and what geographic region to include. An overall plan serves as the best defence against intrusive collections or against becoming "the community attic." The plan must be clearly understood by everyone involved and be periodically reviewed.

Once the overall plan for the collection is in place – "there must be research." In both history and science museums research staff are the core people who "need time to search out the stories and meanings of the things they collect." "These things will be the more valuable the more is known about them, so...collection research which is done easiest and best while the object is a recent arrival to the museum and its past is along a recent trail outside the museum" must be given a high priority.[4] This may lead from time to time to "formulating questions which have no answers," as one of the Western Development Museums' staff recently put it, but museums have an obligation to try.

NOTES

1. Saskatchewan Western Development Museums, "Statement of Intent," March 1, 1979.
2. Robert D. Turner, "Logging Railroads and Locomotives in British Columbia: A Background Summary and the Preservation Record." *Material History Bulletin* 13: 3-20; and Robert D. Turner, "The Limitations of Material History: A Museological Perspective," *Material History Bulletin* 20: 87-92.
3. Turner, "Limitations of Material History," p. 91.
4. Yorke Edwards, "Research and Education: Museums Need Both," *Muse* (Spring, 1985): 10-12.

Research and the Development of a Domestic History Collection

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What a museum chooses to collect and preserve is determined by its mandate and by the acquisition policy flowing from that mandate. A museum of technology may decide to collect a range of similar artifacts to show technological change over time, or to show a series of superlatives: the first, the last, the wholly Canadian-made. Museums of social history acquire objects that demonstrate change of people and communities over time. What is collected is typical or representative of certain social milieus; it is not necessarily the first, the best, or the most unusual. A historic site collects for a sharply defined historical situation, identified precisely as to time, place, and context.

Ideally research should precede any acquisition programme in order to ensure that the artifacts collected are chosen in accordance with their significance for the museum's purpose. The direction and scope of research should proceed from the institution's mandate and should provide a basis not only for selecting artifacts to be preserved but also for making them comprehensible through exhibition and education programmes.

Although most museums subscribe to this ideal, they are usually unable to practise it consistently since much of their resources are spent in grappling with the problems presented by existing collections. Ironically many of these problems stem from a lack of coherent research in earlier years. Present-day staff attempting to organize the existing collection must do so with no knowledge of the impulses creating it in the first place. Usually the artifacts were acquired over several years by a number of different curators, each with his or her own perception of what was to be preserved and why. No record exists of the rationale underlying earlier acquisition decisions. In fact it is unlikely that any such record was ever created by the staff of the day. Multiple, unexamined, and unrecorded collecting philosophies create incoherent collections which may even result in confusing the museum's original purpose.

The difficulties in organizing existing collections, physically and informationally, are well known to current museum staff. Similar problems arise in developing a new collection, with the advantage that most of these can be dealt with on paper prior to acquisition activity. Many of these issues are common to all museums; others are particular to each institution's specific circumstances. What follows is an attempt to identify and resolve these issues as they pertain to a specific research project undertaken by one museum: the study of women's domestic history in the twentieth century at the History Division, National Museum of Man.

The National Museums Act defines the purposes of the National Museums of Canada:

> to demonstrate the products of nature and the works of man, with special but not exclusive reference to Canada, so as to promote interest therein throughout Canada and to disseminate knowledge thereof.

As part of that overall mission, the National Museum of Man is responsible for researching and demonstrating the history of human existence in Canada from prehistoric times and for preserving the artifacts which testify to that history. Within this context the goal of the History Division is to increase understanding of Canadians' experience in the historical period through reference to the objects embodying that heritage. The approach taken is that of social history (the study of change and continuity in the circumstance of all social and economic classes through

time and region) and this determines the direction of divisional research and of acquisitions resulting from research.

The project on women's domestic history examines the relationship between women's work in the home and changing domestic technology in Canada during the period 1900-1940. The focus is on two aspects of domestic work: food (obtaining, storing, preparing, preserving, consuming, and disposing of) and cleaning (laundry, housecleaning, personal cleanliness). Research to date has identified three major elements of technological change during the period under study: the provision of water and sewage systems, the electrification of the home, and the specialization of household spaces for feeding and cleaning functions carried out by one person. Although change occurred under different circumstances and at a varied pace across the country, these elements appear to have been the same.

Associated with each element is a multitude of material evidence: porcelain sinks and wooden drainboards, toilets and bathtubs, pails and mops, scrub boards, clothes racks, towels, starch, iceboxes, wood and coal stoves, egg beaters, pantries, electric toasters, tables and chairs. These objects moved into Canadian homes and then out again as they were displaced by modern counterparts. This long, slow process of change took place over several decades and varied enormously across regional and economic categories.

The implications for artifact preservation are as broad and complex as the variety of circumstances of Canadian households. It is essential to address key issues in collections development in order to define an acquisition programme in this area. This paper will discuss first the general questions that face all institutions engaged in collecting, classifying, conserving, and using historical objects and then those issues that arise from the particular mandate of a national museum. The substance of this discussion is the development of a collection of historical artifacts proceeding from research in women's domestic history as described above.

Once a historic site or museum has established its acquisition policy, it has to contend with the practical considerations of collecting. Availability is not yet a problem for most domestic artifacts of the early twentieth century. Many of these items are durable (more so than their modern counterparts) and some are still usable. However, they are not always in their original condition – blades are rusted, handles cracked, motors missing, cloth-covered electric cords replaced by plastic ones. Sometimes they have been rehabilitated: the kitchen table is a work bench in the basement and covered with paint spills. What is rare is the infrastructure of domestic technology: high-backed porcelain sinks, wooden drainboards, pantries, clotheslines and poles.

Direct cost is not a major problem for the twentieth century's domestic technology. People are usually willing to donate, either because the market value is very low or non-existent, or because they do not know how else to dispose of the old refrigerator in the basement. The real costs are indirect. While storing six egg beaters poses no problem, storing six wood and coal stoves does. Artifact storage, like conservation, is time-consuming, labour-intensive, and a never-ending cost. Documenting artifacts can require a lengthy research process before, during, and after acquisition; data entry and updating time are also part of the cost.

Documentation raises the question of provenance. It is accepted museological practice, all other things being equal, to choose an object with a documented history of ownership and use it over an object without provenance. This is not of great significance for the proposed collection of domestic technology objects. Usage of the object will have been determined by prior research to validate the selection of artifacts representative of change in the domestic processes under study.

Classification of objects is key in organizing museum collections and their documentation. Until the 1970s the classification of artifacts in historical collections was haphazard at best. Often the data existed only in the curator's head; the manual card index organized categories according to each curator's idiosyncratic system. The problems inherent in this situation became acute with the beginning of computerization of catalogue and collections management data in the 1970s. The initial expectation was that computerization would enable collections of artifacts to be analyzed for research, selected for exhibition, or compared for acquisition purposes. Additionally, the computer would be a tool in collections management. It is this last application that has proven successful, while curators and researchers are still wrestling with classification for purposes of search and research.

Classification enables us to organize objects, but to what end: acquisition development? research? exhibition? A classification system should assist in decisions about collecting. Thus it is important to know what already exists under the categories desired, for example, what has been collected within the category of laundry and further, what kind of scrub board or powered washing machine. The system should also respond to educational objectives. The goal of the current project is to demonstrate an aspect of women's history (not, for example, to demonstrate a series of electrical stoves): how domestic work has changed over time and the implications of that change. The goal is not to demonstrate a series of electrical stoves. It should be possible to locate objects in the collection according to categories of women's domestic work rather than according to the intrinsic identity of individual objects. The same applies to research needs. The researcher should be able to locate the objects used in performing a domestic task in order to replicate that task or compare it with its technological antecedents or replacements.

Over the past fifteen years Canada has spearheaded conservation research and training and has developed con-

servation standards for the physical care of historical objects in storage, in transit, or on exhibit. Funding agencies and lenders of artifacts and exhibits usually require compliance with such standards. Some museologists think the demands of conservation are getting in the way of museum operations. The material evidence of twentieth century domestic technology is usually not fragile. Yet metal rusts, wood dries out and cracks, rubber hardens, plastics become brittle and disintegrate. Artifacts must be treated so they will not deteriorate or at least so that deterioration is slowed.

This raises the question of conservation policy. To take the two extremes: should the object be stabilized in an "as-is" condition – no repainting, no replacement of missing parts, no undoing of repairs carried out by the owner? Or should it be restored to a "like-new" condition: removal of layers of paint and application of fresh paint and stencils, fitting of new parts (often reproductions since original parts may no longer be available), replacement of the owner's baling wire repair with a proper handle? On the one hand all evidence of use is removed; it is as if the object had just left the factory; on the other hand the object may resemble a junkyard reject, unusable under any circumstances. Between these two extremes are numerous gradations. What policy should determine conservation decisions? What is lost or gained in understanding the part an object played in a given process?

The question of conservation is closely allied to use. We expect artifacts to be used in museum exhibits or *in situ* at historic sites. But what about active use – by museum staff or volunteers in demonstrations? by visitors taking part in an educational programme? by researchers seeking to understand or analyze a process? Here is where a museum's prime objectives – to preserve and to educate – can come into conflict.

Technological artifacts were made to be used and often in less than perfect conditions: exposed to the elements, subject to the intense heat of open flames, alternately soaked with water and dried out. They were operated, often on a daily basis, until they were worn out, replaced by something better, or discarded as useless. Technological artifacts may be best understood in action, in use. Understanding is also enhanced if the object can actually be used by the researcher or museum visitor.

A few years ago I spent a day as an interpreter in The Grange, a Toronto house restored to the 1830s, and helped cook in the large open hearth and brick bake oven. My apprenticeship provided insights into the technology of open, wood-burning fires used to prepare food. Tending the fire, an essential responsibility of food preparation, required a knowledge of the burning properties of various woods, the ability to make the most judicious use of the heat generated, and judgement as to the size of fire required for various purposes. The cook had to know the length of time required to heat a bake oven to the appropriate degree and the order in which various foods were baked, since the heat would be retained by the bricks all day and even overnight. Responsibility for the fire also meant carefully banking the embers with ashes at night so the fire did not go out, maintaining a ready supply of dry wood, noting the condition of the chimney and ensuring that it was cleaned on a regular basis, keeping sparks off wood floors and away from long skirts, and keeping small children away from the fire. The woman responsible for preparing food had to understand thoroughly the technology of open, wood-fuelled fires and the measures necessary to use them efficiently and safely.

This kind of opportunity is an advantage offered by a number of historic sites. While the choice of re-created experience is narrow, given the time periods and activities with which most Canadian historic sites are concerned, existing possibilities have scarcely been exploited. Most museums cannot provide this type of experience for practical reasons. Additionally it is a primary tenet of museology that the mandate to preserve precludes the use, even the handling or touching, of artifacts in a museum's care. While this is understandable, it has two undesirable results, both antithetical to the aims of the institution: understanding of the object is lessened because it cannot be directly experienced, and, the object assumes a kind of sacred aura because it is untouchable, further distancing people from the meaning of the artifact and what it represents of their past.

The foregoing indicates the tension that can exist between the need to preserve and the need to use the object. Some historic sites and museums resolve this problem by using reproductions, which raises the contentious factor of authenticity. This issue tends to dissipate with industrialization, however. Reproducing a corn broom is one thing; reproducing a 1937 Hoover vacuum cleaner is another matter entirely. Some museums have elected to separate their collections into different categories, depending upon whether an object is kept for exhibition and study purposes or is used in demonstrations and hands-on participation by museum visitors. The latter is a much more effective means of understanding the nature and the operation of an artifact, the impact of its operation and of its relationship with the operator; the former provides a better understanding of the historical context in which the artifact was originally acquired, used, and understood.

To communicate with their publics museums need to present both kinds of learning opportunities. This is particularly so for objects that are an inherent part of a technological process. Historians of technology "have long maintained as an article of faith that this intimate understanding of technical hardware is essential to any larger understanding of technology and its social dimensions." (David A. Hounshell, "Commentary/On the Discipline of the History of American Technology," *Journal of American History* 67 (4): 862.)

The issues of conservation and use in particular centre around a fundamental question: is the artifact a historical "document" or is it a witness to a historical process? For

the purpose of a museum collection that proceeds from a social historical analysis, the object serves primarily to illustrate a historical process.

The approach to developing a domestic technology collection is based on the artifact as example. In examining the relationship between women's domestic role and change in domestic technology in Canada in the period 1900-1940, the study hopes to illuminate why change occurred and its relationship to economic and cultural factors. The nature of the research has direct implications for the artifacts selected to be preserved. The intent of the research is to examine change in domestic technology in the context of women's domestic history. The project does not aim to document the secondary manufacturing industry in Canada, the technological development of cooking and heating devices, or the infinite variety of domestic circumstances differentiated by time, place, and economic and cultural factors. It is the material evidence of the process that should be documented and preserved.

This brings forward the consideration of issues pertaining to a particular institution, in this example the National Museum of Man. While a national mandate allows great latitude, it also creates more difficulties in focusing on priorities. What is nationally significant: the objects associated with well-known persons of national importance? the objects of Canadian manufacture? the most stylistically tasteful or accurate example? A related question concerns regional representation. Should a national collection be the sum of its provincial parts? a slice of material evidence from sea to sea? How could that be reconciled with the mandates of provincial institutions? On a more practical level, how can that objective be achieved given that the National Museum of Man's central Canadian location is a barrier to active collecting in other regions of the country? This regional bias is aided and abetted by the facts of life of Canadian manufacturing, distribution, and marketing systems. Most secondary industries, certainly those producing goods for the twentieth-century domestic market increasingly were centralized in Ontario. Inevitably Ontario-made goods were sold and used and are now found coast-to-coast, their dispersal aided by Toronto catalogue merchants, Eaton's and Simpson's.

Regional distinctiveness in domestic experience is another complication. For example, some technological amenities available to the Windsor, Ontario, housewife in the 1920s, such as runningwater and electricity, did not reach rural Saskatchewan until after the Second World War. Presumably economic circumstances, inside and outside the house, were of primary significance in who acquired what, when – assuming availability – though we do not yet know the specifics of this. As we analyze regional and economic factors, do we then collect artifacts to reflect a multitude of different situations? Also, what is the responsibility of a national museum towards the acquisition of objects produced in another country? American manufactures in particular were widely used in household tasks.

Help with these issues comes by re-examining the aim of the collecting institution and the objectives of the project. Both are based on a social historical approach to the past. The artifacts collected and preserved should reflect this objective. It is the process of change which is central to the study, and the elements of change appear to be the same regardless of temporal and regional differences.

The first step is to identify the domestic technology topics to be studied and preserved. In this project they are defined as food and cleaning. Secondly, identify the elements of each topic: the tools, the technological infrastructures, the associated workspaces. Next, establish the process in operation at the beginning of the period under study, 1900, and chart the material changes through to 1940. Select the material evidence demonstrating this process, i.e., the nature of the changes. The objects preserved by this method would be interchangeable building blocks that could illustrate changing domestic technology whether the process took place in a middle-class, urban household in Victoria, British Columbia, in 1918 or in a northern Ontario farmhouse in the late 1930s.

For example, at the beginning of the century, laundry done in the home was done manually – by the housewife with other family members or paid help. What were the tools? wash-tubs, scrub board, flatirons, clothes-rack, clothespins, roll of blankets, boiler, wooden stick, etc. Technological systems? heat (produced by wood, coal, oil), water (available from a pump, bucket, or tap), soap, starch, and bluing (home-made or commercially manufactured). Workspace? laundry was done in the kitchen, the basement, outdoors, or all three places. Each locale required some moving and re-arranging of objects in order to accomplish the work.

During the period 1900 to 1940 home laundry changed gradually, within a single household and among all households, characterized by overlapping of processes, techniques, and objects. For example, when households began to acquire electric irons, flatirons continued to be used because they were more convenient: they could be heated easily and quickly because the wood and coal stove was always "on"; the temperature of the early electrics was unreliable, but an experienced ironer knew how to gauge the correct temperature of a flatiron; and unlike electric irons, flatirons did not break down and have to be repaired. The transition from flatiron to electric eventually took place across the country, depending upon a multitude of factors. For the purposes of the project, it is enough to have an example of the two kinds of irons demonstrating that transition. In other words, neither the flatiron nor the electric iron has to be specific to each different time and place.

The foregoing example demonstrates how acquisition decisions should be made with respect to the research project on women's domestic history. The artifact is used as a historical example, not as a historical document. Because of this, provenance is not of primary importance.

Physical condition depends on the object's designation for exhibit purposes or for use. An artifact assigned only to exhibit purposes needs to have the correct "look"; it can still fulfill this and be exhibited even if a motor or other invisible part is missing or inappropriate. Other artifacts will be specifically designated as available for use, whether in research or in hands-on educational programmes. These objects must be as complete and accurate as possible. Finally, the proposed approach keeps artifact inventories slim; once a historical process has been "captured" in three-dimensional form, there is no need to continue to acquire other examples of the same objects, whether flatirons or stoves.