president V. O. Marquez described the emotion with which the situation was perceived: '[In] our view, we had been pushed off the deep end […] We were cut off from technology, willy-nilly, like it or not, that was it. The problem then with us was bloody-well survival'.[12] For the first time since its inception in 1895, Northern Electric was compelled to innovate. In anticipation of the 1959 cut-off, Northern set up a Research and Development department in 1957 to develop its capability to design new equipment and to back up its manufacturing operations. New hirings and the reorganization of the manufacturing and R&D departments drove Northern Electric's costs upward. Ironically, its previously comfortable arrangement with Bell became a serious impediment to its ability to cover costs. As Northern Electric's foremost customer, Bell was disinclined to absorb the manufacturer's increased costs by paying more for equipment than it had in the past. Northern Electric was thus faced with the choice of continuing to rely on the increasingly reluctant and unpredictable Western Electric for access to rudimentary but costly research, or to divest itself as quickly as possible of its dependence on its US counterpart.[13]

Northern Electric's sense of betrayal was heightened by Western Electric's relative indifference to the reorganization of their commercial relationship. Western's lack of concern was not surprising given that the Consent Decree had a very little real effect on its operations. Severing its relationship with Northern Electric was a small price to pay for the US government's reaffirmation of AT&T's status as a regulated monopoly. But the American company's disinterest lent a nationalist dimension to Northern's decision to move towards commercial and technical independence. Aided by the symbolism provided by the approaching centennial celebrations of Canadian Confederation, the rhetoric of national emancipation soon found its way into Northern Electric's assessments of its dilemma. Summing up Northern Electric's position in his 1964 report on the impact of the Consent Decree, executive vice president C. A. Peachy declared: 'we have our eyes on reaching what we term 'INDEPENDENCE DAY' sometime in 1967. Independence Day will be that day when no Western production is going into our new production'. Using a slogan coined by Québec's provincial government to describe its ambition to make the Québécois masters of their own economic destiny, Peachey concluded, 'We are resolved that we shall celebrate our first Independence Day and be 'maîtres-chez-nous' ['masters of our own house'] along with the Centenary of Confederation and the World's Exposition in 1967'.[14]

As was the case with many Canadian manufacturers, Northern Electric' dependence on its US counterpart had been logical from the point of view of cost economics. It had been cheaper and safer to rely on larger and richer partners in the USA, who could more easily recover costly investments in technological research, than to take on the increasingly steep expenses associated with original research in a market that was too small for investments to be recouped. Bell, long accustomed to a cordial association with AT&T, was optimistic that the historical relationship between Western and Northern

Electric could be leveraged to allow Northern to continue receiving the information it needed to keep pace with technical developments in American telephony, but the 1956 Consent Decree had a chilling effect on the relationship. Western Electric's newfound reticence to share its research and development strategies led Northern Electric to be sceptical about the likelihood of continued collaboration and reluctant to place any hope in the future of its association with Western. Northern Electric therefore set out on a tenuous path towards establishing its own identity and markets.

The politics of design

During the same period, the US Justice Department was moving to constrain the market dominance of companies such as AT&T—dominance which had in no small measure expanded and consolidated by their wartime contracts with the US government—the Canadian government was trying to implement measures to preserve the wartime growth of Canada's secondary industries. The war years had seen Canada's industrial capacity more than double, and there was a keen awareness that this level of productivity—and employment—could best be maintained during peacetime by utilizing new processes and materials developed during the war. In order to explore strategies and opportunities for post-war employment, the House of Commons struck a Special Committee on Reconstruction and Re-establishment in 1944, calling for submissions from a broad range of sectors. Arts organizations argued vigourously for the recognition of industrial design's importance to the future of the Canadian economy and called for government to support the promotion of design to both industry and citizens.[15] Canadian manufacturers' long-standing practice of copying American and European designs was criticized for its detrimental effect on the future of both the profession of design and employment opportunities for Canadians.[16] Significantly, the importance of establishing proper training for industrial designers was noted as a key means of securing Canada's industrial future.[17] The Special Committee concurred, concluding with the observation that 'through […] government encouragement, Canada, with her vast natural resources, could achieve a proud culture as well as a unique world position in industrial development and export'.[18]

The call for government to recognize and support design's role in rebuilding the economy was not unique to Canada.[19] As the Special Committee noted in its final recommendations, successful examples of public support for industrial design existed in Sweden and in Denmark, where 'the government activated industries by subsidies to manufacturers for the specific purpose of promoting original design as a national asset'.[20] The British Council of Industrial Design was created in 1944 and was organized along a similarly public-minded approach to the promotion of design in industry. Canada's colonial relationship with Britain—and the human affiliations that had evolved as a result of this political connection—predisposed Canadian organizations and policy-makers to adopt a similar model. C. D. Howe, the wartime minister of Munitions and Supplies, was named to head the Department of Reconstruction and Supply in 1944 and charged with reconverting manufacturing to civilian and consumer production. It was no coincidence that Howe, who had been educated as an engineer, saw technologically advanced industry and industrial research as the key to Canada's recovery.[21] In 1946, he recommended that the industrial innovations of the National Research Council be put on display to inform and inspire Canadian manufacturers, and turned to Donald Buchanan, at the time affiliated with the National Gallery of Canada, to organize the exhibition. The exhibition opened in October 1946 under the title 'Design for Use' and was shown in conjunction with the annual convention of

the Canadian Manufacturers' Association before going on to travel across Canada.[22] The public greeted the travelling exhibition with hearty approval. It was not difficult to arouse Canadians' interest in modern goods during the immediate post-war years. Accustomed to making-do and self-reliance during the Depression and World War II, most people were excited about industry's potential and promise of post-war abundance.[23] Exhibitions of modern household furnishing and appliances provided a way for manufacturers and retailers to gauge public response to goods that were not yet in production. Like the 'Design in Use' exhibition, they were organized in an attempt to define what constituted a specifically Canadian design ethos and how it could be put to use to stimulate consumer interest. The T. Eaton chain of department stores and the Canadian Handicrafts Guild had co-sponsored an exhibition at the Royal Ontario Museum in 1945, which displayed a wide range of items that might be considered examples of Canadian design. In 1946, the CMA and the Toronto Board of Trade co-sponsored the 'Design in the Household' exhibition at the Toronto Art Gallery in which visitors were asked 'to reconsider what household furnishings and equipment should be like in the context of plans to rebuild the nation's industry'. Noting that 'householders could help Canadian industrialists capture world markets through better design', the sponsors felt that in order to be considered truly 'Canadian', design should represent the tastes and desires of Canadian citizens.[24]

While all these exhibitions promoted design's nation-building potential, they represented divergent views on design, its role in industry and its social function. For Donald Buchanan, the purpose of design was not to offer attractive solutions to help manufacturers sell their goods; rather, it was a means for reinventing Canada as a modern nation on the international stage.[25] Influenced by British art critic Herbert Read's *Art and Industry: The Principles of Industrial Design (1935)*, he saw design as a powerful social and economic force, and designers as intermediaries, charged with shaping the future of Canadian industry. Buchanan argued that Canadian industry must embrace the modernist principles of design introduced by the Bauhaus, employing new materials—'aluminum sheets and magnesium rods, plywood and laminate wood, chemical plastics and cellulose compounds'—and the 'new techniques of design' developed during the war.[26] Buchanan's efforts to have an industrial design division instituted in either the Ministry of Reconstruction and Supply or Ministry of Trade and Commerce were not successful—both Howe and the Minister of Trade and Commerce, believed the promotion of design was best left to business associations.[27] Instead, the Industrial Design Division was situated in the National Gallery of Canada in 1947, with Buchanan as its director. The following year, Buchanan helped to establish the National Industrial Design Committee (NIDC) (renamed the National Industrial Design Council in 1954).

The NIDC, made up of some thirty manufacturers, retailers, designers, researchers, consumers, educators and government officials, worked with both public and private sectors to promote an appreciation for aesthetics and ideals of modern design. Educating the public was central to its mandate and to that end the NIDC published frequently and mounted exhibitions across Canada. The first of NIDC's exhibitions, 'Canadian Design for Everyday Use', opened in 1948 as a showcase for the work of Canadian designers who exemplified the organization's vision. That same year, the NIDC began publishing the *Design Index*, a periodical that showcased examples of 'good' modern design for Canada's future consumers, as well as pamphlets aimed at manufacturers: *Good Design Will Sell Canadian Products* and *How the Industrial Designer Can Help You in Your Business*.[28] To further stimulate industry interest, it initiated a national design competition in 1951 with the support of the National Gallery, the Canadian Lumbermen's Association and the Aluminum Company of Canada. The design criteria

for the competition were unrelentingly modernist and the jury upheld the standards. Honourable mentions were the highest award given. Nevertheless, the competition was well received by both designers and the press. In 1952, the NIDC sponsored a second competition—this one drawing the attendance of prominent Canadian and American designers. In 1953, the NIDC presided over the opening of the Design Centre in Ottawa to act as a permanent showcase for Canadian design.[29]

Despite the NIDC's resolute advocacy of modernist design, by the mid-1950s it was obvious to all but its staunchest supporters that the exacting aesthetic criteria it championed had failed to find sufficient purchase with either manufacturers or the public.[30] Canadian designers, too, had rejected modernism's abstract universalism and sought a design idiom that responded to domestic tastes and manufacturing constraints.[31] The idea that modern design could create international recognition for Canadian goods and drive exports in foreign markets had also lost traction with Canada's economic ministries. By 1953, the focus of both government policy and secondary industry was shifting from international to national markets.[32] In 1961, the federal government finally established a National Design Branch under the auspices of the Department of Trade and Commerce and formed the National Design Council take over the role of advocate for Canadian design from the NIDC. While the National Design Council, like the NIDC before it, continued to host exhibitions and competitions, and to publish on Canadian design innovation, the shift of responsibility for the promotion of design from the National Gallery to the Department of Trade and Commerce (later the Department of Industry) more accurately reflected the Canadian government's new ambitions for industrial design. The NIDC's formalist internationalist approach was supplanted by the National Design Council's more pragmatic, domestically oriented mandate of 'achieving immediate and measurable improvement in the quantity and quality of product design in Canadian industry'.[33] If this new aim sounded more amenable to Canadian industry, it was because industry had come to play an increasingly important role in setting the criteria for the objectives and aesthetics of Canadian design. The majority of the board members of the National Design Council were drawn from industry, manufacturing and retail sectors. Among the Canadian business luminaries who sat on the Council in the early 1960s was C. A. Peachy, executive vice president of Northern Electric.

The marriage of art and science

It is here that the two narratives of my study merge. The 1967 centennial of Canadian Confederation and Montreal's Expo 67 contributed greatly to keep modern design and nationalism at the top of the Canadian cultural and industrial agenda. The scale and array of design opportunities created by Expo was enormous. The companies who built pavilions—such as the Canadian telephone companies that sponsored the Telephone Pavilion—were eager to use them as corporate showcases to display the excellence of their research and products.

In anticipation of Expo 67, Bell approached Northern Electric in early 1960 with a request for two new Western Electric telephones: the Princess telephone, which had been introduced in the USA in 1959, and the Shmoo, a dial-in-handset prototype in development.[34] Having committed itself to independence from Western Electric, Northern Electric was unenthusiastic, especially as Bell would only agree to purchase 100,000 units of each model. In his memoirs, Peachey explained: 'We were just at this stage where [we] didn't want to buy the information and pay 10% on [future sales for] a set of ["one-shot"] drawings'.[35] Moreover, the newly empowered engineers at

Northern Electric held the Princess and Shmoo telephones in low regard. The Princess (which was manufactured by Northern Electric later that year) was as annoying to engineers as it was appealing to subscribers.[36] The slim housing of the early Princess made it impossible to integrate the ringer in the base and so a second separate ringer component had to be produced and installed along with the desk set, which was considered a step backwards in the evolution of telephone design. The Princess was also quite light, and as a result, had an irritating tendency to fly off the surface on which it was sitting if the receiver was picked up quickly or the user walked too far from the base.[37] The Shmoo, on the other hand, was simply considered 'ugly'.[38] It was a work-in-progress with the technological problems of the dial-in-handset not yet properly resolved.[39] Many at Northern Electric felt that if the company was going to the expense of retooling in order to produce new telephone apparatus, the Princess and the Shmoo were poor models on which to base future development, especially at the low quantities Bell wanted.

While Northern employees were committed to the idea of 'independence' and a made-in-Canada research agenda, Bell management was uneasy with the idea of replacing the expertise of what was arguably the world's most successful developer of communications technology with the can-do enthusiasm of Northern Electric's shop floor engineers and with moving away from Western's proven products.[40] In truth, Bell's request for Canadian versions of Western's subscriber sets was not a high priority for Northern's engineers. Northern Electric's R&D engineers were primarily interested in systems design, not the design of the telephone sets that provided the interface between the technological system and the subscriber. Their attention was on the development of an electronic switching unit to service medium-sized cities: the SP-1 switching system. Designed to compete against Western Electric's large and expensive 1-ESS switching systems in smaller urban centres, the SP-1 was Northern Electric's made-in-Canada response to the technological dilemma imposed by the 1956 Consent Decree. Northern saw the SP-1 as having the potential to capture middle markets in Canada and abroad by providing telephone companies with a switching system that was technologically advanced, highly flexible and adaptable, extremely dependable and cost-effective.[41]

Perhaps because of Northern Electric's focus on the SP-1, there is little archival evidence to suggest when and how the idea to produce a made-in-Canada telephone first came about. Peachey's memoirs, recorded in 1980, suggest that he proposed the solution to resolve the stalemate on Bell's request for a modern subscriber set:

> I decided to see if we could design something that was better. I was a member of the Design Council in Ottawa [as an] industrial representative; I became impregnated with the idea of [aesthetic] design, which had been out of my bailiwick, not being in the art field. I said, 'We're designing a lot of stuff. Why don't we hire a designer?' [So in 1966] they went out and hired this guy, Tyson, who knew nothing about the telephone business.[42]

Northern Electric never actually advertised for the services of an industrial designer, so while Peachey likely exaggerated his role in John Tyson's hiring, what is significant is his explanation of how his experience as a member of the National Design Council predisposed him to see the design of a new Canadian telephone as a logical and important step in Northern Electric's quest for independence from AT&T and Western Electric. Until this point, Northern Electric's energetic talk of 'independence day' and 'made-in-Canada' products was firmly focused on the production of the SP-1 switching system, and the equipment and components necessary to insure the stability of the telephone

network. Designing subscriber sets was altogether new territory. Peachey's work on the National Design Council had clearly influenced his views on the importance of a strong Canadian design identity in expanding national and international markets.

Interviews with John Tyson and his contemporaries indicate that he was actually hired by David Stevenson, the head of Northern Electric's Outside Plant—a department so removed from product design that Tyson would later describe his position there as 'a way of sneaking me in' to the company.[43] A recent graduate of the Ontario College of Art, Tyson arrived at Northern Electric's R&D Laboratories with his portfolio in late 1966 and had the good fortune to meet with Stevenson and Dr. Bonnie Jackson, who both recognized the value of industrial design for Northern Electric's product portfolio.[44] Without their support, it is questionable whether he would have been hired.[45] Bell's ongoing interest in new, up-to-date subscriber sets provided the argument needed to convince Stevenson's superior at Northern Electric and the head of Bell's System's Engineering Department to hire Tyson.

John Tyson was put on a project team that included James Bee, a Northern Electric engineer familiar with telephone circuitry, Syd Horne, a department manager in the Bell Systems Engineering group, and Graham Parsons, a department manager in Northern Electric's London-based Research and Development Laboratory, who was assigned to act as the project manager.[46] The fact that no one involved in the project can recall seeing a design brief for what would become the Contempra phone is telling of its low priority in Northern Electric's original strategy for corporate independence.[47] Tyson recalls that he was presented with 'a box of components by [Northern Electric's] London Works and asked to design a dial-in-handset telephone'.[48] The closest approximation of a design brief for the Contempra is a description in Peachey's memoirs, which suggests that he issued the directive to the design team:

> I gave them [five] requirements: 1) use all the guts of the present 500 set [as we don't] want new tooling costs; 2) [it] has to have the dial-in-handset, we'll copy the WE [Western Electric] small dial, [we'll] buy the technology for that [to] get you off that problem; 3) the moulded parts mustn't be too fancy [because we don't] want to spend millions on moulding dies. […] 4) [it] mustn't look like the WE set, either wall or desk, in any shape or form; 5) we have to be able to hang it on [a] wall or use it on [a] desk.[49]

It is likely that Stevenson orchestrated the initial design team meetings and that the guidelines presented were less exacting than Peachey's list suggests. There is no doubt that the requirement for economy in tooling and moulding costs was very clearly articulated. According to most accounts, Bell and Northern Electric's initial expectation was that Tyson would use Western Electric's Trimline handset and design a new base. The Western Electric Trimline telephone had been designed using Bell Labs' newly developed miniaturized components, which allowed most of the mechanism to be located in the handset. Without a commitment on the part of Northern Electric to retool and produce miniaturized components—and this was certainly not proffered—the design team's work would have consisted of figuring out how to fit the comparatively bulky parts of the existing WE/NE 500-model into a Trimline handset shell and a base big enough to accommodate what was left over. After producing a few prototypes using the Trimline handset to satisfy his new employers, Tyson began to work on the design that would become the Contempra.

Tyson's design for the Contempra was notable for how it captured both the modernist design ideals promoted by the NIDC and the pragmatism at the heart of the

Design Council's directives **[1]**. The Contempra's low angular profile—just under three inches—and its six by nine inch long rectangular base gave it a sleek, modern look.[50] The handset design was composed of two flat planes: a long plane for the part that extended from the ear along the jaw, and a shorter plane extending from the mid-jaw to the mouth, with the design of the base echoing the handset's planes. The handset was positioned asymmetrically on the left side of the base. The handset was two and three-quarter inches wide—significantly wider than any other phone—as a result of Northern Electric's directive that no new parts other than the dial be used in its design. Its size allowed it to be securely held in a relaxed hand and unlike all other telephones, including the Trimline, it was comfortable to support the receiver between the ear and shoulder. Some researchers even suggested that by having done away with the need for the user to grip the handset, the Contempra would be 'expected to lead to more relaxed communication'.[51] Not only did the flat planes of the Contempra give it a distinctive and modern appearance, they also cut the costs of moulding dies, making it as cost-effective to produce as the standard 500 desk set.

The transmitter, receiver and dial were all mounted to the underside of the handset, which protected them from dust and made cleaning (or 'subscriber maintenance') simple and easy. The dial was a modified version of the one used in Western Electric's Trimline. Reducing the size of the rotary dial without shrinking the finger holes was accomplished by deleting the space between the digits 1 and 9 and by designing a moving dial-stop. Like the Trimline, the Contempra handset included a recall button, which allowed users to disconnect and place a new call without returning the handset to the base. Since the base no longer had any dialling functions and served largely as the housing for the ringer and a support for the handset, the Contempra cord was made eighteen inches longer than usual, to allow users to move about freely or to place the telephone in out-of-the-way locations. Having learned their lessons well from the Princess telephone, Northern Electric engineers included a die-cast zinc plate in the base of the Contempra. That, along with 'special non-slip neoprene feet' and the Contempra's low centre of gravity made it extremely stable, even on slippery surfaces.[52]

The Contempra base incorporated innovative handset-rest features that allowed users to return the handset to the base in an 'off-hook' position without disconnecting the caller. When the telephone was being used on a desk, the complimentary angles of the base and the smooth back of the handset permitted the handset to 'sit' in an inverted position on the base (see callout in advertisement, **[5]**). When the phone was mounted on the wall, the lip of the receiver could be hung from a recessed shelf designed into the handset receptacle. In the wall mount option, a small space between the base and the housing offered a place to put a pen or pencil—a feature that was borrowed from the design of the WE 500 wall set. The design of the Contempra for use as both a desktop and wall set was one of its most original and innovative features. There was no precedent for this design treatment; even the cutting-edge Trimline was designed with different bases for its desk and wall models. A key problem that had to be overcome in order for the Contempra's universal base design to be possible had to do with the operation of the line switch plunger used to disconnect a call. In order for the Contempra's line switch plunger to function properly

Fig 1. Northern Electric's Contempra telephone (1967). A-35865, Bell Canada Archives.

in both horizontal and vertical positions, the mechanism had to be completely redesigned. The team working on the Contempra built and tested several versions before the problem was solved.[53]

The Contempra's universal base design had both aesthetic and practical benefits. Whether installed on a wall or a tabletop, the unique appearance of the Contempra remained consistent. From a practical perspective, being able to use one unit for all installations significantly reduced the number of telephones that servicemen needed to carry in their trucks. According to Tyson, this economy allowed him to argue successfully that the Contempra could be manufactured in a wider range of colours than was the norm for other telephone models. The Contempra's colour range was impressive and distinctive.[54] In addition to the ivory, beige and moss green used for the NE 500, a new warmer white was introduced, as well as a soft yellow, dark turquoise, dark blue, vibrant red and a soft lilac-mauve, an industry first **[2]**. The process of colour selection took over five months, during which time Tyson consulted with a team of experts drawn from retail and academia, including Professor W. E. Carswell of the University of Toronto; Gene Sutt, vice principal of Ontario College of Art (OCA); and R. C. Allison, chief illuminating engineer of Eaton's department store, who was called on to insure that the colours chosen for the telephones would be attractive in all possible lighting conditions.[55]

Given that Tyson's Contempra prototype addressed both the pragmatic and aesthetic needs of the embattled Northern Electric, it is surprising that it did not meet with immediate or unanimous approval. Some at Bell and Northern Electric believed Northern Electric's efforts were better spent on working system technologies and not on subscriber equipment. Others felt that the only market for the starkly modern telephone would be in hospitals and convalescence centres, where the dial-in-handset might be handy for use by bed-ridden patients. There were also those who were concerned that people would be unable to dial the telephone one-handed, making it useless in emergency situations. Tyson proved to be adept at answering the criticisms, explaining the cost-benefits of the Contempra's design features and, when needed, dramatically demonstrating how it could be dialled with a single hand.[56]

Fig 2. Northern Electric Bulletin featuring a Contempra telephone and the palette of available colours, 1969. T237-SB, File: Subscriber's Equipment: Dial-in-handset, Bell Canada Archives.

The first indication that the Contempra would be more than a prototype came when the head of Northern Electric's R&D Laboratories agreed to have Tyson present the Contempra to the board of directors of Northern Electric and then to the directors of Bell. Although Peachey might have overstated his influence on the design of the Contempra, he was unquestionably a key proponent of the idea that Northern Electric's R&D need not look to Western Electric and Bell Labs for inspiration. In his memoirs, he noted his pride in the fact that the Contempra's design features, such as its handset rest and its universal wall and desk mount, bested the rival Western Electric Trimline design.[57] Peachey was overtly supportive of the Contempra at both the Northern Electric and Bell board meetings. Tyson recalls the final meeting ended with R. H. Keefler, the president of

Northern Electric, declaring: 'I think it's time we spread our wings and decide to fly on our own. We are at the level of maturity where I think we should take the risk. Why don't we do it?'[58]

The decision to go ahead with the production of the Contempra was made in early 1967, Canada's centennial year, and both national pride and corporate competitiveness found expression in the project. In a 1981 interview, Tyson remarked, 'the Contempra ended up being a Centennial project. The momentum of [Expo 67,] that Canadian surge, of a little feather-fluffing, Canada strutting, was giving everybody [the] feeling, "Hey, we should take on the world!" […] Everybody thought, "Well hey, here is our statement"'.[59] In the spirit of the upcoming celebrations, Northern Electric employees were invited to suggest names for the new telephone. Tyson, who had already proposed the name Contempra and worked up preliminary sketches of the logo and packaging, described 'going [through] some very awkward hours' as names such as Expophone, Tinker Bell and Centennialphone were briefly considered. Bell's marketing department settled on a shortlist of four names—Contempra, Tempo, Nova and Futura—each of which was usable in both French and English, Canada's two official languages. Contempra emerged as the preferred choice.[60]

The impending centennial celebrations also influenced the planning of the Contempra's testing and production schedule. Once Northern Electric and Bell decided to go ahead with the Contempra, every effort was made to move past the prototype stage with all possible haste. Tyson reported that Northern Electric ran unannounced market trials on the Contempra in late 1967.[61] Production schedules were reorganized, so it would be possible to make a display of Contempra prototypes the showpiece of the Telephone Pavilion at Expo 67.[62]

Time proved to be Northern Electric's biggest adversary in its plans to celebrate its independence during the national centenary. The much-anticipated unveiling of the Contempra at Expo 67 never took place. Even Northern Electric's original centennial project, the SP-1 switching system, could only be completed on schedule with the purchase of one-shot drawings of Western Electric's No. 1-ESS electronic switching system. The Contempra suffered a harsher fate. The realities of development and production made it impossible to provide sufficient numbers of functioning sample units in time for the opening of the Telephone Pavilion. In what must have been a painful blow to the Contempra's champions, the telephones that took its intended place in the pavilion's display of modern Canadian telephony were Western Electric's Trimlines, loaned to Bell by AT&T at the last minute when it became clear that Northern Electric could not meet shipping deadlines **[3]**.

Selling Canada's telephone

Working prototypes of the Contempra were finally completed in the fall of 1967. In October of that year, John Tyson was sent on a two-week cross-country tour to introduce the Contempra to the managers of Canadian telephone companies. According to Northern Electric's public relations manager, the Contempra was met with 'overwhelming acceptance' by all.[63] That same month, Northern Electric issued a press release announcing its role in the development of the 'first completely Canadian-designed modern telephone'.[64] At this time, Northern Electric cautiously projected Contempra's launch in early 1969—but the timing of the announcement, appearing a few weeks before Expo 67's closing ceremonies at the end of October, seemed intended to

Fig 3. Telephone Pavilion hostesses Rachelle Goyette and Aude Lasnier at Expo 67 demonstrate developments in Canadian telephony showing a Northern Electric no. 500 telephone (right) and a Western Electric Trimline (left). A-25152-30, Bell Canada Archives.

create a connection between the Contempra and the Centennial celebrations in the media, if not in fact. Through October and November of 1967, both Bell and Northern Electric's public relations offices ensured that newspapers across the country carried detailed reports of the development and imminent introduction of the Contempra on both business and 'women's' pages. Without exception, each article began with a description of the Contempra as the 'first modern telephone of completely Canadian design'.[65]

Bell initiated field trials of the Contempra in April 1968 in London, Ontario. Of a sample group of 227 residential and small business subscribers, 184 completed interviews in which they were asked to comment on the Contempra's 'appearance and design, the dial-in-hand concept, its ease of operation, [and] its various other new features' such as the recall button, and the bell. The report concluded that 93 per cent of the subscribers were generally satisfied with the telephone. Over 70 per cent of the interviewees 'made nothing but favorable comments about its appearance', with 'sleek, modern' and 'decorative, nice looking' topping the list of volunteered comments.[66] Later that year in December, focus group interviews were also held in Montréal and Toronto with 'average customers' drawing on both anglophone and francophone subscribers to 'identify the inherent features, advantages, and appeals of the CONTEMPRA which could be exploited through advertising'. In addition to being asked to discuss the Contempra's appearance and use (as were the subscribers in the London trial), these participants were also asked about 'the set's Canadian image'.[67] The study revealed responses to the Contempra's appearance were similar to the London trials, with most respondents liking the 'sleek, modern-looking design' and reporting 'the telephone gave [them] a sense of prestige and a feeling of being "with the times"'. Focus group discussions on the question of Contempra's Canadian-ness suggested that, despite the decades-long efforts of government agencies and design councils to develop a Canadian design identity, the perception of Canadian goods and industry had not shifted significantly. The author of the report noted that '[t]he fact that the telephone is designed and built by Canadians appealed to many respondents who felt that all innovations are American'. In fact, many respondents thought that Bell Canada was an American company, leading to the report's recommendation that in addition to highlighting the Contempra's 'aesthetic value' in its advertising, 'the Canadian aspect' of the company and the telephone be emphasized.[68]

Bell and Northern Electric held a joint press conference to announce the official launch of the Contempra on 31 October 1968. In his speech, Bell president R. C. Scrivener declared its introduction to be 'a significant event both in Canadian telephony and Canadian design'.[69] His short speech referred to the Canadian-ness of the Contempra as well as the Canadian-ness of Bell Canada and Northern Electric no less than half a dozen times. The speech by Northern Electric president V. O. Marquez that followed

described the Contempra as 'a symbol of what can happen when a Canadian company strives to reach the optimum in technological improvement and design'.[70]

The prominent advertising campaigns in mass-market and trade publications that followed the Contempra's launch made much of its '9 stunning colours' and 'distinctive modern style'. A later Northern Electric advertisement famously portrayed a stark white Contempra on an icy background that echoed its angular contours, managing at once to suggest its northern pedigree and its 'cool' sophistication **[4]**. Bell was persuaded to abandon its usual focus on 'product reliability and stability'.[71] Bell's Contempra advertising employed 'mod' graphics and female models outfitted in 'swinging sixties' fashions and make-up, ensuring that the Contempra—and Bell Canada—would be seen as breaking with the more conservative ethos of North American telephone design that both Bell and AT&T had long cultivated. Instead, Bell's ads asked, 'have you ever seen a phone that doesn't look like one?' **[5]**.[72]

In addition to running, what its marketing department called 'aggressive' TV and print advertising campaigns, Bell also created opportunities for the public to see and touch the new telephone, arranging for displays and exhibits in trade and home shows, department stores, shopping centres and hotel lobbies, as well as at venues that promoted Canadian design, including the Design Centre in Toronto and the Better Living Centre in Montreal. An internal report on the launch of the Contempra noted that never before had Bell 'employees been so deeply and spontaneously involved in promotion' as they were with the launch of the Contempra. 'As the [telephone] was introduced in each city, employee groups sought to outdo each other in sales, and developed their own local internal kick-off plans', which included '[r]evues, skits, posters, pictures, sales contests, songs and a host of other promotional ideas'.[73] Their enthusiasm seems to have also convinced Bell to loosen its typically tight scripting of product promotions. Bell's telephone sales and service representatives were allowed, and even encouraged, to go 'off-script' when they made sales calls for the Contempra, with the idea that more personalized descriptions would encourage employee involvement and increase consumer interest.[74]

Fig 4. Contempra telephone advertisement, 1971. File: Contempra Advertising, Bell Canada Archives.

Fig 5. 'Yes, it costs a little extra. But have you ever seen a phone that doesn't look like one?' Bell Canada advertisement, 1970. File: Contempra Advertising, Bell Canada Archives.

Canadian telephone subscribers responded enthusiastically to the launch of the Contempra, although it is impossible to tease out the degree to which it was motivated by national pride, an appreciation of modern aesthetics or Northern Electric and Bell's media savvy. Initial orders exceeded both expectation and production capacity, despite the extra fees that were charged in order to control demand (and prevent the too rapid obsolescence of the NE 500 set).[75] A week prior to the Contempra's official introduction in Montreal in March 1969, Bell had already received 4,500 advance orders.[76] In March and April of 1969 alone, the Contempra accounted for 85 per cent of new residential telephones installations in Montreal. Demand was so high that the planned introductions of the telephone in Toronto and Ottawa had to be delayed until early 1970. The *Financial Post* proclaimed the Contempra to be 'the most successful premium telephone ever introduced by any telephone company anywhere'.[77] A Northern Electric news release dated 12 June 1970 boasted that 300,000 Contempra sets had been purchased by Canadian telephone companies in the first twelve months following its introduction.[78] By 1978, approximately 800,000 Contempra sets were in service in Canada alone, a figure that significantly exceeded the market penetration of Western Electric's Trimline telephone in the entire USA.[79]

Ironically, the Contempra's *lack* of technological innovation was the instrumental factor in Northern Electric's securing new international markets for its telephone systems. With Western Electric's market dominance in the USA, and Ericsson's and Siemens' in Europe, Northern Electric looked to developing and modernizing countries to find export markets for its telephone systems. Even there, Northern Electric faced competition from these large international companies, which were also seeking a foothold in uncommitted markets. The cost and quality of the systems being offered by all these industry players were roughly the same and there was little leeway in terms of costs and prices. Since all bidders typically trimmed their prices as closely as possible, the standard 500-model telephone and its European equivalents were the most cost-effective subscriber sets to include. Since the Contempra was made with 500-set components and was almost the same cost to manufacture as its 500-model, Northern Electric could easily afford to offer the stylish Contempra instead. The combination of the Contempra's affordability and its modern style appealed to telephone service providers in both modern and modernizing nations, resulting in Northern Electric winning contracts over its considerably larger and more established competitors. Within a dozen years, over 3.4 million designed-in-Canada Contempra telephones were in use in Canada, the USA, France and over thirty countries in Central and Latin America, the Caribbean, East Asia and the Middle East, and licenses to produce the Contempra had been sold to manufacturers in Britain, France, the USA and Ireland.[80] Northern Electric's experiment in independence-by-design brought it 'fame, glory, and new markets' and ultimately helped achieve, and perhaps even surpass, Peachey's ambition of Northern Electric becoming 'maîtres-chez-nous'.[81] The technological pragmatism that informed both of Northern Electric's centennial projects—the Contempra telephone and the SP-1 computerized switching

system—drove Northern's expansion into world markets, and by the early 1970s, it was competing successfully against AT&T and Western Electric for the business of US independent telephone companies.[82]

The performance of Canadian-ness

Despite its absence at Expo 67, the Contempra's rhetorical performance as Northern Electric's—and ultimately, Canada's—nationalist 'centennial project' was remarkably successful and offers insights into how designed objects become associated with national identity. At the same time, its status as an icon of modern Canadian design was nurtured by Bell's 'assertive' advertising campaigns and Northern Electric's insistent references to it as 'the first telephone designed in Canada', the Canadian government's decades-long investments in designing the nation played an important role in its ascendance to that prestigious position. After its launch, accolades by government agencies valourized the Contempra as a triumph of Canadian industrial design, simultaneously validating the state's investment in its own policies of cultural and economic nationalism. In 1968, the Office of Design, a part of the Department of Trade and Commerce charged with encouraging design innovation in Canadian industry, welcomed the Contempra into the Design Canada program. That same year, it was recognized as a 'Design of Merit' by the National Design Council.[83] When, in July 1974, Canada Post issued a stamp to commemorate Canadian Alexander Graham Bell's invention of the telephone, it featured images of a Gallows Frame telephone (Bell's first telephone), a candlestick phone, and the Contempra **[6]**. The promotional material that accompanied the release of the stamp again hailed the Contempra as the first telephone 'to be conceived, designed and manufactured entirely in Canada', and furthermore boasted of its 'durable place in history'.[84] These awards and distinctions not only celebrated the design of the Contempra (and indirectly Canadian design and Canadian industry); more importantly, they iterated the Canadian-ness of the Contempra and acted to reify design's role in the success of the modern Canadian nation itself. Since nationalism is a rhetorical construct, design's discursive association with national identity at each of these moments—by Canada's government ministers and public servants, its cultural elite, its corporate leaders, its designers and its citizen-consumers—created 'the conditions of its own reproduction', a veritable echo chamber for the production and reproduction of design nationalism.[85] The recursive nature of this imagined relationship between design and national identity was perhaps most ingenuously expressed by John Tyson himself during a 1981 interview when he declared: 'Good autonomist design equals good autonomist industry, equals good autonomist control of your culture. Therefore good Canadian design lends to the autonomy of the Canadian culture'.[86]

Fig 6. Canada Post. 'The Telephone, 1874–1974', (Issued: 26 July 1974). Bell Canada Archives.

In a similarly circular way, the Contempra's success was also seen as a product of its Canadian-ness. Its design was characterized as the embodiment of a particularly Canadian ethos, a way-of-being that was often described in contrast to qualities or attributes identified as American.[87] Northern Electric's president V. O. Marquez described the Canadian-ness of the Contempra in such terms in a 1976 interview, in which he compared the Canadian and American R&D environments during the mid-1960s. He suggested that it was a distinctly Canadian penchant for pragmatism and an acceptance of limitations that could be credited with driving

Canada's post-war accomplishments in technological development and design, most notably the Contempra.

> In the United States […] the dominant partner is Bell Labs […], and what the customer gets is what the scientist thinks he ought to have. That's not the situation in Canada. In Canada, the scientist designs what the marketing people feel the customer thinks he needs. […] That's a very substantial difference. Take that telephone sitting right beside you, that Contempra. That was probably Northern's greatest. [We learned that] constraints are important. […] What I'm trying to say is that we designed a better set because we were facing constraints; we solved problems that the other man never bothered to solve.[88]

Given the events that led to Northern Electric's quest for independence, it is perhaps not surprising that Marquez cast his comments in terms of a perceived difference between Canadian and American traits and opportunities. His characterization of the Contempra as symbolic of a specifically Canadian style of ingenuity sought to explain and celebrate Northern Electric's success in the face of the restrictions put in place by the US Department of Justice and Western Electric. But it is important to recognize that Marquez's remarks (and indeed Peachey's 1964 'independence day' challenge as well) echoed familiar governmental, academic and popular discourses that posited Canada's political and economic realities, and in turn, its national and cultural identity, as having been shaped, for better and worse, by its history, geography and demographics. Canada's long imperial relationship to Britain, its proximity to the USA and its small and sparsely distributed population have been identified again and again in the findings of Royal Commissions, corporate annual reports and academic treatises as uniquely challenging conditions with which Canadian producers of goods and culture must contend. Joy Parr has suggested that the pragmatic recognition of these conditions by Canadian manufacturers and designers resulted in Canadian design following what she called a 'middle path'—one that sought to reconcile the ideals of modernist design and practicality.[89] Her analysis resonates with Marquez's allusions to a specifically Canadian style of technological ingenuity.

Both accounts point to the significant influence of Canada's historic, geographic and economic relationships on its mid-twentieth century nation-building-by-design project and offer a persuasive explanation for why the aesthetically modern yet technologically pragmatic Contempra appeared as such a convincing material manifestation of an imagined Canadian-ness. In Marquez's description, the Contempra's Canadian-ness was predicated on what it was not, as much as what it was. The Canadian government, through the work of both the NIDC and the National Design Council, had actively sought to cultivate a distinctly Canadian design ethos by dissuading Canada's manufacturers from their long-established tradition of copying the design of British and, especially, American goods. From this perspective, a key signifier of 'authentically' Canadian industrial design was that it was *not* American. Indeed, I would argue that, during this period, non-American-ness was one of the defining characteristics of design nationalism in Canada. The Canadian-ness of the Contempra was explicitly expressed in these terms in both promotional materials and popular discourses, and its pragmatic design and resulting international popularity with telephone companies and subscribers were regularly compared by Northern Electric and Bell with Western Electric's technologically more innovative but less admired Trimline.

Design nationalism—investing design objects with imagined national traits and values—was not a uniquely Canadian undertaking. As design historian Simon Jackson

notes, many countries create or adopt national design myths as a means conveying their historical and cultural distinctiveness.[90] Many Western govments also embraced design in the post-war years as a way to maintain and industry and, in some cases, as a means to create modern national or cultural tities. While Canada was not alone in turning to design to shape its national identity, Canadian design nationalism's resonance with historical discourses technological nationalism lent the idea of nation-building-by-design considerable fluency and authority. If, as cultural geographer Tim Edensor gests, national identity is formed and enacted within 'a bewilderingly dense profusion of signifiers, objects, practices and spaces', then the provisions of US Justice Department Consent Decree, the discourses of design nationaltaken up by government agencies, and later adopted by Bell and Northern Electric, and finally the Canadian public, as well as the Contempra telephone itself can be seen as stages on which Canadian-ness was rehearsed and performed in both symbolic and real ways. For Northern Electric exectives and engineers, the Contempra performed Canadian-ness by outdothe American Trimline telephone in both appeal and sales. Its performance Canadian-ness was one of the markers of the company's corporate emantion from its dominant US counterpart. In real terms, it also helped to redeNorthern Electric and Bell Canada as leading Canadian companies in domestic and foreign markets **[7]**. For Canadian designers and manufacers, the Contempra stood as an endorsement of a more pragmatic 'middle path' for modern Canadian design. And for the increasingly self-conscious population of Canadian citizen-consumers, a Contempra telephone in their homes was a performance of Canadian-ness and modern-living all at once.

Fig 7. Bell Canada, advertisement, 1969. Bell Canada Archives.

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Notes

1 In fact, the Uniphone was the first telephone designed in Canada. Field trials of the new telephone took place in 1935, and Bell Canada introduced the telephone in 1936. File: Subscriber Equipment–General, Bell Canada Archives.

2 Since it was introduced, the Contempra telephone has been featured or referenced in almost every major publication and exhibition on modern Canadian design. It is in the permanent collection of Canada's design centre and museum, the Design Exchange (DX). In 1974, the

Contempra was featured on a Canada Post stamp commemorating the 100-year anniversary of the invention of the telephone by Alexander Graham Bell in Brantford Ontario. In 2005—more than thirty-five years after its introduction—the Contempra was featured prominently in the Canadian Museum of Civilization's 'Cool '60s' exhibition. It was one of the iconic Canadian designs selected for the 2016 'DX:Uncrated—Classic Plastics' exhibition at the Design Exchange (DX) design centre and museum. The Contempra is now on permanent display in the 'Sound by Design' gallery at the newly rebuilt and redesigned Canada Science and Technology Museum, which reopened in November 2017.

3 Nortel Networks was sold in 2009 to Sweden's Ericsson Phone Company under bankruptcy proceedings.

4 See especially Rachel Gotlieb and Cora Golden, *Design in Canada since 1945: Fifty Years from Teakettles to Task Chairs* (Toronto: Key Porter Books, 2004); also, Peter Day and Linda Lewis, *Art in Everyday Life* (Toronto: Summerhill Press/The Power Plant, 1988).

5 For example, see David Olive, *No Guts, No Glory: How Canada's Greatest CEOs Built Their Empires* (Toronto: McGraw-Hill Ryerson, 2000); Robert G. Cooper, *Winning the New Product Game* (Ottawa: Industry, Trade and Commerce, Technology Branch, 1976); and H. Edward English (ed.), 'Canadian Telecommunications: Problems and Policies' in *Telecommunications for Canada: An Interface of Business and Government* (London: Methuen, 1973).

6 My use of the term 'performance' in this article draws on cultural geographer Tim Edensor's proposal that it is a useful metaphor for making sense of how identities, including national identities, are created and reproduced because 'it foregrounds identity as dynamic; as always in the process of production'. Tim Edensor, *National Identity, Popular Culture and Everyday Life* (Oxford: Berg, 2002), 69.

7 See, for example, Jeremy Aynsley, *Nationalism and Internationalism* (London: V&A, 1993); Kjetil Fallan and Grace Lees-Maffei (eds), *National Design Histories in an Age of Globalization* (London: Berghahn Books, 2016); Adrian Forty, *Objects of Desire: Design and Society Since 1750* (London: Thames and Hudson, 1995); Javier Gimeno-Martínez, *Design and National Identity* (London: Bloomsbury Academic, 2016); Jonathan Woodham, 'Design and Everyday Life at the Britain Can Make It Exhibition, 1946', *Journal of Architecture* 9 (2004): 463–76; Lesley Whitworth, 'Inscribing Design on the Nation', *Business and Economic History* 3 (2005): 1–14.

8 For discussion of design and national identity in the Canadian context, see John B. Collins, '"Design in Industry" Exhibition, National Gallery of Canada, 1946: Turning Bombers into Lounge Chairs', *Material History Bulletin/Bulletin d'histoire de la culture matérialle* 27 (1988): 27–38; Alan C. Elder, *Made in Canada: Craft and Design in the Sixties* (Montreal: McGill-Queen's Press, 2005); Margaret Hodges, 'Nationalism and Modernism: Rethinking Scandinavian Design in Canada, 1950–1970', *RACAR* 40 (2015): 57–71.

9 Maurice Charland, 'Technological Nationalism', *Canadian Journal of Political and Social Theory* 10 (1986): 197.

10 Business historian Robert MacDougall demonstrates that technological nationalism was not only a rhetoric of the State, but also 'a useful and evocative rhetoric that corporate interests deployed to promote their own enterprises'. Robert MacDougall, 'The All-Red Dream: Technological Nationalism and the Trans-Canada Telephone System', in *Canadas of the Mind: The Making and Unmaking of Canadian Nationalisms in the Twentieth Century*, eds Norman Hillmer and Adam Chapnick (Montreal: McGill Queens Press, 2007), 48.

11 C. A. Peachey, *Western Electric Relationships as They Affect The Telephone and Electric Companies* (Bell Telephone Company of Canada: President's Conference, 30 January 1964). Doc. 520 (1–2), Archivex box 2723–5, Bell Canada Archives.

12 V. O. Marquez, interview notes titled '1960 to September 1 1966', 30 September 1980, 1. File: V. O. Marquez, Bell Canada Archives.

13 'The Removal of Outside Plant and Station Apparatus from the Technical Information Agreement', 8 May 1962. Doc. 1858, Archivex box 2723–5, Bell Canada Archives.

14 Peachey, 'Western Electric Relationships', 7 [emphasis in original].

15 Canada. House of Commons. Special Committee on Reconstruction and Re-establishment. *Minutes of Proceedings and Evidence*, No. 10, Wednesday (Ottawa: 21 June 1944), 360–2.

16 Ibid., p. 360.

17 Ibid., pp. 360, 362.

18 Ibid., p. 331.

19 In the USA, design's economic value was equally recognized and promoted albeit by private institutions, most notably, the Museum of Modern Art in New York. Founded in 1929 through a private sponsorship, it established a Department of Industrial Design in 1940 with the view to promote modern industrial design by recognizing the work of designers and the manufacturers who made use of their talents. See, for example, Gay McDonald, 'Selling the American Dream: MoMA, Industrial Design and Post-War France', *Journal of Design History* 17 (2004): 397–412.

20 Canada, *Minutes of Proceedings and Evidence*, No. 10, Wednesday (21 June 1944), 331.

21 Robert Bothwell and William Kilbourn, *C.D. Howe: A Biography* (Toronto: McClelland and Stewart, 1979).

22 The full title of the exhibition was 'Design for Use: A Survey for Design in Canada of Manufactured Goods for Home and Office, for Sports and Outdoors'. It was curated by Donald Buchanan at the request of C. D. Howe, head of Canada's Department of Reconstruction and organized in co-operation with the National Research Council of Canada, the National Film Board of Canada and the Department of Reconstruction. The exhibition subsequently travelled across Canada under the title 'Design in Industry'. See National Gallery of Canada website at https://www.gallery.ca/whats-on/exhibitions-and-galleries/design-for-use-a-survey-for-design-in-canada-of-manufactured.

23 For discussion of Canadian consumer response to postwar industrial exhibitions, see Joy Parr, *Domestic Goods: The Material, the Moral, and the Economic in the Postwar Years* (Toronto: University of Toronto, 1999), chapter 2.

24 Ibid., p. 49.

25 Ibid., p. 126.

26 'Those looking for a way forward, [Buchanan] insisted, should be visiting the laboratories of the National Research Council rather than attempting to learn at the ROM from the "grotesque root of an Albertan tree, carved into a shape vaguely female in contour, […] proudly displayed in a glass case as a sample of modern Canadian design"'. Ibid., p. 48.

27 Parr, *Domestic Goods*, 128.

28 Rachel Gotlieb and Cora Golden, *Design in Canada: Fifty Years from Teakettles to Task Chairs* (Toronto: Key Porter Books, 2004), 4.

29 The original Design Centre was located in the National Gallery of Canada. Subsequently, Design Centres were also opened in Toronto (1964) and Montreal (1967). Canada, The National Design Council, *A Brief History of the National Design Branch and the National Design Council and Their Functions and Relationships* (Ottawa, December 1967), 2.

30 'The impact of the annual design awards given by the National Industrial Design Council has not been as widespread among manufacturers as the sponsors had hoped. Furniture design has seen improvement recently with a few larger manufacturers employing designers, but good design at a reasonable price is still hard to find'. Donald W. Buchanan, 'Publicity for Good Design', *Canadian Art* 15 (1958): 106–7.

31 Parr, *Domestic Goods*, 136–7.

32 Parr, *Domestic Goods*, 136. See also Philip Cross and Philippe Bergevin, *Turning Points: Business Cycles in Canada Since 1926* (Toronto: C.D. Howe Institute, October 2012), 16.

33 Ibid., p. 8.

34 While it is generally believed that the Shmoo was never seriously considered for use as subscriber equipment, there is some evidence that making the Shmoo available to subscribers was entertained in the USA. Western Electric field-tested the phone in New Brunswick, NJ, in 1958. The results 'showed that much more design and engineering work was necessary. For one thing, "The Schmoo" [*sic*] was found to be too bulky for easy handling by users'. 'A Phone is Born', *Bell System News and Features* (June 1965), 3.

35 Northern Electric, 'Memoirs of C.A. Peachey', 15 October 1980, 9. Bell Canada Archives.

36 The Northern Electric Princess was introduced in Canada in July 1960. Northern Electric sold the telephone as the Princess to Bell Canada and as the Contessa to non-Bell telephone companies. Bell Telephone Company of Canada, *Information Bulletin*, 27 July 1960.

37 Some of the problems with the original Princess 701 model (designed by Henry Dreyfuss in 1956) were described in an ATCA Newsletter, published in 1999: 'The original 701 sets didn't have room for a standard ringer so an E1 ringer was wall mounted as an adjunct. The resulting set was a full 3 pounds lighter than the 500 desk sets—so light in fact that a weight was later added to keep the phone from spinning during dialing and falling off the table on the slightest tug'. Jay Neale, 'ATCA System: The Princess', *ATCA Newsletter*, November 1999. In a later addendum to the article, Neale noted that 'Northern Electric Company (the Canadian equivalent of the United States' Western Electric), which was producing a similar but better designed set, ran full-page ads reminding subscribers that Western Electric's Princess was a two-piece set for three-handed people!' See digitized article and addendum at https://beatriceco.com/bti/porticus/bell/telephones-princess.html#ATCA%20article.

38 John F. Tyson, *Adventures in Innovation: Inside the Rise and Fall of Nortel* (self-published, 2014), 28.

39 Despite the problems associated with the Shmoo, it appears that Bell Canada had briefly entertained adopting it as a subscriber set. In 1959, a brief article featuring an image of the Shmoo described it as a 'proposed new telephone design' and noted that it was being field tested 'in a few New Jersey homes and offices'. 'Dial in Hand', *Brantford Expositor* (18 June 1959). In 1961, a newspaper article featured a photograph of Bell Canada president Thomas Eadie demonstrating the Shmoo. He was quoted

as describing the Shmoo as 'part of Canada's electronic future'. 'Easier Dialing in Shape of Shmoos to Come', *Toronto Daily Star* (23 January 1961).

40 On this point, Peachey wrote 'there was a certain amount of skepticism in [the] minds [of senior Bell Canada officials] as to the ability of [Northern Electric] R&D to come anywhere near the equivalent of the great BTL [Bell Telephone Labs]'. Northern Electric, 'Memoirs of C.A. Peachey', 9.

41 A Northern Electric publication described the SP-1—named for its stored program control for switching telephone calls—as being 'Unlike most of its predecessors, which were conceived for operation in very large or very small telecommunications centers, the SP-1 has been designed for central offices having as few as 2000 lines, yet can grow to 20,000 lines or more. […] Featuring a stored program central control […], the system offers telephone administrations a high degree of flexibility. [It] can be directed to add, adapt or modify certain logical functions by means of program alterations rather than extensive and expensive equipment or modifications'. The report continues, noting that a 'major advantage lies in its adaptability to the sophisticated needs of the future'—speed calling, call waiting, three-way calling and call-forwarding—features which are now commonplace but at the time were options only available to telephone companies using the 1-ESS. Regarding the SP-1's dependability, the report notes: 'It was designed for a down-time factor not exceeding two hours in 40 years'. 'SP-1: The first Canadian-designed electronic switching system', *Northern Circuit*, Spring 1969, 1–3.

42 Northern Electric, 'Memoirs of C.A. Peachey', 10.

43 G. Bennett, Interview with John Tyson, 18 March 1981. CAS 7, 2. Bell Canada Archives.

44 Tyson's approach to the design of the new telephone was in no doubt influenced by his training at the Ontario College of Art (OCA). In 1945, OCA became one of the first Canadian art schools to include various forms of applied arts in its curriculum, and in 1947, introduced courses in industrial design. Its principal between 1933 and 1952, Canadian painter, Frederick S. Haines, was familiar with the work of British art critic, Herbert Read, on the role of the artist in industry and was influenced by the model of design education introduced at the German Bauhaus.

45 Author's correspondence with Phil Tillman (former director of Design Economics, Northern Electric), 17 April 2008.

46 The new position of in-house industrial designer was jointly financed by Northern Electric's R&D Laboratories and Bell Systems Engineering Department.

47 Author's interview with Phil Tillman, Ottawa, 12–13 March 2008. Author's correspondence with John Tyson, 2 April 2008.

48 Author's correspondence with John Tyson, 2 April 2008.

49 Ironically, Peachey concluded this account by observing: '[I] gave them carte blanche'. Northern Electric, 'Memoirs of C.A. Peachey', 9.

50 By comparison, the Western Electric's Trimline was four inches high, five inches wide and eight inches long, with contoured planes for both the handset and base.

51 F. Madsen *et al.*, *The Research, Development, and Marketing of the Contempra Phone*, student research project (Toronto, Ontario: Ryerson Polytechnical Institute, 3 April 1969), 15.

52 'CONTEMPRA* Telephone Set – Design Features' (undated), 2, 3. File: Subscribers' Equipment: Dial-in-handset (1947–1967), Bell Canada Archives.

53 L. S. Moore, 'THE CONTEMPRA* TELEPHONE – The Design of a Contemporary Canadian Product' (1968), 10. Doc. B29088, Bell Canada Archives.

54 While the *Bell System News and Features* announcement of the Trimline introduction in June 1965 declared: 'when the instrument is introduced to the public beginning this August [it] will come in nine attractive colors', an article in the October 1965 issue of *Communications News* noted: 'The table version of the Trimline phone will be offered in white, beige, blue, pink and turquoise. The wall model will be available in white, beige, yellow and pink'. Compared with the conservative pastel tones of the Western Electric's Trimline, the more saturated colours of the Contempra's design were striking and unprecedented.

55 Bell Telephone Co of Canada, 'The "Contempra" Telephone' (1968), 3–4. Doc. B29088, Bell Canada Archives.

56 According to Tyson and Philip Tillman, it was Northern Electric's chief economist, Eberhart Bop, who complained that a housewife with a baby in her arms would be unable to dial the Contempra. Author's correspondence with Philip Tillman, 17 April 2008. Tyson's skill and showmanship with single-handed dialling were commented upon in the memoirs of several of the Northern Electric and Bell executives who took part in the Contempra presentations.

57 Northern Electric, 'Memoirs of C.A. Peachey', 11.

58 G. Bennett, Interview with John Tyson, 18 March 1981, 3–4. (CAS 7), Bell Canada Archives.

59 Ibid., pp. 1–2.

60 Bennett, Interview with John Tyson, 4; Bell Canada, 'The Contempra Story', 3.

61 According to Tyson, Northern Electric spent fifteen months completing human factors research and had little time to undertake any significant consumer testing. Bennett, Interview with John Tyson, 6.

62 By way of comparison, Northern Electric's decision to go ahead with the development of the SP-1 switching system was made in 1963, with the idea that 'Expo 67 was the golden opportunity […] to introduce electronic switching to Canada'—a four-year timeline as opposed to the short year optimistically allocated for the production of the Contempra. A. G. Lester, 'Memory Book of Telephone Experiences' (biographic file of A.G. Lester), 106. Bell Canada Archives.

63 Correspondence W. H. Mantle (manager public relations, Northern Electric) to G. Fenn (editor, *The Clarion*), 25 October 1967. File: Contempra, Bell Canada Archives.

64 *Northern Electric News Release*, 2 October 1967. File: Contempra, Bell Canada Archives.

65 Announcements of the development and launch of the Contempra were featured in all large metropolitan newspapers such as the *Montreal Star, Globe and Mail* (Toronto), *Toronto Star, Winnipeg Free Press, Regina Leader Post, Edmonton Journal, Halifax Chronicle Herald* as well as in smaller local newspapers across the country. File: Contempra, Bell Canada Archives.

66 Field trials began on 15 April 1968; interviews took place on 22 May and 8 June 1968. Bell Canada Chief Statistician's Office, 'Contempra Phone Product Test: London, Ontario – May 1968'. File: Subscribers' Equipment: Dial-in-handset (1968), 1–2. Bell Canada Archives.

67 Bell Canada, 'The Contempra Story', February 1971. Catalogue no. B-38754, 2D. Bell Canada Archives.

68 Bell Canada, 'The Contempra Story', 3D.

69 Bell Canada, 'Contempra: Program for New Conference', remarks by R. C. Scrivener, 31 October 1968 (Ref: H.8–9). File: Contempra, Bell Canada Archives, Montreal, 1.

70 Bell Canada, *Contempra: Program for New Conference*, remarks by V. O. Marquez, 31 October 1968. Bell Canada Archives, Montreal, 3.

71 Bell Canada, 'The Contempra Story', 5. It is noteworthy that Western and Northern Electric had a long-standing ambivalence about manufacturing colour telephones. In their view, the telephone was a scientific instrument, and fashionable flourishes such as colour and styling were wholly inappropriate and undesirable. See Jan Hadlaw, 'The Modern American Telephone as a Contested Technological Thing, 1920–39', in *Encountering Things: Design and the Theory of Things*, eds Leslie Atzmon and Prasad Boradkar (London: Bloomsbury, 2017), 137. The first colour telephone produced by Western and Northern Electric, the WE/NE 500, was introduced only in 1954. However, Northern Electric was less reluctant to experiment with manufacturing colour radios for Canadian consumers, as shown in Michael Windover and Anne F. MacLennan, *Seeing, Selling, and Situating Radio in Canada, 1922–1956* (Halifax: Dalhousie Architectural Press, 2017), 112.

72 Cockfield, Brown & Company Ltd, 'Contempra Phone' (tearsheet), 1970. File: Contempra Advertising, Bell Canada Archives.

73 Bell Canada, 'The Contempra Story', 5–6.

74 The report notes that Bell employees were permitted unusually great latitude when promoting the Contempra: 'Official terminologies were not specified as was done in the past with other services. With colour, for example, if a service representative wanted to call a white set a "warm white" or a "soft white", that was her prerogative'. Ibid., p. 6.

75 Bell subscribers who installed the Contempra telephone were charged an additional $1.75 monthly fee over the normal monthly rate. The fees charged by other Canadian telephone companies varied but only slightly. On managing the depreciation of the 500 set, see V. O. Marquez exit interview, 'Sept 1966–69' (2 October 1980), 10.

76 Bell Canada, 'The Contempra Story', 6.

77 Ian Roger, 'Contempra Phone Rings the Sales Bell', *The Financial Post*, 27 September 1969. File: Contempra, Bell Canada Archives.

78 *Northern Electric News Release*, 12 June 1970. File: Contempra, Bell Canada Archives.

79 Ted Blute, 'Contempra' [extract] 1978, 7. File: Subscriber's equipment: Dial-in-handset 1969–, Bell Canada Archives.

80 Peter C. Newman, *Nortel Northern Telecom: Past Present Future* (Ottawa: Northern Telecom, 1996), 37; Ted Blute, 'Contempra' [extract] 1978, 7. File: Subscriber's equipment: Dial-in-handset 1969–, Bell Canada Archives.

81 Newman, *Nortel Northern Telecom*, 37.

82 Ibid., pp. 50–52.

83 Cyndi Stewart, 'Canada's Most Exciting Conversation Piece', *Northern Circuit*, Autumn (1968): 12.

84 Canada Post's description of the stamp notes, 'Each of the telephones portrayed in Canada's newest postage stamp has a durable place in history. The Gallows Frame was the world's first telephone […] invented in the summer of 1874 […] The Pedestal or "Daffodil" model [more commonly called the "Candlestick" telephone] was very popular and is regarded by many as being symbolic of all telephones. The Contempra Phone was the first to be conceived, designed and manufactured entirely in Canada', https://www.canadianpostagestamps.ca/stamps/15934/the-telephone-1874–1974.

85 Charland, 'Technological Nationalism', 197.

86 Bennett, Interview with John Tyson, 18 March 1981, 4. (CAS 7), Bell Canada Archives.

87 Michael Billig introduced the term 'banal nationalism' to describe the ways in which ideas of national identity come to be expressed in quotidian ideas, practices and speech. He argues that stereotypes of national traits are a means of expressing group identity by 'distinguishing "them" from "us", thereby contributing to "our" claims of a unique identity'. Michael Billig, *Banal Nationalism* (London: Sage, 1995), 81.

88 'Transcription of Taped Interview with V.O. Marquez, President, Northern Electric Company, November 12, 1976', 17–8. File: V.O. Marquez, Bell Canada Archives.

89 Parr, *Domestic Goods*, 63.

90 Simon Jackson, 'The "Stump-jumpers": National Identity and the Mythology of Australian Industrial Design in the Period 1930–1975', *Design Issues* 18 (2002): 23. See also Billig, *Banal Nationalism*, 78–83.