I. Introduction:

The purpose of this research project is to examine the issue of a visible storage option for possible use in the re-development of The Sam Waller Little Northern Museum's facility in a new location (see Appendix I for a list of the specific objectives). Although the visible storage approach may on the surface appear attractive for the small museum, the concept is still experimental in many respects and it has not yet received the necessary analysis for widespread acceptance. Indeed, all current and past users have found it necessary to modify their approach even to the point of abandoning visible storage altogether.

The research was carried out in two stages: first, a review of the available literature (see Bibliography); second, visits to six institutions which currently employ (or have done in the past) some variant of the visible storage concept in order to: i) interview staff, ii) review internal evaluations, iii) inspect the physical systems, and iv) observe the public's response to the system (see Appendix II for a list of the institutions visited and the staff interviewed). The author must express his deep appreciation to all of the museum staff who gave so generously of their time and experience to participate in this research.

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It remains to establish a working definition for the concept of visible storage. Visible storage is an attempt to combine two separate aspects of a museum's mandate (i.e. storage and display) simultaneously in the same area which is accessible to the public. The concept is based on the model of an encyclopaedic library with open stacks as opposed to an exhibit which is more akin to a lecture on a specific subject. Therefore, visible storage can be defined as the systematic arrangement of all or most of a museum's collections which are made available for public viewing and including access to relevant information on the objects such as catalogue data, secondary sources, and staff members. Visible storage is characterised by a high density arrangement lacking interpretive labels. It is in effect a storage system secure enough to be made visually accessible to the public. A key element is "intellectual access" which implies the ready availability of information and staff resources.
Such an approach may be a novel one for the larger developed institutions which have traditionally held the vast majority of their collections in closed storage, however, many small museums have always used this approach with one important difference. Small museums have typically failed to provide access to the related information, largely because of inadequate documentation. Thus, true visible storage can only be accomplished by providing visual as well as intellectual access to the collections.

II. Origin and Philosophy:

The concept behind the current interest in visible storage arises from the development in the 1960s and 1970s of an ideal based on the "democratization" of museum collections. It is taken as axiomatic that, beyond basic physical access to the facility, museums must strive to make their collections more accessible to the public. Indeed, the argument runs that, museums hold a public trust. Therefore, access to museum collections is the right of all members of the public as the true owners of the collections. If these collections which demand much time, effort, and expense to preserve are to serve a positive public purpose, then they must be made available for use—not just by a select few, but by the true owners as well. There should be no hierarchical rights of access as has been the case in the past. In short, the public has a moral and legal right to have access (of a type which has always been provided to a select few) to the full range of museum resources to allow free exploration of the potential, and vastly underused, resources of the museum.

This is much more of an idealist assumption than it is based on any hard evidence that the general public is actually (or will increasingly) demand to have more access to the museum's collections and other resources. In some cases however (notably the conditions of the Devonian donation to the Glenbow Museum), there exists a perception in the public mind that museums have been "hiding all the good stuff" for the exclusive use of curators and scholars. Nevertheless, although the question of level and source of demand for access is moot, it is argued by some museologists that museums have an obligation to be pro-active and to provide more access on the philosophical basis alone.

At any rate, the visible storage concept is a radical departure from the contemporary model of the museum which generally allows free public access to the collections only through edited, simplified, and pre-digested exhibits and programmes, while maintaining the vast majority of its holdings in closed storage out of public view, and restricting access to specific approved requests. Visible storage is an attempt to open up all of the museum's resources to the public—in other words to democratise the whole enterprise.
It is clear that the democratisation philosophy has now been widely accepted in the museum community. Indeed, it is difficult to argue against such a position. What remains is to decide on the best means of accomplishing this goal.

III. Advantages:

The advantages of the visible storage concept fall under several broad categories.

1. First, although by no means complete access (physical handling of the objects cannot be accommodated except via traditional curator supervised sessions), visible storage closely approximates the ideal of providing access to large proportions of the collections in an efficient manner. It can successfully solve the problem of severely limited access to most of the collections in storage by replacing the highly structured, predetermined and strictly controlled access supervised by museum staff. For example, minority groups are reported to feel much more comfortable using visible storage without the intimidating influence of the professional curator.

2. Visible storage holds substantial benefits for the museum visitor. Such a system caters to a wide variety of interests and levels of participation which have not always been successfully provided by museums organised in the traditional format. Institutions employing the visible storage concept have recognised a catalytic effect on visitors. Visitors clearly find it exciting to have visual access to the whole collection. It seems as if the more objects are encountered, the more visitors want to know. Visible storage also involves different visitor behaviour—a more intensive kind of looking leading to a different kind of cognition, and, although not yet studied sufficiently, a positive educational effect.

By exploiting visible storage, the visitor can actually begin to engage in curatorial level interaction with the objects—in effect becoming their own interpreter—an activity which has been denied to them in traditionally organised museums. With visible storage, the visitor becomes less of a passive and often alienated receptor of predetermined information messages and more of an active independent learner. Especially in the small museum context for example, visitors have participated directly in the museum enterprise by helping staff to identify objects, how they were used, and to correct erroneous data. A more active, personally involving, and, consequently, more valuable self-educational experience is thereby obtainable.

A study of visitors in the visible storage gallery at the University of British Columbia Museum of Anthropology (UBC MOA) found that in comparison to behaviour in exhibit galleries, visitors were more at ease and relaxed, more animated, more tolerant of being close to one another, more willing to engage
in conversations with strangers, less self-conscious and unsure of themselves. All visitors stopped in visible storage and 47% used the drawers (many finding this to be almost an addictive activity), and 34% used the data books, often in a communal fashion. Children typically led the way in exploration with the parent assuming a controlling role. Visitors including children were observed asking themselves questions and taking particular interest in certain objects. All of these consequences must be considered as extremely desirable visitor behaviours.

3. Although there are many significant problems inherent in this aspect of the system, visible storage can result in positive benefits in conservation. First, conditions can be less dangerous than those obtainable for permanent exhibits in terms of cumulative light damage for example. On the other hand, because the collections are stored in a visible fashion (in contrast to the typically overcrowded and inappropriate means used for many museum collections where "out of sight out of mind" is too often the reality), conservation audits are more easily carried out. Indeed, the public often assists in this by bringing problems noticed to the attention of staff. Since in many cases visible storage systems are custom built, the resulting case systems can be more appropriate to the specific type of object. In addition, the micro-climates produced assist in protecting against dust and other pollutants as well as in buffering against fluctuations in relative humidity and temperature. Finally, because of its sheer visibility, visible storage forces more attention to be paid to the welfare of the objects. In fact, it is often easier to obtain funds for such a system than it is for improving storage and climate control in areas which are not so public. Museums using the visible storage approach also report that security against loss-theft is not compromised, and may be enhanced.

4. The documentation of the collection and overall collections management benefit from visible storage because the institutional emphasis tends to be shifted back onto curatorship. All of the collections are available for inspection and, as a result, problems and errors tend to be quickly pointed out by the visitors. The system encourages the exchange of information and the documentation of objects is more likely to be continually upgraded and expanded.

5. Although not all consequences can be considered beneficial in this regard, staff members are placed in a much more prominent position than in the typical contemporary model where curators tend to be isolated from exhibit galleries and the public.

Visible storage also serves to reduce the staff time required to supervise casual inspections of the collections in storage. Visitors, including researchers, can inspect the collections on their own and identify on their own the particular objects they wish to physically inspect. Thus, requests for physical access can be handled more efficiently and staff do not have to spend time supervising simple browsing.
6. In general, visible storage makes more efficient use of space and reduces the cost of exhibit construction. This is especially true for the small museum because it is not so dependent on artistic design. The need for non-public storage areas is eliminated and public gallery space is made to serve dual purposes: display and storage. Although there is disagreement on this point, some maintain that visible storage is cheaper to maintain than didactic exhibit systems.

7. The use of visible storage also pays dividends in increased public support for the museum. Since the system opens up more of the museum enterprise to public view, it allows the visitor to gain a better understanding of the responsibilities, variety of resources, and consequently, the true value and social utility of the institution. By being able to share their knowledge with the museum, the visitors become more involved and the community begins to take on the museum's role as its own, thereby integrating the institution more fully into community life. The relevance of the museum is more easily accepted and public support increases. Proof of this effect is the tendency for the use of visible storage to increase donations of artifacts to the collections.

8. With regard to its use in the small museum context, it can be argued that visible storage is able to meet the expectations of the public, donors, and trustees that the entire collection will be on display. No remote curatorial towers exist in the small museum! Such expectations may not be the case with larger institutions. This is an hypothesis only and it requires formal testing.

IV. Disadvantages:

Despite the many positive consequences of employing the visible storage concept, a number of significant problems have been identified—enough some believe to greatly outweigh the advantages of the system.

1. First among them is the concern over conservation. Since visible storage is designed to foster increased access to and use of the collections, and since any increased access and use create a danger to preservation, visible storage is inherently potentially more damaging to the objects. The major concerns arise out of: a) the trauma caused by the mechanical action and friction occasioned by opening and closing the drawers, b) the increase in light levels and accumulative length of exposure (as opposed to dark storage), c) temperature variations akin to those found in exhibits, d) dust, e) increased security risk from theft of valuable objects and general vandalism. Even the increased handling by staff involved in properly mounting the objects for visible storage and to respond to increased demand for physical access are cause for conservation concern. Indeed, some collections such as fragile and/or extremely sensitive objects composed of textiles and paper are deemed entirely inappropriate. The Glenbow's conservation department has recom-
mended the abandonment of visible storage systems being tested in large part because of the actual and potential damage to the objects.

2. A second major difficulty with visible storage is that the public tends to be confused and/or frustrated by the system. A study at the UBC M.O.A found that 59% of visitors found that they reacted negatively to this format. Being more familiar with the selective didactic exhibit and storyline format, many visitors do not recognise the transition between exhibits and visible storage. As a result, they are overwhelmed by the amount of materials on display, frustrated by the lack of interpretive labels, and may fail to understand the organisation.

One of the major problems in this regard is access to the data—a crucial element of the system since interpretive labels are absent. Some critics in fact view visible storage as an abdication of the museum’s responsibility to interpret the collections. Beyond this, many visitors are frustrated by the typically poor documentation of the objects and/or the absence of the information they tend to be most interested in (e.g. market value). In some of the systems being tested to date, visitors have found that access to the data on the objects is too complicated, presented in an alien format, and few seem interested in accessing the data. In short, very few casual visitors take the time to learn from the information provided. At UBC M.O.A only one in four use the data books, and then rarely more than for one or two objects. The Glenbow Museum found little or no purposeful use of their computerised system.

Lacking the specialised knowledge to make sense of some esoteric collections or systematic scientific organisation, visitors can simply be confused and/or intimidated. Indeed, it is questionable whether a large percentage of visitors are even interested in seeing and exploring all of the collections much less learn about them. Visible storage is very demanding on the visitor because it requires them to provide their own context and meaning when they are used to having these provided. Many visitors simply come to the museum to see what is there with no interest in active study. In short, visible storage may not be successful with the general visitor and it has been a seriously under-used resource according to some critics.

3. Paralleling, and no doubt resulting from, the above problem is misuse of the system. In some experiments with visible storage, difficulties have been experienced with visitors actually abusing the drawer units, thus endangering the objects housed inside. Frequent repairs have been required and in some cases there has been a need to upgrade the system by replacing the hardware. At the Glenbow Museum, the visible storage area had to be closed because it became a safety hazard as a consequence of rough usage. Indeed, visitors often tend to be more interested in learning about how to manipulate the moving parts and buttons (opening drawers for its own sake, testing timed lighting systems). They seem to toy with the system rather than use it as an information resource system. This is confirmed by stu-
dies in hands-on science centres. At the Glenbow Museum informal observation revealed that even after being instructed in the proper use of the system, visitors showed little interest and soon moved on.

Many observations of behaviour in visible storage areas are not encouraging. Visitors tend to use the area more extensively (wandering up and down aisles as if in a supermarket) than intensively (studying objects) as intended. This lack of interest in study on the part of visitors is disappointing, but may relate to the dearth of related programmes (see s. V. 2. & 3. below). Among children, the goal seems to be to open all of the drawers regardless of what is inside. In large areas of visible storage such as at the UBC MOA children were observed using the area as a maze for hide and seek. They exhibited exploratory behaviour, but were exploring the unfamiliar environment and not the objects housed therein.

Although not necessarily a negative outcome, being faced with a lack of interpretation, visitors supply their own speculations and erroneous analysis of unknown objects.

4. On the other hand, visible storage is criticised for inhibiting the serious researcher. The Glenbow Museum found that their system actually made their collection inaccessible to researchers because of the difficulty and lack of additional staff time required to retrieve objects housed in visible storage when compared to retrieval from traditional storage. Visible storage does not serve to reduce requests for actual physical access to the objects, and it may in fact lead to an increase in such requests because more of the collection is open for inspection.

Some critics have argued that visible storage has been employed in some cases for the purpose of establishing a barrier to separate the public from the staff and the research collections.

5. It has been argued that visible storage is an inappropriate format for the small museum. Collections in small museums tend to be unsystematic and poorly documented. As such, there is a danger of creating a curio cabinet full of unrelated objects with no underlying theme or apparent purpose.

6. The negative consequences of visible storage for staff are also worrisome. In many respects, visible storage is very demanding on staff. Because all of the museum's foibles, insignificant kitsch, and errors are placed before the public, staff can be embarrassed more often than when selective exhibits can be thoroughly researched. There is extreme pressure on staff to upgrade and expand the catalogue data (although many regard this as a positive consequence). In the process, staff are forced into spending much more time than under traditional systems dealing with the visitors. This may interfere with collections management and/or personal research goals. Some observers even make the case that the position, authority, and traditional
responsibilities of curators are undermined. The process of mounting also makes visible storage more labour intensive than closed storage. Staff also may find it awkward and risky in security terms to work with a collection housed in a public area.

7. Although there is disagreement on this point, it is argued that the initial costs of visible storage are higher than the traditional exhibit with closed storage model. To begin with, most case systems must be custom designed and built to meet the requirements of varied collections. There has been a tendency to overdesign the cabinets in an effort to make them aesthetically pleasing. After all, they are on public display. Visible storage is seen to be too elaborate to be a successful storage method. Additional costs also attach to the labour of mounting, system maintenance, and providing security staff and locking systems which are not required to the same degree in traditional storage systems. In addition, there is the cost of providing public access to the documentation whether in text or computerised form. Adding new acquisitions can also be problematic. Nevertheless, the desired improvement in public accessibility will be costly regardless of how it is accomplished.

V. Solutions to Problems:

Unless squarely addressed and solved, or at least minimised to a degree, the problems identified in section IV. would clearly negate the advisability of implementing a visible storage system. This is true for any museum, much less a small institution which seldom has the luxury of museological experimentation. The problems identified will be dealt with in the same order as presented above.

1. The most significant problem in the conservation field is to reduce the trauma caused by opening and closing the drawers. Obviously, this requires skilled, labour-intensive mounting involving deep slots in the foam drawer liners, padding, and securing all objects housed in drawers. In a significant development at the Moncur Gallery of Prehistory, a simple and effective system has been installed to slow down the motion of the drawers, making movement of the objects inside less severe (see s. VI. below for more details). This or a similar approach should be regarded as mandatory for any drawer system. A primary defence against the effects of drawer movement is selection of suitable artifacts. Fragile items should be placed on stationary shelves rather than in drawers. Better supervision, proper programming (see s. V.2. below), and clearly labelling drawers as to contents would also serve to reduce the tendency of visitors to randomly open drawers out of pure and simple unfocussed curiosity. People will be more likely to pass over drawers of artifacts in which they are not interested, thus reducing unnecessary movement.

The danger of increased light levels and cumulative amount of exposure can be minimised by proper design
of exterior lighting and timed switches. Rotation of collections in visible storage as practised by the Dugald Costume Museum is another option. It must also be said, however, that a visible storage system (particularly drawers) which remains closed most of the time is a significant improvement over the constant lighting conditions found in exhibits. This is especially true in the small museum context where the tendency is for all of the collections to be on display.

The micro-climates in visible storage serve to reduce dust and relative humidity fluctuation problems. Although fears have been voiced over security, the current users report little or no difficulty. Indeed, they claim that their security is improved over long-term closed storage because of visibility of missing objects and the availability of location data. Visible storage systems for sensitive and fragile collections such as textiles have now been designed and tested by the UBC MOA. The compromises reached are acceptable to all concerned (Johnson and Lambert 1984?).

2. Although some institutions (notably the Glenbow Museum) tend to blame the failure of visible storage mainly on the visitor, it is clear that much more attention must be given to orienting the general public to the visible storage concept and its potential value to them. The visitor must be made aware of how and why the collections are organised in visible storage, how it differs from exhibits, and be given information on the various ways it can be used. This might be accomplished most effectively by traditional didactic exhibits with the Royal Ontario Museum's Mankind Discovering introduction as a model. Indeed, many museologists consider that the museum's major role should be to foster an understanding of methodology (how to learn from objects) rather than to focus on specific blocks of content in exhibits which are inherently limited in terms of extent and even durability of information in this the age of knowledge explosion. Although it is advisable to tie didactic exhibits closely to related visible storage areas, it is crucial to clearly mark the transition between exhibits and visible storage so that the visitor is aware of the different purposes and organisation of the two.

To ease the distaste visitors have demonstrated for the data books, it has been recommended to keep the catalogue information in relatively small, manageable books in close proximity to the related objects. The catalogue data must be properly done, accurate, complete (especially date and provenance), and presented in language. Access to the data must be simple and logical. Short readable interpretive essays spread throughout the data books to include the identification of uncertainties, gaps in the data, and areas where more research is required have been suggested. It remains to be seen whether such lengthy texts would be any more successful than similar labels in didactic exhibits which are ignored by visitors. At any rate, the information would be available for those who wish to use it. As is the case for libraries, all patrons are not expected to make use of all the resources made available.
The staff at the Alberni Valley Museum is convinced that the addition of photographs on the data sheets is important for the success of an information system. Visitors to this museum quickly grasp the idea of the data books and are able to use the system easily, assisted no doubt by the small size, close proximity, and use of photographs on the data sheets. Visitors are also encouraged to add their knowledge to the catalogue information on the objects.

Museums employing visible storage have been criticised for abdicating their responsibility for interpreting the collection. Nevertheless, it can also be argued that a role museums should be increasingly assuming is to teach visitors to make their own interpretations (which they do regardless of all curatorial efforts in planning didactic exhibits).

For some, computerisation and interactive video or laser discs are the only solution. The use of computers to assist in interpreting objects and providing full intellectual access is problematical however. Many such as the Glenbow Museum have found that computers become simply a plaything, or at most the subject of attention in competition with the real object. Indeed, the UBC MOA pulls the plug and places a sign "out of order" on their computer terminal when school groups are in the museum. In addition, no one seems to have addressed the logistical limitations of computer hardware. Maintenance is a problem. If a museum cannot afford to have numerous terminals, access to data is severely limited to essentially one visitor at a time.

3. Misuse of visible storage facilities (damage to the cases, use of the area for hide and seek) seems to derive primarily from a lack of proper orientation and a fundamental lack of purposefulness on the part of the visitor. To combat this problem, proper orientation as discussed above is an essential requirement. Beyond this, general visitor use of the visible storage system must be more highly structured by the museum. This is particularly crucial in the case of school groups. A major failing of the museums currently experimenting with visible storage is that they have neglected to provide adequate programming support. Few if any directly related educational activities have been devised to help visitors learn to use the system in a purposeful way. It is widely accepted that programming is a key for optimum success of exhibits, yet this element has largely been ignored for visible storage.

Guided tours, task oriented activities, school programmes, work sheets, suggested activities for families all have a place in providing a more structured approach for the visitor. Some highly motivated teachers (few follow their example) have developed their own programmes to utilise the resources of the Moncur Gallery of Prehistory. Staffing the area with curators and not just security people is another approach. Not only giving, but receiving information from visitors must also be considered part of the museum's programme. Aimless opening and
closing drawers for its own sake must be replaced by visitors using the system as a learning resource. Museums cannot avoid their responsibility for supplying structure for this use.

4. Although the Glenbow Museum has concluded that collections in visible storage become inaccessible to "serious" researchers, other users would disagree. Any increased difficulty in pulling objects to be examined may be at least partially offset by the reduction in amount of time spent supervising the "browsing" stage. Certain times can be provided for direct access by scholars when the public is not allowed in the museum, or units can be moved back to the lab as are the practices at the UBC MOA. For small museums, which receive relatively few such requests from scholars, this difficulty may not be a major consideration. In any event, increased demand for physical access for study (which after all must be a primary goal for museums) will have to be met one way or another. For the general visitor, museums using visible storage have found that it encourages and allows closer inspection of details versus the effects of traditional exhibits.

5. Despite the conclusion of some observers that visible storage is not appropriate for the small museum, those visited during the course of this research all indicated general satisfaction with their systems. Some maintain that it in fact works better in small institutions because the size of the collections is not overwhelming. The major problems encountered by small museums seem to be solvable with attention to design of the system (see s. VI. below), use of heavy duty hardware, a more realistic approach to the schedule of rotating the collection, and the development of programmes making use of the resource. For example, the Dugald Costume Museum encounters a great deal of strain on staff by changing not only the exhibits but also the collection housed in their visible storage every year. Simple lengthening of the rotation cycle could easily solve this problem.

Large and small museums seem to have fundamentally different publics and correspondingly different expectations on the part of visitors. Visible storage can help to meet the expectations of small museums that they will have a large proportion of their collections on display.

6. In terms of its disadvantages for staff, it is clear from speaking with those actually involved with implementing visible storage, that staff commitment to the concept is crucial. All staff, including curators, educators, conservators, and administrators (or the single paid staff or volunteer wearing all of these hats) should be oriented in the values of the system and have input into the planning and implementation. For curators (who are arguably the most threatened by the system), this commitment is especially important. Visible storage demands a user/visitor orientation on the part of the curator and a
willingness to share his/her own work in a direct way with the visitor. Indeed, many argue that the increased curatorial contact with the public is a positive, not a negative, consequence and it presents a solution to many interpretive problems. Both curators and visitors have a unique opportunity to gain through this closer interaction.

7. The research carried out for this report provides no clear answer as to whether or not the visible storage approach is more or less expensive to construct and operate than the exhibit and closed storage model. Some savings may be realised from the fact that exhibit and storage systems are combined. In the end, however, there may indeed be additional costs for providing the fullest possible visual and intellectual access to the collections. Although important, cost should not be the sole determining factor in such fundamental questions of access. The positive results may well justify any increased costs.

VI. System Design:

Many of the difficulties identified can be solved or at least minimised, by attention to proper design of the visible storage units. In general, the design of visible storage systems assumes that the needs of the visitors are on a par with those of staff and conservation.

Wood has been selected most often as the material most suited for the drawer systems. It provides better shock absorbing qualities than metal and it is easily produced by local labour. Particle board is to be avoided because of a lack of rigidity and a problem with chemical vapour damage to the objects. High tech metal and plastic systems turned out disastrously for the Glenbow Museum. The wood should be coated with polyurethane despite the fact that this eliminates most of its valuable hygroscopic characteristics.

The drawers should be designed to fit specific objects. However, large wide drawers are more likely to fail and be too difficult for visitors to handle. Vertical drawers are not recommended because their own weight tends to jam the hardware. It is also recommended that drawers be built in a variety of sizes (3 or 4 is common) and be designed for interchangeability. It is crucial that the original hardware be heavy duty since the systems receive much more intensive usage than ordinary kitchen drawers for example.

Mr. Les Diehl has designed an additional element for the Moncur Gallery of Prehistory drawer system which addresses the serious problem of movement trauma to objects within the drawers. It is a simple design involving tubes available from hardware stores. Under each drawer one tube is attached to the back of the case and another to the bottom of the drawer.
face to fit one inside the other. The air pressure created within the tubes as the drawer is opened and closed slows the movement, thus reducing the jarring involved.

Items housed in drawers can be secured in a number of ways. The basic strategy is to line the drawer with ethafoam (plasticized is a less expensive alternative). A second layer of foam with cutouts in the shape of the object is used to prevent movement. Additional strips of foam, monofilament, plastic tubing, netting, and velcro are also used to secure objects. As an alternative to foam, the Alberni Valley Museum employs museum board liners to which objects are secured with monofilament.

Drawers also require transparent covers and locks or other security closures. Plexiglass is recommended over glass for this purpose. Routed channels hold the plexiglass and tumbler locks or security screws at the rear of the drawer which should be inaccessible unless the whole drawer is removed are recommended. Six pin tumbler locks are favoured over wafer locks. The tops of such drawer units can be used for exhibits or placement of data books.

In general, drawers should be reserved for collections which are sturdy and easily mounted. More fragile materials are better presented in traditional glass fronted cabinets on shelves. Large walk-in cases such as those found at the UBC MOA should be avoided because of wasted space which is needed to provide safe access routes as well as dust problems. This type of case should at least have a cover on top. For a flexible simple mounting system, metal pegboard (very expensive at $300/sheet) with brackets is used by the UBC MOA. The wooden equivalent is deemed acceptable by some, although there would be chemical vapour concerns with this material. Cases should be accessible from the front, usually through sliding glass doors on ball bearing tracks. Screws used in construction should have security heads and/or snap caps.

Lighting systems must be as carefully designed as they are for exhibits. Care must be taken that lux levels and ultraviolet content are within acceptable standards. Cases should be lit from outside and care must be taken to avoid heat build-up. Lighting on demand using timed switches is a solution in some cases.

Design of the information access system is also important to the success of visible storage. Access to information must be simple and straightforward if it is to be used. If the visitors are alienated from, or unable to use, the information, then intellectual access is denied and the whole system fails as a result. The data books must be readable and able to stand intensive and rough usage. Hard covers, laminated pages, and secure bindings are a must. Records in small books in close proximity to the objects are more likely to be used.
Shelf cards with diagrams of placement and object numbers which correspond to those in the data books are also required. Alternatively, each object should be labelled with its own number. This would allow changes in the organisation of drawers to be made more easily. Indeed, it is important to plan for expansion as the collections grow. The addition of simple general interpretive labels in drawers and cases has also been suggested, although some view this strategy as defeating the whole concept of visible storage. In general, however, visitors have expressed a desire for more information. Drawers and case units would benefit from the addition of exterior labels as guides to the contents. This would appear to be part of the solution to the problem of aimless opening and closing of drawers.

Part of the access to information can be accomplished through more traditional interpretive exhibits. Such selective didactic exhibits can be interspersed with, or in close proximity to, the related objects in visible storage. In some cases the top sections of drawer units can be used for this purpose. These exhibits should focus on introductory summaries, explanation of organisation (scientific or otherwise), information on the process of learning from objects, and raising questions for investigation in visible storage. Also part of the access to information is the availability of staff. Among the programming alternatives, this entails making offices highly visible and accessible to the public.

The overall layout of visible storage should take into account traffic flow and adequate aisle width to accommodate circulation while the drawers are in use. Seating should be provided to assist with the inspection of lower drawers. Carpeting is recommended so that visitors will feel free to kneel while using lower drawers. Ideally, the atmosphere should be warm and comfortable and not inhibit interaction with family or group members. Some users of the system stress the aesthetic component of case design and arrangement of artifacts within cases. Others would disagree on the importance of this factor.

VII. Criteria:

If the problems identified appear solvable for a small museum, the decision to implement a visible storage system requires that a number of factors be considered. The decision should be based on the institution's purpose, the needs of the collections, and the needs of the visitor.

1. First, the general philosophy, intended purposes, objectives, community role, and desired image of the museum should be determined. Visible storage seems most suited to a museum primarily serving educational support and research functions. It is not the most appropriate format for meeting the needs of the typical tourist visitor. The majority of requests for access to the collections come from students, commercial users, artists, photographers, collectors and hobbyists, ethnic groups,
donors, other museums, and serious scholars. The type and priority of clients the museum wishes to serve must be determined whether it be tourists, local residents, schools, or researchers. Visible storage seems to be more useful to those with specific and extensive interests and is likely to encourage repeat visits from these people. It works less well for casual public education of tourists who do not generally have or take the time for an intensive viewing, much less have a specific purpose in mind.

On the other hand, evidence from the small museums employing visible storage clearly indicates that local residents can become highly motivated to participate actively and repeatedly in the museum enterprise through visible access to the collections.

If staff is limited and there are no plans to use the collections extensively for research or changing exhibits, then visible storage may be an appropriate alternative.

2. Second, the nature of the collections to be housed in visible storage must be evaluated. The collections must be surveyed and analysed in order to identify strengths and weaknesses in terms of content and conservation. For example, upon completing its survey, the Alberni Valley Museum found that the range, type, and provenance of its collections were not suitable to properly depict the community's development through traditional narrative exhibits. Visible storage was selected as an alternative in order to give the community an overall perspective of the personal heritage and variety of collecting interests which gave rise to the museum.

The size of the collections is also a factor. Many (although not all) believe that the system works best with a small narrowly defined collection which is of manageable size to install and maintain in visible storage. The average size and form of the objects must also be considered. Some users of the system such as the Dugald Costume Museum, HACOS Chippewa Naval Museum, and the Honcur Gallery of Prehistory selected visible storage because it handles a variety of small objects well. Fragmented or repetitively duplicated objects such as are found in archaeological collections are regarded as unsuitable because close physical inspection is required for study and good interpretation is required in order to make sense of fragmentary objects. The Honcur Gallery of Prehistory seems to be an exception here, however, it is a very small collection.

Although, again, some observers deny it, systematic scientific collections can be suitable for visible storage. In fact museums such as the Royal Ontario Museum find that most requests for information (75% of those from the public) fall under this category. There seems to be great potential for visible storage based on specimen identification. At The Sam Waller
Little Northern Museum, visitors exhibit sustained interest in the shelves containing wet specimens and in the bird study skins on display in drawers, perhaps because few other museums exhibit such items. In any event, there is no requirement that all areas of the museum be equally interesting and engaging to all visitors. Such an approach can cater only to the lowest level of common interest.

The conservation requirements of the collections are also important considerations. Fragile, or light sensitive collections are not good candidates for visible storage. On the other hand, effective compromises have been reached in a textile visible storage system at the UBC MOA (Johnson and Lambert 1984?). In general, sturdy, easily mounted objects are most suitable.

One of the most important factors to consider in determining the likely success of a collection in visible storage appears to be the visitor's familiarity with the type and classification of the particular objects in question. The visitor is likely to pay more close attention to and get more out of an inspection of objects for which function and background context are already familiar. Visitors are able to relate to an object more easily when it is part of their own past experience. Collections of dolls, clothing, or eating utensils for example are likely to be better received than esoteric collections of Native religious paraphernalia or even general collections from exotic cultures. It has been found that the least familiar collections are the least popular in visible storage. This is not to suggest that museum have no mandate to take a pro-active role in educating the public in cross-cultural awareness or in the esoteric and unfamiliar. However, visible storage may not be the best means of accomplishing this important goal. In short, "...visible storage appeals to the general public when they have the background to make sense of the material displayed."

Along with the needs and desires of potential clients, the types and numbers of requests for physical access to the collections must be evaluated. Museums have found that the majority of requests for access to the collections come from students, commercial users, artists, photographers, collectors and hobbyists, ethnic groups, donors, other museums, and serious scholars. If the majority of requests received by a museum can be served through visual access, then visible storage could reduce demands on staff. If, on the other hand, requests tend to require direct physical hands-on access, visible storage would be less efficient than closed storage in staff terms. If staff is limited and there are no plans to use the collections extensively for research or changing exhibits, then visible storage may be an appropriate alternative.

VIII. Alternatives:

When evaluating whether or not to implement visible storage,
the small museum should also consider a variety of alternatives.

1. First, of course, is the traditional model of selective and conceptually organised didactic exhibits combined with closed storage. Given the positive value placed on increased access, however, museums choosing this option should develop policies and procedures for providing wider direct access to the collections. This requires planning, proper facilities, and adequate staffing, in addition to a well organised storage area and well documented collections.

2. Many requests for access may be met through auxiliary means: i.e. access to images including black and white photographs, colour transparencies, and laser discs, not to mention the catalogue records.

3. In lieu of the entire collection being housed in visible storage at all times, one option is to rotate the collections displayed in the system as the Dugald Costume Museum does.

4. Another option is a system which provides stratified access. In this concept, traditional exhibits including temporary rotating displays and travelling exhibits are provided for those with general interest. A study room (such as a hands-on "discovery room") with selected reference collections is provided for those visitors who wish to study a class of objects in detail. Traditional closed storage in conjunction with a research laboratory is provided to serve the needs of scholars. This strategy involves the categorisation of the collections into expendable exhibitable objects, secondary duplicates available for tactile examination, and primary, reserve, or permanent collections consisting of type specimens, well documented pieces, rare examples, or variants available for research only.

5. An alternative which is gaining popularity is what might be referred to as the technological solution (see Cameron 1986; Granger and Mattie n.d.). Interactive computer and optical laser disc systems can provide high quality and varied visual access to the object, even including its original context, while the computer provides complete intellectual access to the textual data base. The technology to accomplish this has already been developed and tested. Museums such as the Glenbow Museum have determined that this is the only practical solution. Such a system does not preclude physical access, but makes it more efficient and reduces unnecessary handling, while ensuring the intellectual access required. The technology involved may be beyond the financial means of many small museums however. In addition, there are many practical and philosophical questions which need to be addressed regarding this option as well before wide acceptance is justified.

IX. Recommendations:

Recommendations on the advisability of employing the visible
storage concept for all or part of the collections in the new facility of The Sam Waller Little Northern Museum must await further self-analysis and planning. The collections survey must be completed and final approval of earlier decisions must be confirmed. Staff and the Board must finalise the museum's purposes, priorities, objectives, desired community role, and target client groups. Only by carrying out a thorough evaluation of the criteria identified in section VII. and the alternatives identified in section VIII. can any recommendations be made with confidence.

On a preliminary basis, the visible storage concept seems to be appropriate for at least some of the museum's collections. This implies at least a partial integration of visible storage with more traditional conceptually organised didactic exhibits.

Most museologists have accepted the philosophy of increased access to museum collections. Visible storage has much to recommend it for this purpose, yet there are many potential pitfalls. It is a system which is unsuitable in conservation terms for many types of collections.

When considering the implementation of visible storage, however, there are certain things that must be kept in mind. First is that, whether or not safe storage is one of the intended functions, the very fact of public visibility makes the system inescapably an exhibit. Particularly in light of the absence of interpretive labelling, structured programming is required.

Second, although the visible storage system puts collections at some conservation risk, every museum function or programme presents a fundamental conflict between use and conservation. All museum activities demand compromises between these seemingly incompatible functions. The challenge for museums is to find the most effective compromises. In some limited cases, visible storage may indeed be the best compromise. On the other hand, visible storage will never replace the need for conceptually ordered didactic exhibits. Indeed, the two may be ideal foils for each other.

Visible storage is a rather museologically abstract idea. As we wrestle with this idea we must not neglect to take into account the consequences for the visitor. The visitor's experience with visible storage may be so qualitatively valuable that we will need to completely re-examine all of our traditional approaches and, for the sake of fully engaging our visitors, learn to deal effectively with the costs involved.

by: Paul C. Thistle,
Curator
August 1987
BIBLIOGRAPHY

Alderson, William T.

Ames, Michael M.


Beelitz, Paul F.

Blackbourn, Catherine Lee


Buechner, Thomas S.

Cameron, Duncan F.


Cameron, Duncan F. et al.

Force, Roland W.
Granger, Fred and Mattie, Joan  

Halpin, Marjorie  

Jachimowicz, Elizabeth  

Johnson, Elizabeth L. and Lambert, Anne  

Johnson, E. Verner and Horgan, Joanne C.  

Krahn, Ann Howatt  

Macfarlane, Nathalie  

Macfarlane, Nathalie and Parkins, Elena  

Mitchell, John Fletcher  


Richoux, Jeanette A. et al.  

Vastokas, Joan  

Wolf, Arthur H.  
SUITABILITY OF VISIBLE STORAGE
FOR THE SMALL MUSEUM

OBJECTIVES:

1) to review the available literature on visible storage and to identify the major issues involved
2) to inspect at least four different visible storage systems in use
3) to identify the goals of the current users and the programmes in use
4) to review in-house evaluations of the systems, noting problems to be avoided and recommendations for improvements
5) with a view toward making recommendations regarding implementation of visible storage at the Little Northern Museum, to evaluate the concept and its application in terms of
   a) effectiveness in increasing physical and intellectual access to the collections by the public, researchers, and staff
   b) conservation requirements
c) appropriate/inappropriate collections for such systems
d) patterns of use by the general public, schools, researchers
e) functioning of systems from staff viewpoint, demands on time etc.
f) capital and operating cost effectiveness vis-a-vis didactic exhibits and closed storage
g) various kinds and effectiveness of public programmes employed
h) various types of cabinet systems in use
i) various types of record systems in use.

6) to prepare a written report analysing visible storage systems, identifying a set of criteria for use in planning implementation of such systems in the small to medium-sized museum.
APPENDIX II:

INSTITUTIONS VISITED
AND STAFF INTERVIEWED

1. Alberni Valley Museum, Port Alberni, British Columbia
   - John Mitchell, Director
   - Jean McIntosh, Curator
   - Gordon Bailey, Museum Technician

2. Dugald Costume Museum, Dugald, Manitoba
   - Wyn Van Slyck, Director

3. Glenbow Alberta Institute, Calgary, Alberta
   - Duncan Cameron, Director
   - Fred Greene, Chief Conservator
   - Brian King, Preparator

4. H.M.C.S. Chippewa Naval Museum, Winnipeg, Manitoba
   - Mike Shortridge, Curator

5. Moncur Gallery of Prehistory, Boissevain, Manitoba
   - Anna Grace Diehl, Director
   - Allan McCausland, Interpreter

6. University of British Columbia Museum of Anthropology, Vancouver
   - Michael Ames, Director
   - Elizabeth Johnson, Curator of Collections
   - Len McFarlane, Museum Technician
   - Christopher Miller, Head, Marketing and Development
June 9, 1988

Mr. Paul C. Thistle
The Sam Waller Little Northern Museum
Box 185
The Pas, Manitoba
R9A 1K4

Dear Mr. Thistle:

Thank you for your letter of May 30th. I appreciate receiving a copy of the first draft of your article on visible storage.

I will be honest with you in saying that I do not agree with all of your comments, however, it is a well organized article and I congratulate you on your successful publication. You have our permission to use the photograph you enclosed with the understanding that credit will be given to the Glenbow Museum.

Thank you again for your correspondence and with my very best wishes, I remain,

Sincerely,

[Signature]

Duncan F. Cameron, F.M.A.
Director

DFC/cjn/080603
June 10, 1988

Paul Thistle
Curator
Little Northern Museum
Box 185
The Pas, Manitoba
R9A 1K4

Dear Paul:

Many thanks for forwarding to me a copy of your paper on Visible Storage. It is the most balanced and thoughtful report on the subject that I have read. I commend you. Its publication should be very useful.

You appear to have covered the relevant issues. There is one point, however, that I would be inclined to word differently. Towards the end of the last paragraph on page 18 you state, "In general, the design of visible storage systems assumes that the needs of visitors are on a par with those of staff and conservation." This certainly was not the case for us and I wonder whether it is for other institutions. In our case, at any rate, Visible Storage was designed with very specific users (as you note on the following page where you state visible storage is most suited for institutions serving intensive local usage, educational purposes, and research functions). The system must therefore be judged, in the first instance, according to the purpose it is intended to serve. It is true that Visible Storage does not appear to be the most appropriate format for meeting the needs of typical tourist visitors, but it was not designed for that—not at least here. You in fact note this point on page 20, where you state, "In any event, there is no requirement that all areas of the museum be interesting and engaging to all visitors."

I would be inclined to connect the thoughts on pages 18, 19 and 20 to make the point that visible storage, like any other kind of storage or exhibit system, should first be judged according to how well it meets its objective. The impression you convey in the earlier part of the paper is an equation between the ideal of democratic access and the method of visible storage, suggesting that the latter would achieve the former. But it achieves democratic access only for certain types of visitors whereas other types are served by other means as you imply on page 20. Thus, if visible storage is restructured so as to appeal equally to all visitors it will result in what you refer to as the "lowest level of common interest."
You note that critics have suggested visible storage would not work in small museums, whereas according to your observations it does. That is an interesting point. I have also heard critics suggest that it would not work in large museums, but I think that is equally false. The key to whether or not such a system works depends, as you noted, upon the commitment of the staff. No one at the Glenbow was really committed to the idea of visible storage other than members of the board. Various versions of visible storage surely could be made to work in any kind of institution. One adapts the technique to suit the purpose.

One final comment. I do not remember why we decided to use the phrase "visible storage" to describe the system here, but I am sorry that we did. I think the phrase "accessible storage" would be a more accurate description. The point is simply to increase access, not provide one hundred percent access or total visibility. That is the basic principle. Museums need to enhance public access to their collections, and the kind of visible storage we have and you have discussed are only several of the ways of doing that. It is obvious from your conclusions that you are fully aware of that, but you might want to make the point more explicitly.

You certainly may have our permission to use the photographs. I assume you will identify them.

Once again, congratulations on writing a very careful and thoughtful review.

With best wishes.

Yours sincerely,

M.M. Ames
Director and Professor

MMA/amf