

Appendix 5 – Damage and Deterioration Details

The museum curatorial team has a current full time head count of 4, and amongst its other demands, such as keeping the North Herts Museum operational, it does not have capacity to keep a continuous watching brief on the deterioration of objects within the collection.

That said, the following issues, which we know are problems at the current facilities, typically result in the following impacts:

	Metals	Textiles	Paper including watercolours	Wood	Art (Paintings)	Natural History	Photography	Labels	Geology	Glass and ceramics
Low Humidity	<i>Low humidity is good for metals. Iron and corroding metals are best stored with as low an RH% as possible</i>	<i>Textile fibres become brittle if too dry</i>	<i>Paper becomes brittle and cracks or tears</i>	<i>Wood cracks and warps when dry, veneers can shrink</i>	<i>Wooden stretchers can shrink if too dry, which can damage or tear the attached canvas</i>	<i>Too dry conditions will damage insect specimens</i>	<i>Low humidity is good as the gelatine in old photographs is reactive</i>	<i>If too dry, paper labels become brittle and can crack</i>	<i>Some rocks and minerals containing pyrites (eg Iron Pyrites – Fool's Gold) need a low RH, ideally 30%</i>	<i>Acceptable</i>
High Humidity	<i>High humidity can cause rust and corrosion.</i>	<i>Textiles become damp and mouldy, colours can run; metal fastenings can rust</i>	<i>Paper becomes damp, ink runs, mildew, mould growth</i>	<i>Dampness can lead to swelling, joints opening, differential</i>	<i>The canvas can swell and droop, risk of mould</i>	<i>Damp leads to mould. Metal armatures inside taxidermy objects</i>	<i>Photographs damaged due to gelatine changes, mould growth.</i>	<i>Label becomes damp, ink runs making it hard to read</i>	<i>Can cause reaction in certain minerals, causing them to degrade</i>	<i>Generally acceptable but in old glass can cause delamination, or old repairs with metal staples can rust</i>

				movement		may rust				
Fluctuations in Humidity	Can cause irreversible damage	Cause irreversible damage	Cause irreversible damage	Cause irreversible damage	Cause irreversible damage	Cause irreversible damage	Cause irreversible damage	Cause irreversible damage	Cause irreversible damage	Generally acceptable but in ceramics with salts in the fabric, these can come to the surface and damage the glaze, and repaired items will be damaged through changes to the glue
Low Temperature	Good if relatively dry	Good if relatively dry	Good if relatively dry	Good if relatively dry	Good if relatively dry	Good if relatively dry	Good if relatively dry	Good if relatively dry	Good if relatively dry	Acceptable
High Temperature	Acceptable up to 20° as long as it is dry, but best stored at around 15°	Acceptable up to 20 as long as it is dry but best stored at around 15°	Acceptable up to 20° as long as it is dry	Acceptable up to 20° as long as it is dry	Acceptable up to 20° as long as it is dry	Acceptable up to 20° as long as it is dry	Damaged by high temperature, best stored around 15°	Acceptable up to 20° as long as it is dry	Acceptable up to 20 as long as it is dry but best stored at around 15°	Generally acceptable

Fluctuations in Temperature	<i>Can cause irreversible damage</i>	<i>Cause irreversible damage</i>	<i>Cause irreversible damage</i>	<i>Cause irreversible damage</i>	<i>Cause irreversible damage</i>	<i>Cause irreversible damage</i>	<i>Cause irreversible damage</i>	<i>Cause irreversible damage</i>	<i>Can cause irreversible damage</i>	<i>Generally acceptable</i>
Lack of effective pest control	<i>Rare</i>	<i>Moths can destroy textiles; other insects eg carpet beetles can also cause damage</i>	<i>Paperwork can be eaten by certain pests, and stained through their secretions</i>	<i>Woodworm can damage wood</i>	<i>Woodworm can damage frames and stretches</i>	<i>All taxidermy specimens, butterflies and moths are a food source, and so at risk from pests</i>	<i>Gelatine is a food source for beetles</i>	<i>Labels can be eaten by certain pests.</i>	<i>Specimens can be preyed upon by certain pests and improper furnishings such as carpet can exacerbate infestations.</i>	<i>Rare</i>
Natural Light	<i>Light stable</i>	<i>Fading, damages the fibres</i>	<i>Fading, bleaching, brittleness</i>	<i>Fading, splitting and warping in strong light</i>	<i>Fading, discolouration over time</i>	<i>Fading of colours</i>	<i>Photographs fade in natural light</i>	<i>This can cause the fading of information on labels, making objects difficult to identify.</i>	<i>Light stable</i>	<i>Acceptable</i>

Best practice in the museum world is to ensure stable conditions as it is the fluctuations in temperature and humidity which cause the most damage. 'It is generally better to keep conditions stable, i.e. not moving up or down too much, rather than trying to keep all the different parts of your collections at different specific RH's.' (SHARE Museums East, 'The Museum Environment'); 'Stability is key. When controlling or creating a museum environment, aim for a stable relative humidity. Preference should be given to maintaining a stable level approximating the desired level all of the time, rather than maintaining the exact desired level only part of the time. (Temperature & Humidity in Museums, Museums Galleries Scotland); 'The main impact that temperature has on collections is its part in affecting RH (relative humidity)..High and low levels and fluctuations cause most of the problems' (Association of Independent Museums, Successful Collections Care.)

For these reasons, the curatorial team have already mitigated the risks for the most sensitive parts of the collection by moving objects to Letchworth Museum or other temporary storage areas:

- Some fine art is stored in a secure store off the exhibition gallery at North Herts Museum. The remainder is temporarily stored at the former Letchworth Museum.
- Costumes are stored within a windowless room behind the Hitchin Town Hall stage.
- Many objects from the social history collection are temporarily stored at Letchworth Museum.
- Archaeological metals have been bagged with silica gel to attempt to protect them from the ambient humidity levels in the archaeological bulk store.
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Although these steps have been taken for the most sensitive items in the collection, it should be noted that background deterioration of the other objects will still be occurring.

It is fully expected that any wholesale relocation of the museum collection from the current facilities to any alternative storage location will result in the discovery of far more widespread deterioration of the objects which remain at the Burymead facilities, however the following examples of damage or deterioration have already been discovered in the last 35 years:

Object/s at Burymead	Deterioration/Damage/near misses
200? hundred butterflies and moths	Destroyed by pests
Herts Yeomanry material including medals	Unsuitable to store at Burymead so temporarily moved to former Letchworth Museum
Tudor cradle (now on display)	Needed conservation after flood damage
Wooden 3-seater loo seat	Cracking due to RH/temp fluctuations

Local history archives from former Hitchin Museum	Unsuitable to store at Burymead so temporarily moved to former Letchworth Museum
Labels on Natural History boxes	Fading linked to natural light exposure
Archaeology files	Have been damaged by water ingress
Maps	Glue weakened by temp and RH changes, causing them to come off their hangers
Social history store	Flood (staff on site at time so major damage was averted)
Newspapers	Printed on poor quality paper, so deteriorating at a faster rate than other paper items; becoming friable and crumbling.
Metal archaeology	Humidity leading to corrosion, so that metal small finds had to be individually bagged with silica gel
Labels in Nat History store	Eaten by pests (some feed on the glue)
Ceramics and glass	Broken as packed too closely because of space limitations
Metallic weapons and tools	Signs of corrosion
Fine Art from former museums	Unsuitable to store at Burymead so temporarily moved to former Letchworth Museum
Football items	Some of collection unsuitable to store at Burymead so temporarily moved to former Letchworth Museum

It is not possible in most instances to link cause and effect to the conditions within Burymead. We cannot know for certain and all museum collections suffer some loss over time due to the fragile nature and age of objects. However it is clear that the conditions are not going to be helping to limit the loss and deterioration in the way that museum collection storage facilities should do.

Curators can take mitigating action, but there is no substitute for secure and environmentally stable stores. The North Herts museum collection will continue to deteriorate until this is addressed.

Due to the scale of our collection and the lack of capacity within the curatorial team the Council does not currently have surveillance of the whole collection and the deterioration taking place.

It should be noted that museum collections are stored at the former Letchworth Museum rather than at Burymead because although not ideal, the environmental conditions there are more stable than Burymead, due to the nature and materials of the building itself. Over time, there will still be risks at Letchworth Museum, due to fluctuations in the environmental conditions there, but these are less than at Burymead, and therefore, for now, it is a better temporary store for some of the more sensitive objects.