

Storage for Infinity

Museum 201, Section 7

Storage Mounts

presented by

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Course Agenda

Section 1: Storage Philosophy

Section 2: Agents of Deterioration

Section 3: Storage Facilities

Section 4: Storage Furniture

Section 5: Preparing Collections

Section 6: Storage Materials

Section 7: Storage Mounts

Section 8: Specific Collections

Section 9: Funding Improvements

Section 7 Agenda

- 1: Introduction**
- 2: Padded Hangers**
- 3: Mount Theory**
- 4: Boxes**
- 5: Trays**
- 6: Types of Mounts**
- 7: Pillows and Snakes**
- 8: Flat Object Supports**
- 9: Wheels**

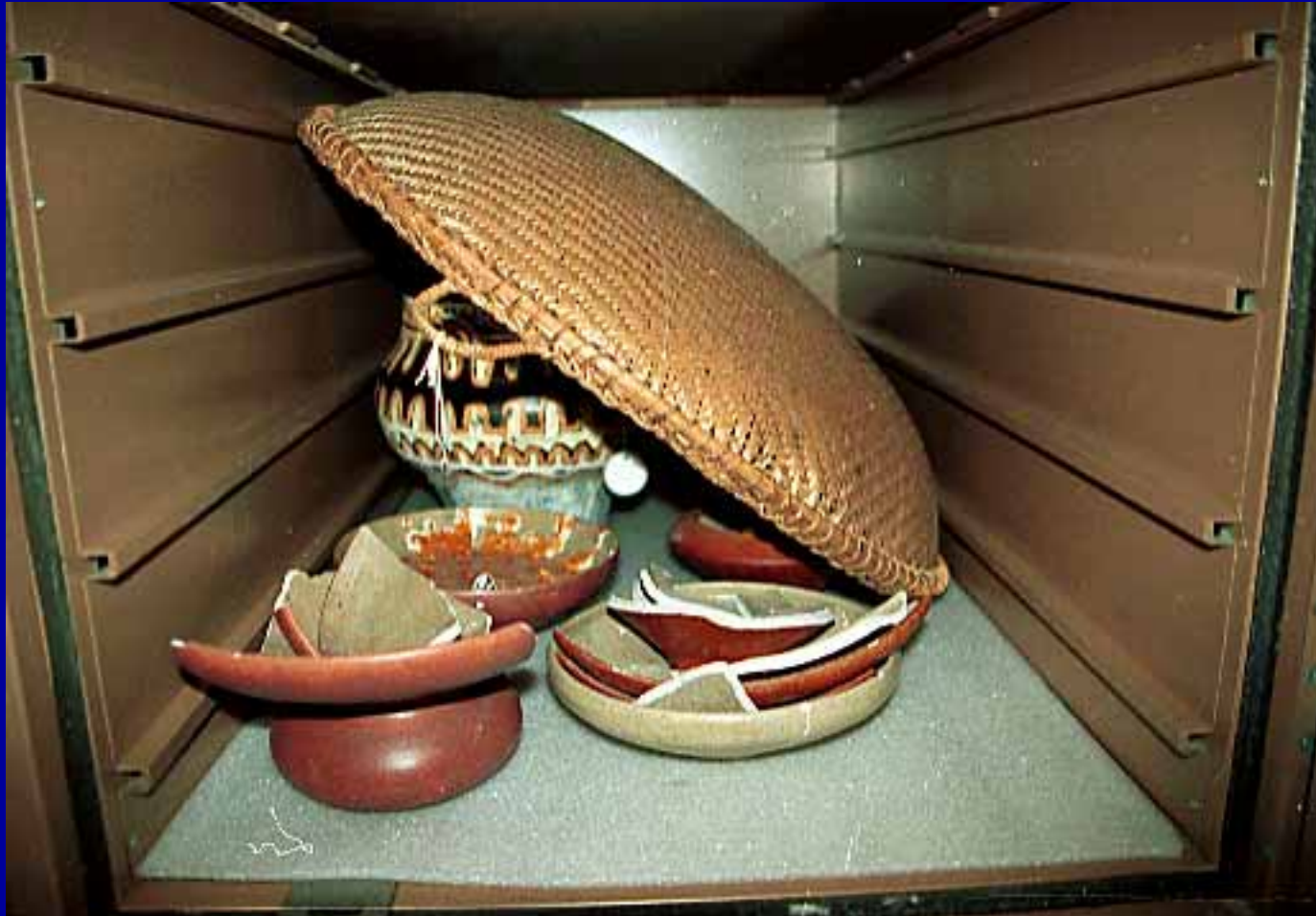
Object Support Required Because:

- **Object is structurally weak, deteriorated or can be permanently deformed**
- **Object is safer to handle mounted on a rigid support**
- **Object is handled frequently**
- **Place saver for object in storage**

Physical Forces: Crushed Suitcases



Poor Support or Stacking Causes Damage



Unpadded Shelves

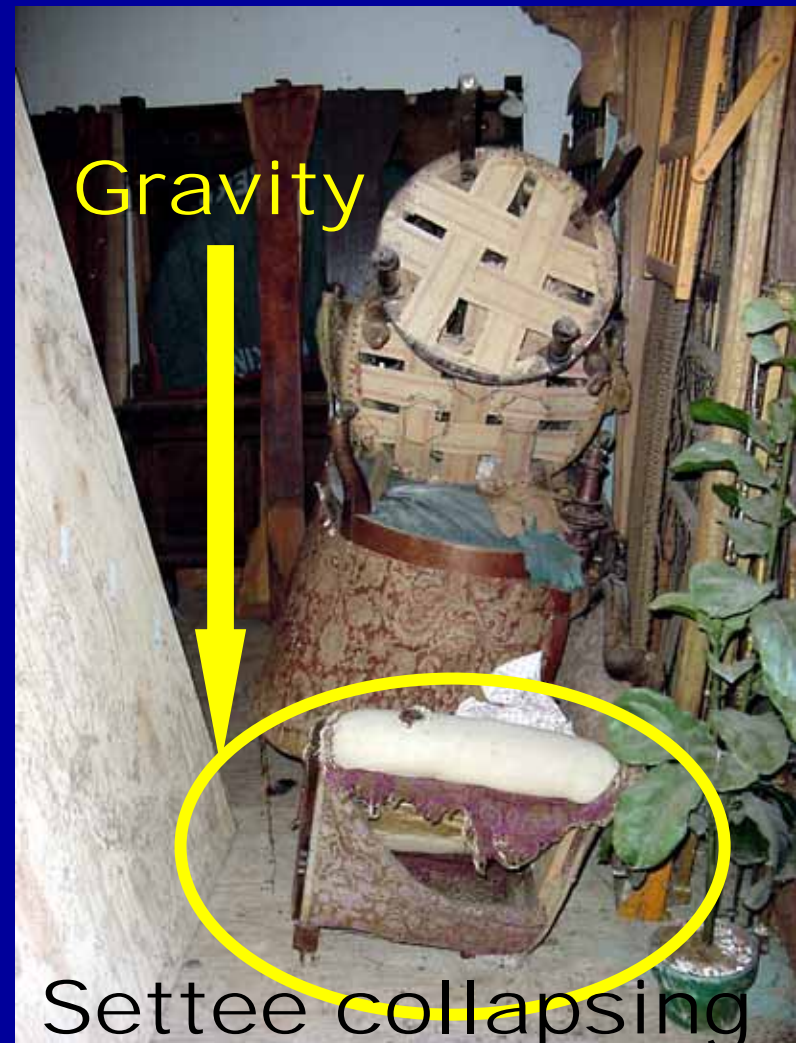
causes scratches, chips, breaks



Reasons Supports Fail:

- **Points of support are incorrectly placed, causing distortion**
- **Object is poorly held or precariously balanced**
- **Unpadded contact points causing abrasion or distortion**
- **Mount is made of a harmful material**
- **Visually intrusive (exhibits)**

Inadequate Support: Stacking (Weight on Bottom Chair)



Inadequate Support: Hanging



**Damage
will occur
to top rail
of each
chair.**

Inadequate support



Padded Hangers

Better distributed support



**About 2 to
4 inch (5 -
10 cm)
diameter**

Materials:

- **Polyester
Batting**
- **Cotton
Fabric**

Padded Hangers



Inside costume wardrobes

Montana Historical Society

Helena, Montana

Padded Hangers



Best for cotton garments in good condition.

Not for heavy garments.

Not for weak, shattering fabrics.

Support Components

- **Rigid support or sub-structure**
- **Padding**
- **Ties / attachments**
- **Barrier**

Mounts should be
softer and smoother
than the objects
stored on them.

(one mount for storage and display?)

Support Mounts

Rigid:

- Acid-free cardboard

Padding:

- Ethafoam
- Backer rod

Barrier:

- Tyvek



Resources

Cushioning Curve Program and Circular Slide Rule, Canadian Conservation Institute, 1030 Innes Road, Ottawa, ONT. K1M 0M5, CANADA, 613-998-3721 (tel), 613-998-3721 (fax), cci-icc_publications@pch.gc.ca

Slide Rule: \$20 Canadian Program (PadCad) \$45 Canadian

Important For Storage

- **Keep it simple**
- **Adjust prototypes - simplify**
- **Let creativity work for you**
- **Know paid and unpaid staff capabilities and talents**
- **Keep it fun**

Containers Defined

- **What the object or specimen is placed in to protect it from damage**
 - **file folders**
 - **boxes, usually archival**
 - **storage drawers**
 - **cabinets**
 - **trays**

Padding, Pillows and Separators

- **Peanut Pillows**
- **Snakes**
- **Tyvek or Muslin Pillows/Layer**
- **Liners and Separators**

Braces

- **Either internal or external support mounts**
- **Variety of materials used, determined by object**

Techniques

- **Boxes and Trays**
- **Padded Boards**
- **Liners and Barriers**
- **External Supports**
- **Internal Supports**
- **Boards and Mats**
- **Padded Tubes**
- **Wheels**

Padded Boxes



**Buffalo Bill Historical Center
Cody, Wyoming**

Padded Boxes

Crushed acid-free tissue paper padding.



Homemade Storage Box

Materials

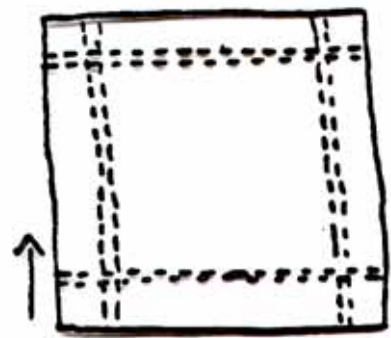
- Acid-free cardboard
- Hot glue
- Thin polyethylene foam



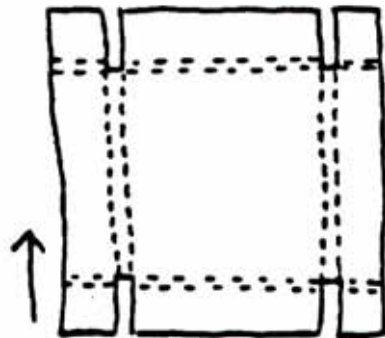
Acorn Basket

Abbe Museum
Bar Harbor, Maine

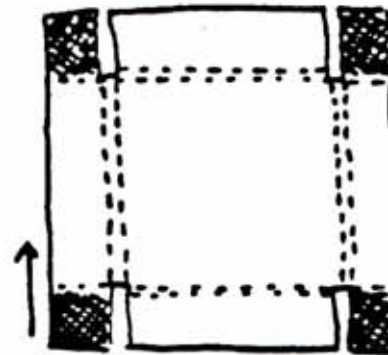
Making a box or tray



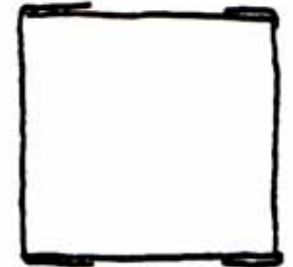
SCORE: - - - -
DIRECTION: →
OF CORRUGATION



CUT: -



PEEL OFF:
2 LAYERS



CORNER TABS
GLUED

Homemade Polyethylene Box



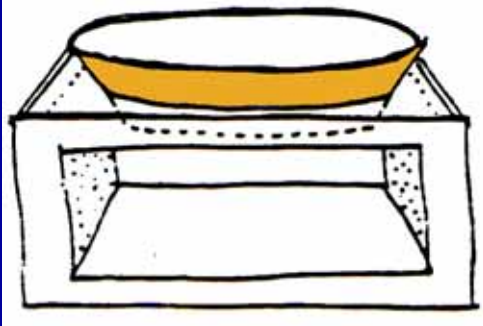
Sewn closures

**Siouxland Heritage Museums
Sioux Falls, South Dakota**

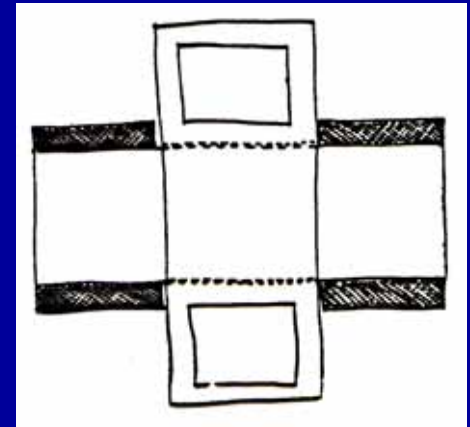
Open Box and Collar



COLLAR PATTERN



Basket
Abbe Museum



Storage Enclosures

- **Boxes with shelves (commercial or in-house manufacture)**
- **Folders**
- **Sleeves**
- **Mats**
- **Wrappers**
- **Encapsulation**

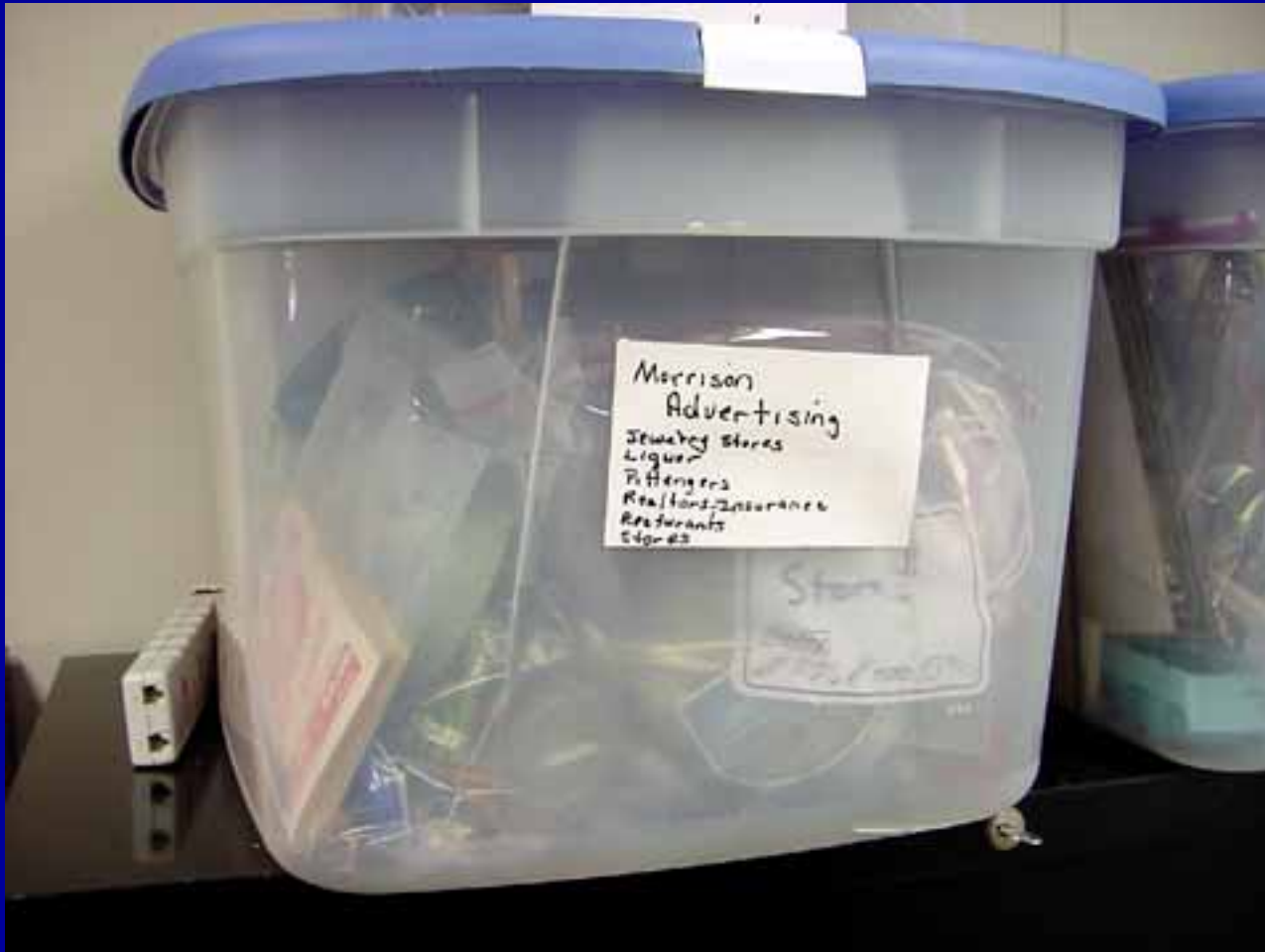
Box Contents Unsupported

Causes damage



Box Contents Unsupported

Causes damage



Box with Support Trays



Trays inside boxes

**Cotton twill
tape used to lift
tray out of box.**



**Siouxland Heritage Museums
Sioux Falls, South Dakota**

Commercial Box and Custom-made Trays



**Wright County Historical Society
Buffalo, Minnesota**

Custom-made Trays in a Box



Trays poorly supported - rest on artifacts below.

**Wright County Historical Society
Buffalo, Minnesota**

Custom-made Trays in a Box



Trays well supported on tray below, not object. Padding, ties and pillows ensure there is no movement.

**Wright County Historical Society
Buffalo, Minnesota**

On Metal Shelving

Trays support tall and large objects.

Boxes hold smaller objects.



**Wright County Historical Society
Buffalo, Minnesota**

Trays

Materials

- Foamcor
- Acid-free Cardboard



Wright County Historical Society
Buffalo, Minnesota

Multi-level box

Supports for a padded tray.



Wright County Historical Society
Buffalo, Minnesota

Padded Tray as a Shelf within a Box



**Wright County Historical Society
Buffalo, Minnesota**

Padded Shelf in Box



**Wright County Historical Society
Buffalo, Minnesota**

Trays



Science Museum of Minnesota
St. Paul, Minnesota

Support Tray



Strawberry Basket
Abbe Museum

Pallets as Boxes or Trays



**Science Museum of Minnesota
St. Paul, Minnesota**

Subdivided Trays



Seeds

Science Museum of Minnesota
St. Paul, Minnesota

Subdivided Trays



**Siouxland Heritage Museums
Sioux Falls, South Dakota**

Subdivided Trays



Problems

- Acidic Cardboard
- No Padding
- Shells damaged by acids and breakage.

Trays within Trays



Dolls nestled in acid-free tissue paper

**Naper Settlement
Naperville, Illinois**

Trays inside drawers



Plates padded with quilted muslin

Buffalo Bill Historical Center

Cody, Wyoming

Trays inside drawers



Cutlery padded with quilted muslin

Buffalo Bill Historical Center

Cody, Wyoming

Padded Drawer as Tray



Drawers lined with thin polyethylene foam

**Science Museum of Minnesota
St. Paul, Minnesota**

Drawer / Tray / Baking Dish



Flat lace in metal baking dish drawers

**Vesterheim Museum
Decorah, Iowa**

Padded Boards



**Wright County Historical Society
Buffalo, Minnesota**



Padded Boards

Harness

Buffalo Bill Historical Center
Cody, Wyoming

Liners and Barriers

- **Between stacked objects (interleaving)**
 - Tanned Hides
 - Small Flat Textile Pieces
 - Paper
- **Between padding and object**
- **Between different parts of the object**

External Supports

- **Cavity Mounts**
- **Braces**
- **Cradles**
- **Ring Mounts**
- **Ties/Lashing**

Cavity Mounts



Science Museum of Minnesota
St. Paul, Minnesota

Braces



**Science Museum of Minnesota
St. Paul, Minnesota**



Braces

**Science Museum of Minnesota
St. Paul, Minnesota**

Cradles



**Science Museum of Minnesota
St. Paul, Minnesota**

Cradles



Science Museum of Minnesota
St. Paul, Minnesota

Cradles



Tyvek

Stacking Support

**Science Museum of Minnesota
St. Paul, Minnesota**

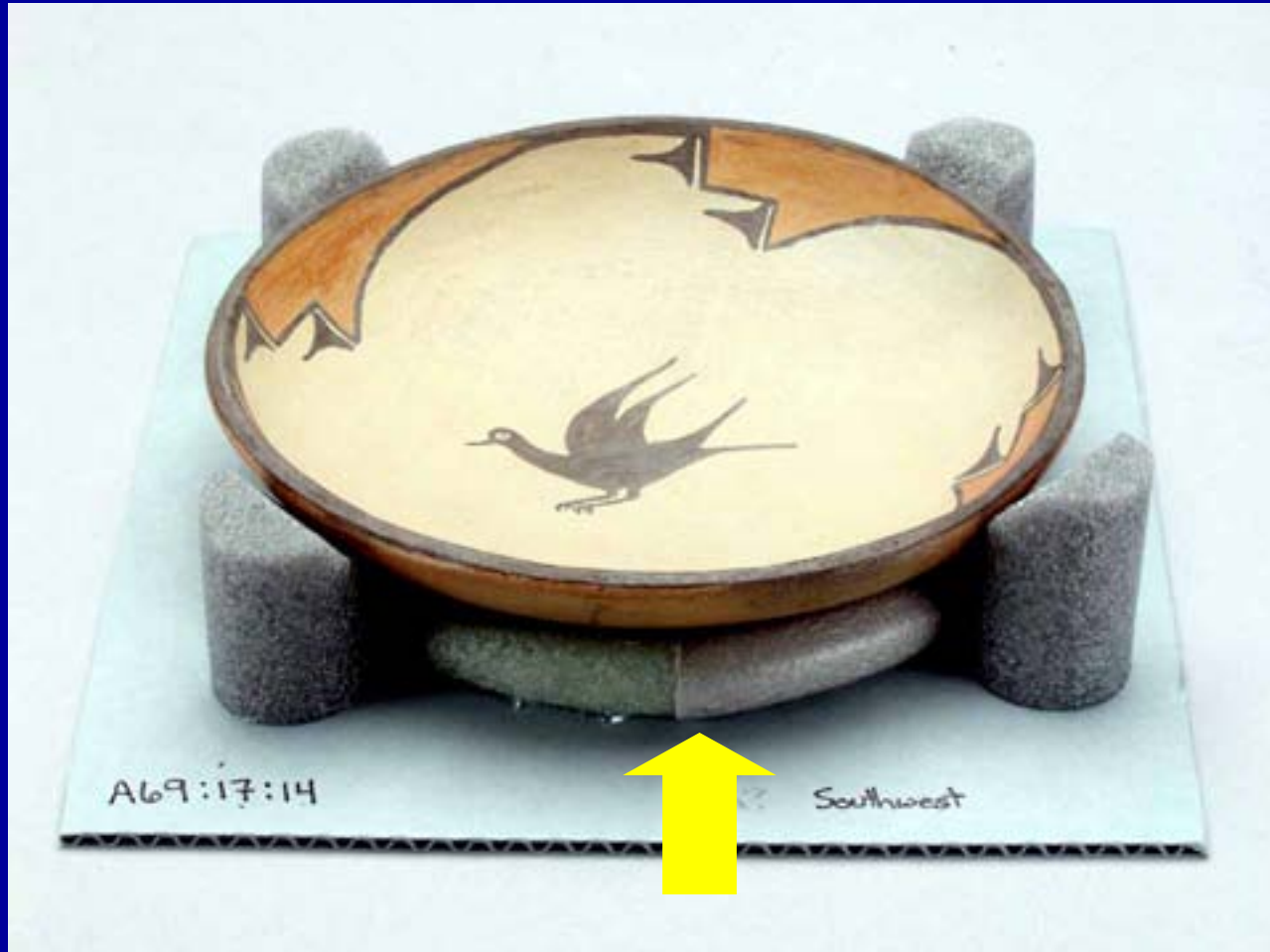
Cradles

- Polyethylene corrugated board support
- Polyethylene foam backer
- rod padding
- Tyvek (a polyolefin) inner lining.



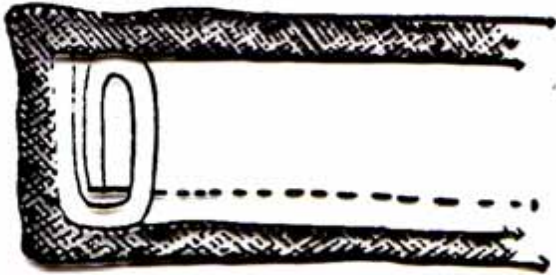
Science Museum of Minnesota
St. Paul, Minnesota

Ring Mounts

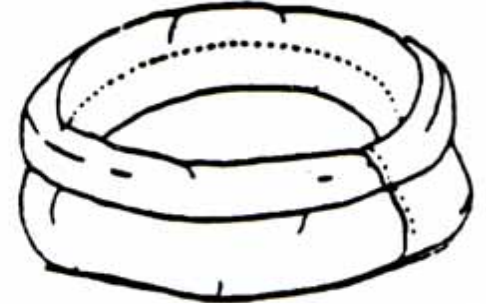
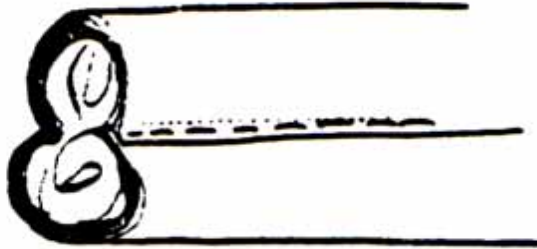


Science Museum of Minnesota
St. Paul, Minnesota

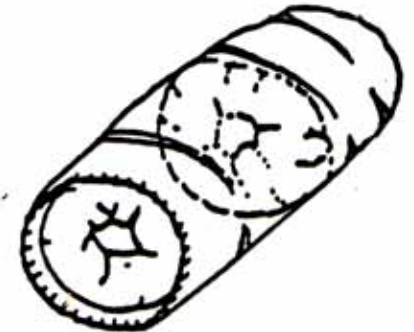
Rings



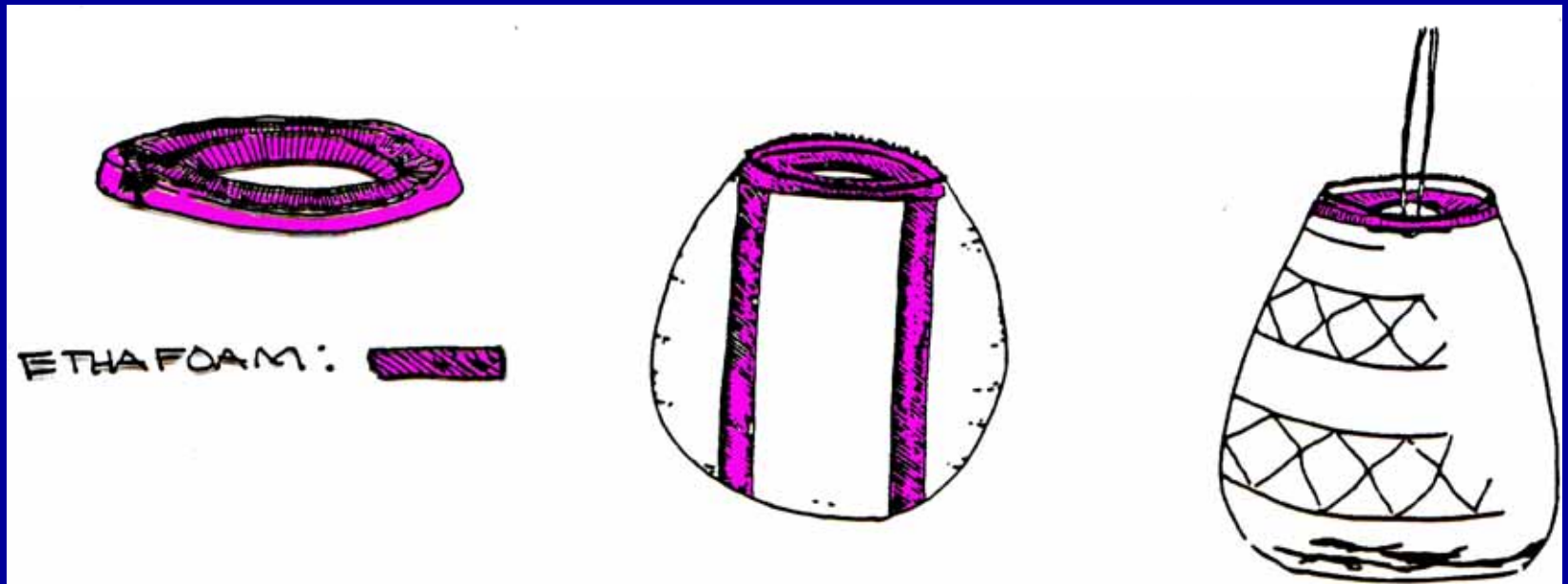
COTTON
KNIT FABRIC: 



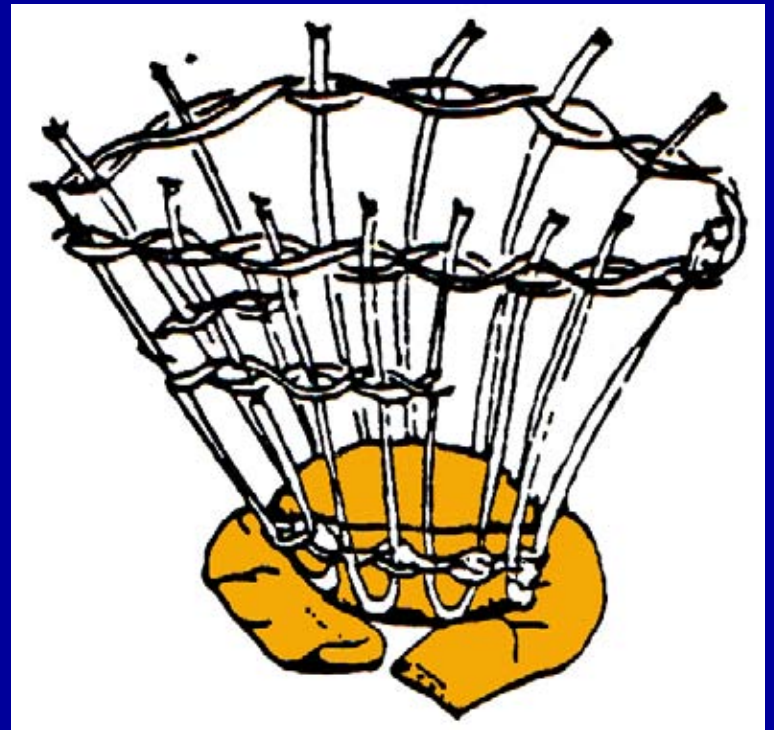
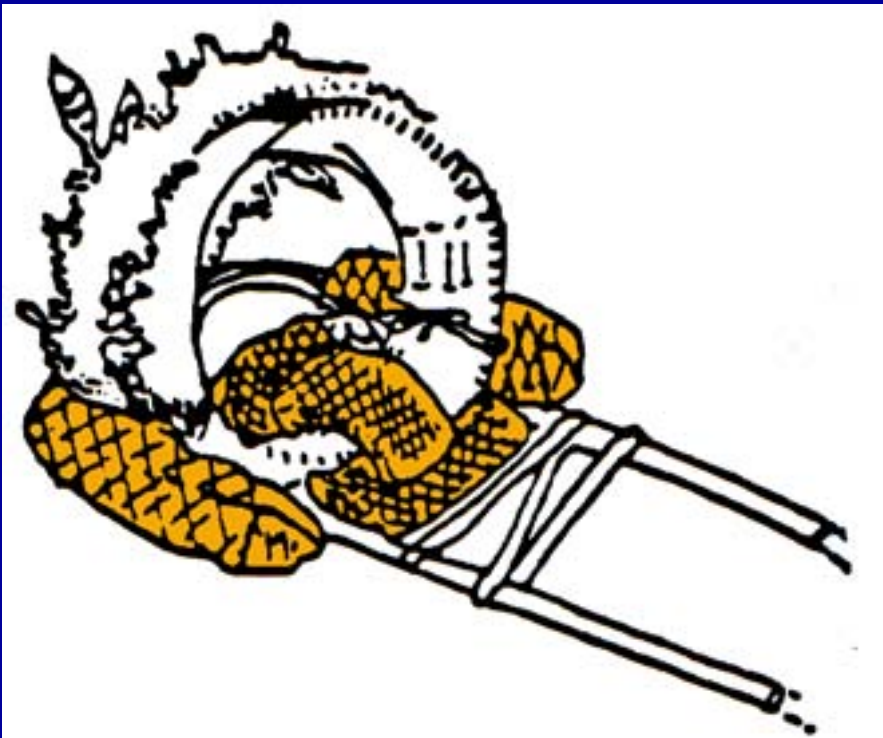
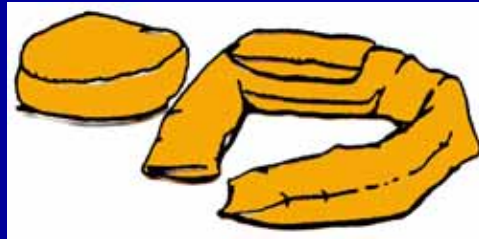
POLYESTER:
FIBER 



Polyethylene foam supports



Sandbag Supports



Ties /
Lashing

Tyvek
Separator

Ring Mount
(polyethylene
backer rod)

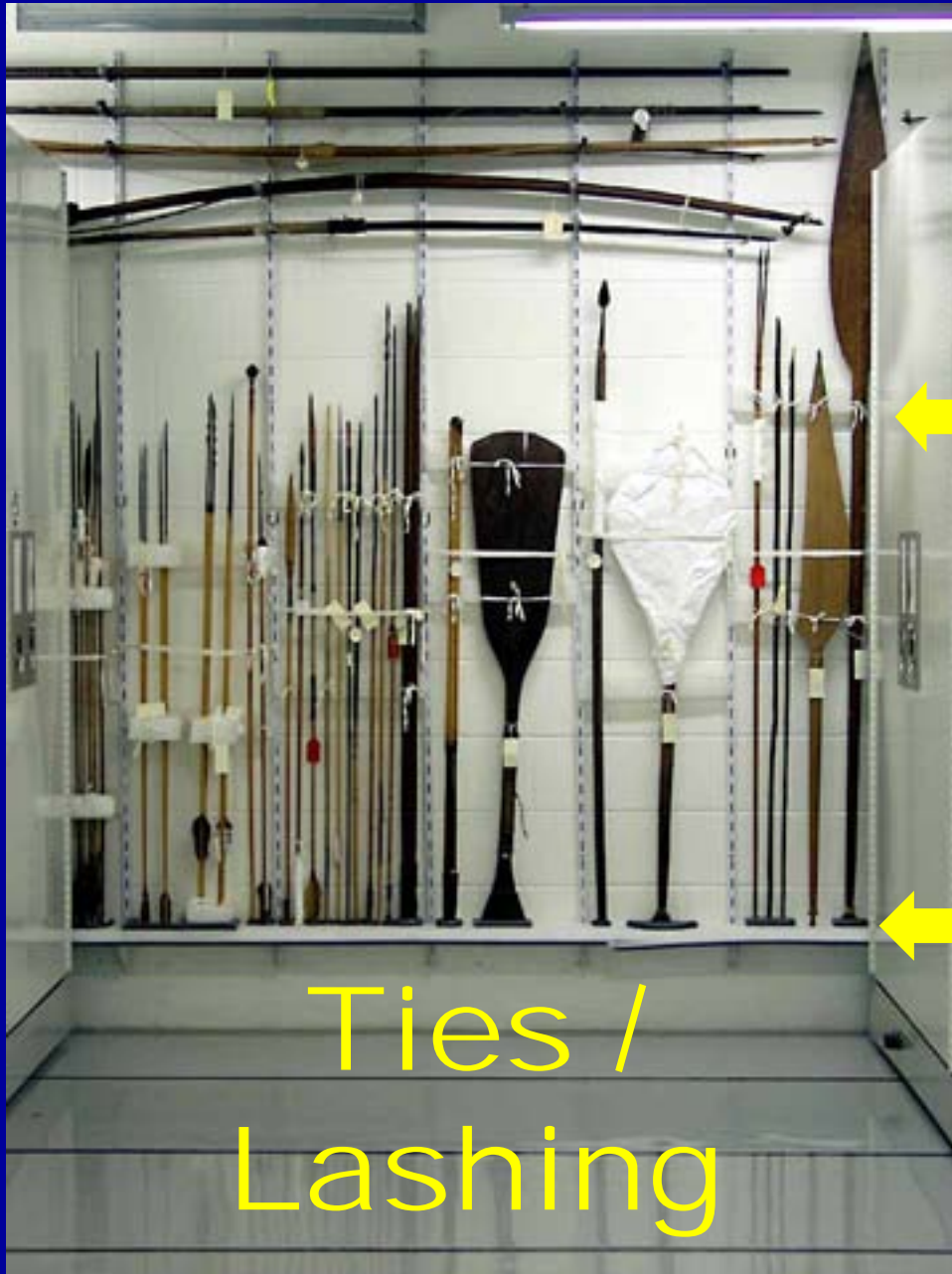


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St. Paul, Minnesota

Braces and Ties/Lashing



**Science Museum of Minnesota
St. Paul, Minnesota**



Science Museum of Minnesota

Sliding Trays



Closed

Science Museum of Minnesota
St. Paul, Minnesota



Open

Pillows

- Styrofoam peanuts in polyethylene bags.
- Crushed acid-free tissue paper.
- Cotton or Tyvek fabric filled with polyester quilt batting.



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St. Paul, Minnesota

Pillows



Science Museum of Minnesota
St. Paul, Minnesota

Pillows



**Blue Cloud Abbey
South Dakota**

Acid Free Paper Supporting a Dress



**Siouxland Heritage Museums
Sioux Falls, South Dakota**

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Pillows and Snakes



**Wright County Historical Society
Buffalo, Minnesota**

Snakes



← Stockinet

Vesterheim Museum
Decorah, Iowa



← Tissue Paper

Science Museum of Minnesota
St. Paul, Minnesota

Snakes



**Wright County Historical Society
Buffalo, Minnesota**

Unsupported Wheels

Damage occurs over time



Axle blocks for Vehicles



**Wright County Historical Society
Buffalo, Minnesota**

Jack Stands for Vehicles



Flat Object Mounts



- **Boards**
- **Encapsulation**
- **L-Mounts**
- **Window Mats**
- **Padded Tubes**

Unsupported rolled blueprints.

Encapsulation



**Polyester film
joined to form
a pouch using:**

- 415 tape**
- ultrasonic or
heat welds**
- Sewing**

**Wright County Historical Society
Buffalo, Minnesota**

315 tape encapsulation

Sewn Encapsulation



Problems in this picture:

- Machine sewn - may pucker.
- Was object inside during sewing?
- Material may not be polyester film.

Archives: Folders

- **Low lignin, buffered or unbuffered**
- **Opaque (protect from light)**
- **Can write on with pencil**

Boxed Archives

- **Folders same size, close to box size**
- **Boxes full without slumping**
 - **add supports/spacers**
- **Sleeves or plastic enclosures**
- **Folders shouldn't curve at bottom**

Box with Files



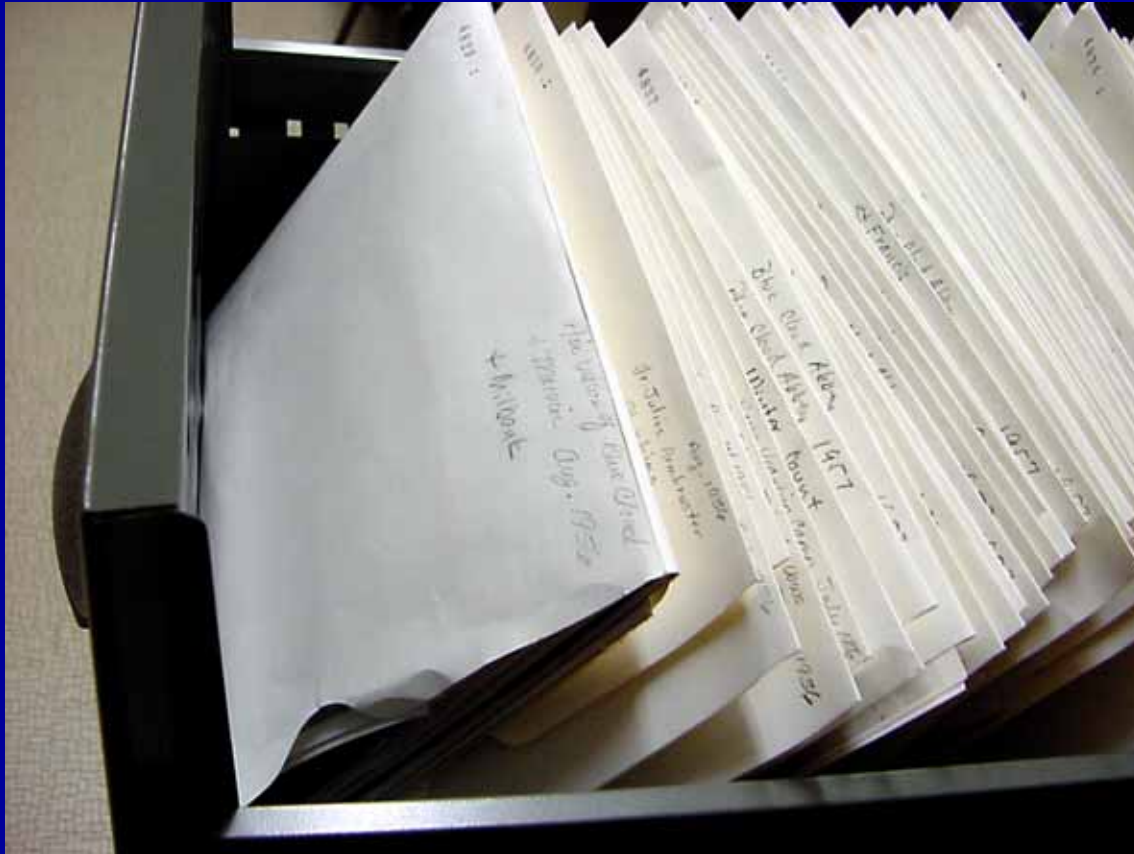
Archives: Folder Contents

- **Remove fasteners--staples, paper clips, pins**
- **Keep newspaper clippings separate**
- **Photocopy highly deteriorated items**
- **Unfold materials**
- **Cross reference related materials**
- **Don't overcrowd**

Paper Sleeves



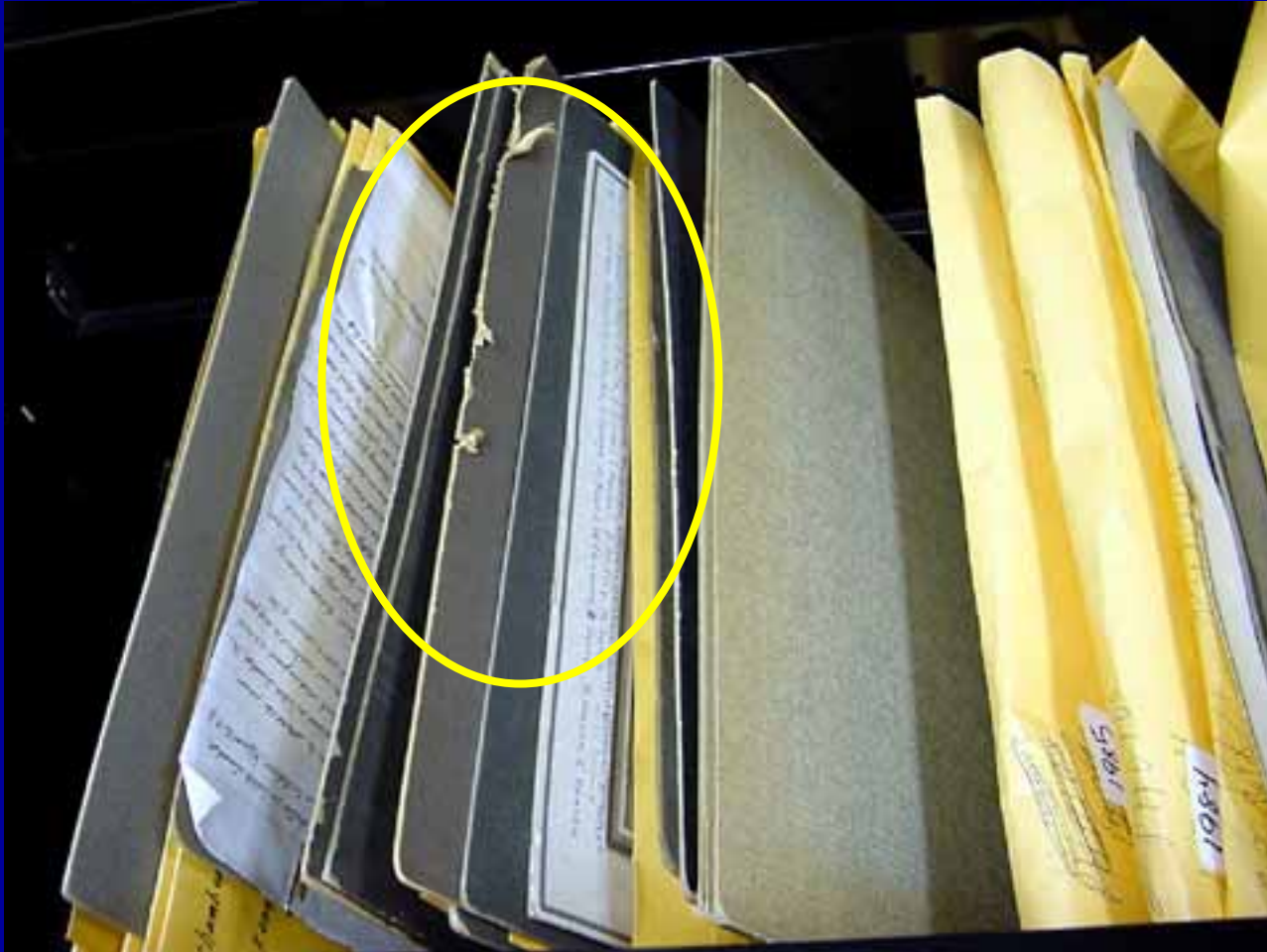
Sleeved Photographs in Metal File Drawer



Problems in this picture:

- Slumping
- Metal drawer bottom uneven
- Need more support, would be better boxed.

File Drawer Damage



Window Mats



- **Bigger than object:
no weight on
collection item**
- **Tie or Velcro
closure**
- **Mylar, Tissue paper,
Glassine, or
Cardboard over front.**

Window Mats



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St. Paul, Minnesota**

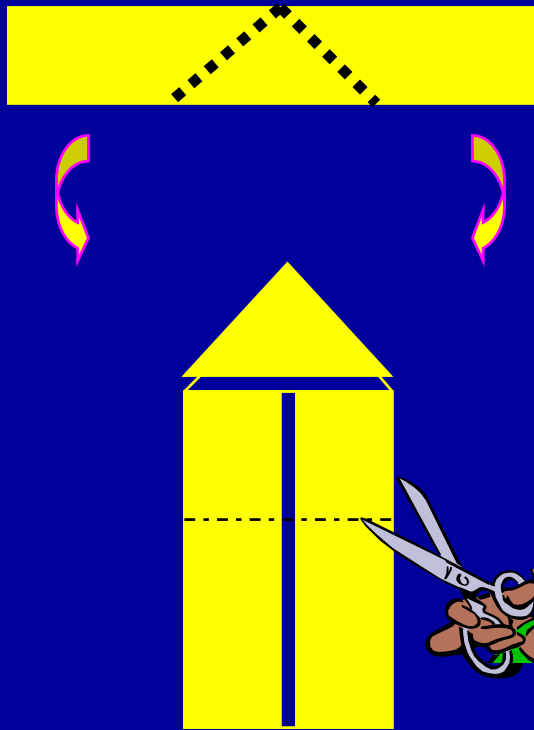
Window Mats



Science Museum of Minnesota
St. Paul, Minnesota

Making Photo Corners

to hold items in mat



- Cut a strip
- Fold each side to form a triangle
- Cut ends

Book Supports for Reading Room (non-archival)



Wheels

- Purchase high quality wheels.
- All four wheels should lock.
- Rubber wheels absorb vibration.

Wright County Historical Society
Buffalo, Minnesota



Wheels



Wheel lock

Resources

***Moving the Mountain: The Science Museum of Minnesota Guide to Moving Collections*, 2001, Science Museum of Minnesota, Collections Management and Conservation Departments, ISBN 911338-54-3**

Resources

***Storage of Natural History Collections:
Ideas and Practical Solutions*, 1992,
Rose, C.L. and de Torres, A.R.,
editors. Society for the Preservation
of Natural History Collections, ISBN
0-9635476-0-7**

\$36.00

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University of Iowa, Iowa City, IA 52242**