

# Felt and Hats

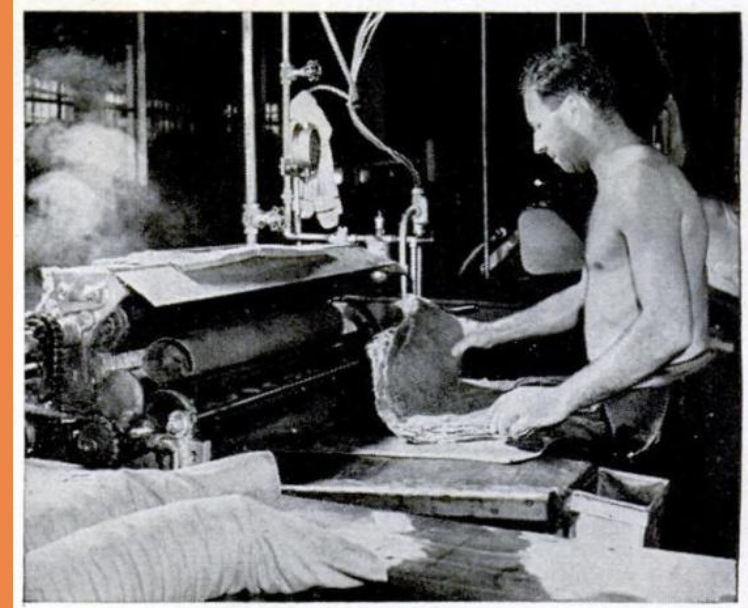
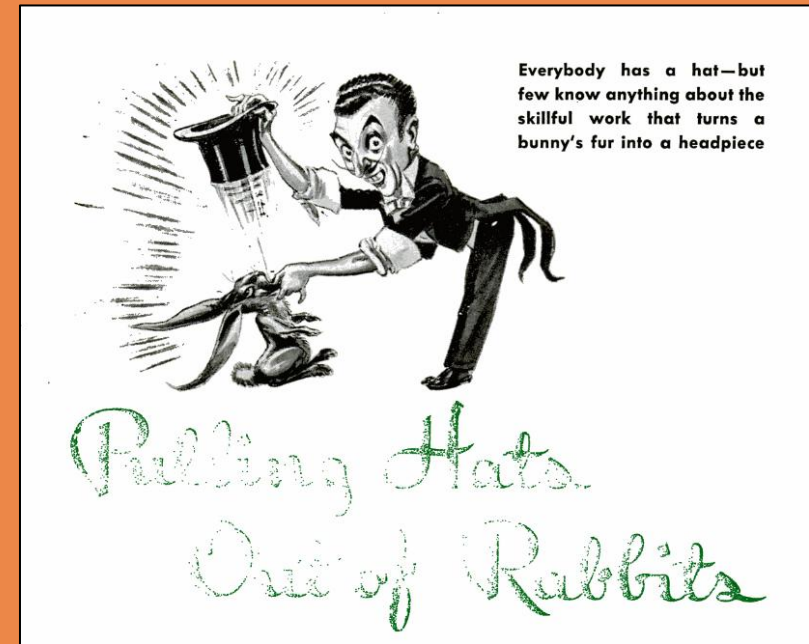
- Popularity of felted hats 18<sup>th</sup> – mid. 20<sup>th</sup> c.
- Beaver, hare, rabbit, otter fur
- Felt manufacturing (mercury)



Shag Beaver Velvet Top Hat  
History Colorado Center, Denver, CO

# Carroting

- Mid 17<sup>th</sup> c – mid 20<sup>th</sup> c
- Skins soaked or brushed with a mercuric nitrate solution
- Facilitated separation of fur from skins
- Aided in the felting process
- Mercury banned in hat manufacture in 1941 in U.S.



Burlingame, Roger. (1941, Nov.) Pulling hats out of rabbits. *Popular Science*, 139, 52-58.

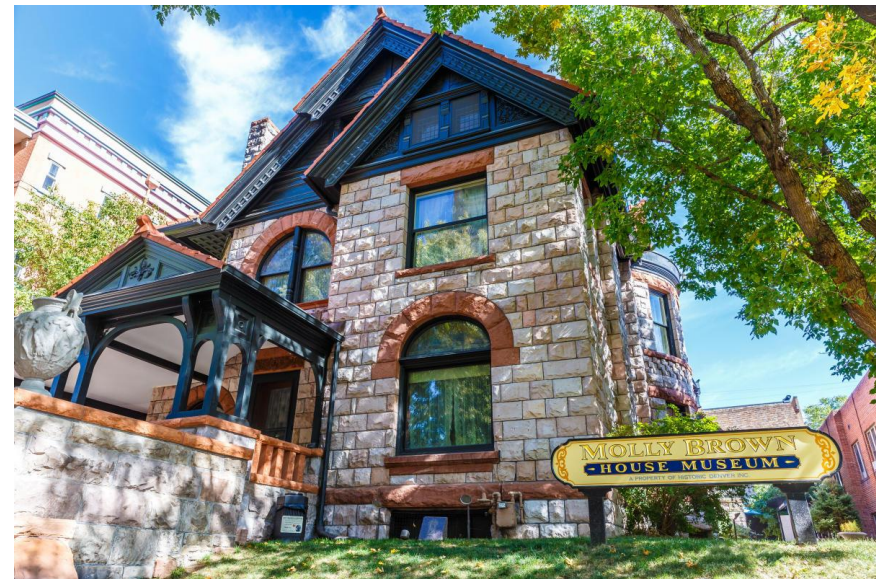
# Types of Collections

- History Museums
- Historic Houses
- Living History Museums
- Educational Collections
- Parks
- Hands-on / Dress-up Activities
- Private Collections

## Hiwan Heritage Park



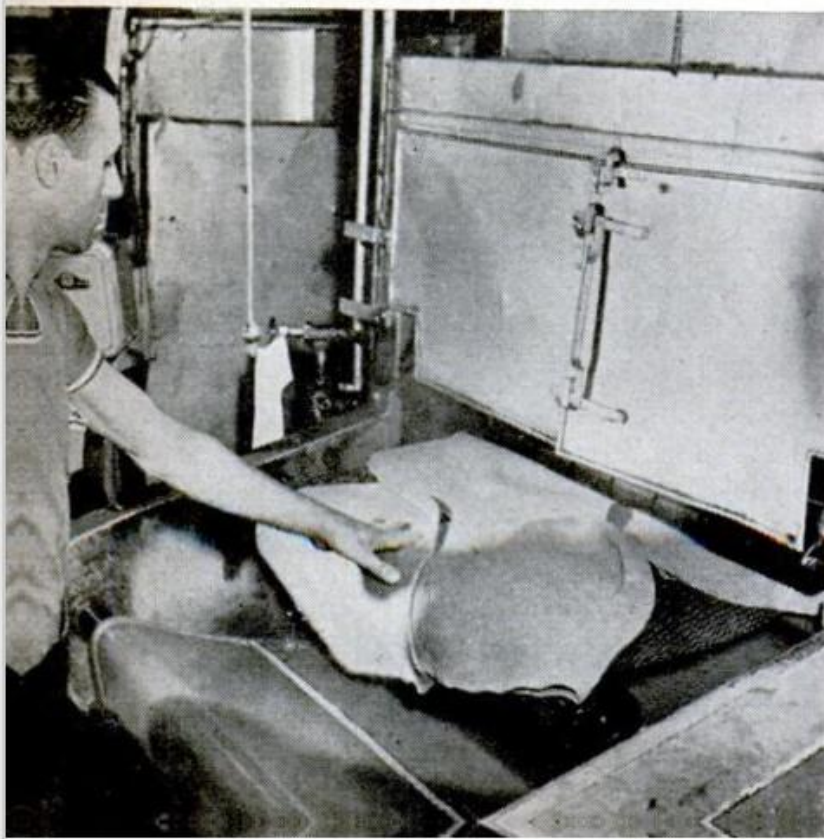
Hiwan Heritage Park, Jefferson County Open Space  
Evergreen, CO



Molly Brown House Museum, Denver, CO

# Hazards

- Milliners at most risk of mercury poisoning



Burlingame, Roger. (1941, Nov.) Pulling hats out of rabbits. *Popular Science*, 139, 54.

- Hats deteriorate over time
- Fur becomes powdery, brittle, presenting a hazard to handlers



Shag Beaver Velvet Top Hat  
History Colorado Center, Denver, CO

# Hat Storage

- Usually stored with other hats, accessories
- Closed cabinets
- Closed boxes
- Open shelving / closets

Hats in storage at the Colorado Springs Pioneers Museum



Photos by Paulette Reading



Hat storage, History Colorado Center, Denver, CO



Photos courtesy Mark Nelson

# Other Hazards

- Ladies' Hats
- May contain mercury-processed felt
- Feathers, dried botanicals
- Arsenic, moth balls (naphthalene, para-dichlorobenzene)
- Often stored together with beaver felt hats



Hats in storage at the Greeley History Museum, Greeley, CO



Beaver Felt Hats –  
Back Row

# Handling Recommendations

- Label as potentially hazardous
- Open boxes / cabinets and allow to aerate before accessing
- Use PPE - gloves, masks, hand-washing
- Housekeeping with HEPA vacuum, damp wipes
- Minimize cross-contamination

Storage, History Colorado Center, Denver, CO



*Warning Labels*

Photos courtesy Mark Nelson

Storage, Greeley History Museum, Greeley, CO



*Open cabinet...walk away*

Photos courtesy Katie Ross

# Wipe Sample Analysis

## History Colorado Center – El Pueblo Museum

- Took wipe samples from cotton stockinette
- Submitted for analysis by an outside lab / ICP-MS
- Positive for Hg
- More research needed, but a potentially useful low-cost method of detection

Temporarily Removed from Exhibit



Obtained Wipe Samples from Stockinette-Covered Forms



Moccasins, Comanche  
1880-1900  
Accession # E.1914.2  
History Colorado Center