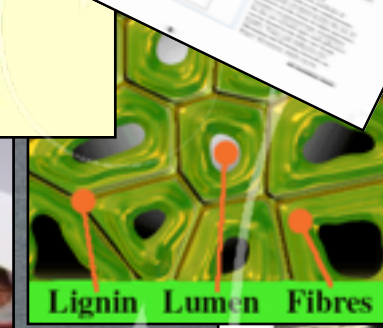
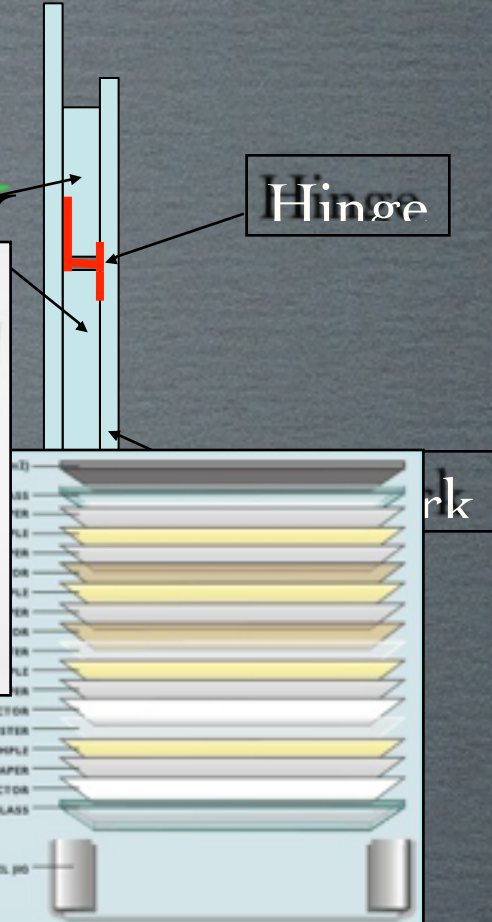


CONSERVATION



PRINCIPLES

Mal Reynolds GCF Adv

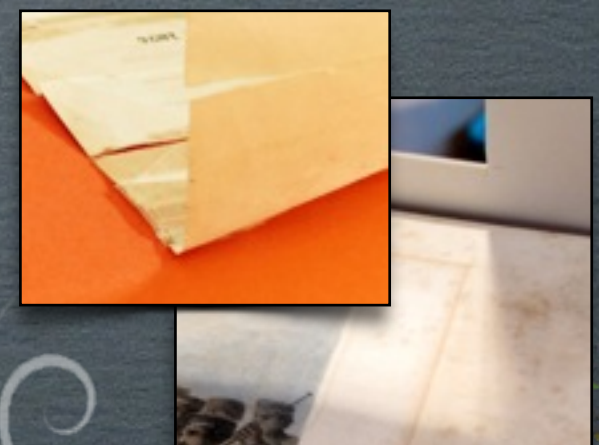
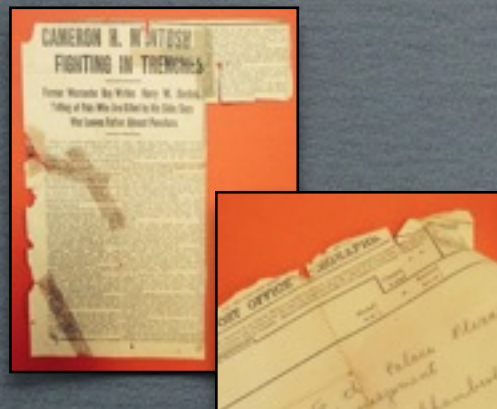
CONSERVATION PRINCIPLES

Paper and fabrics are organic by nature and as such they will deteriorate with time undergoing both chemical and physical changes

Often one set of changes has a knock on effect leading to another, but on the whole these changes are cumulative and irreversible

Deterioration often manifests itself in:

- Loss of strength
- Loss of flexibility
- Colour Change
- Increase or decrease in solubility



This rate of deterioration may increase with time but will certainly increase with the use of poor quality materials and techniques

CONSERVATION PRINCIPLES

FATG

Objective for Conservation Level Framing

To visually enhance artwork and offer a high level of protection from:

Physical and Mechanical Damage

Airborne Pollution

Acids

generated by framing materials, for approximately 20 years, under Normal Conditions

CONSERVATION PRINCIPLES

FATG Conservation Level

Provide a HIGH level of Protection

Physical and Mechanical Damage

BIOLOGICAL

The biological threat directly related to moisture is mould growth.
It may cause irreversible and often devastating damage.

CHEMICAL

Oxidation - Chemical reaction with oxygen to form an oxide
sulphur dioxide, nitrogen oxides and ozone - basically atmospheric pollutants.

Hydrolysis - reaction of cellulose molecules with water
basically results in a loss of strength of paper - acid hydrolysis is a primary concern.

MECHANICAL

Fluctuations and extremes of conditions result in mechanical damage to materials.
e.g materials may become stiff or brittle when cold are more likely to break.
the expansion and contraction of materials.

Combination of these is a major cause of deterioration

CONSERVATION PRINCIPLES

FATG Conservation Level

Provide a HIGH level of Protection

Airborne pollution and acids generated by framing materials

Air Pollution

Off - Gassing

Release of substances sometimes as a result of degradation processes

AIR POLLUTANTS

Air Pollutants in the form of:
gaseous contaminants or dust particles
can be particularly harmful and damaging



By-products of combustion
Nitrogen Dioxide



Formaldehyde



Other volatile organic compounds

**NO
SOLVENTS**

Bio-aerosols



OFF-GASSING

The emission of harmful gasses from materials within the frame

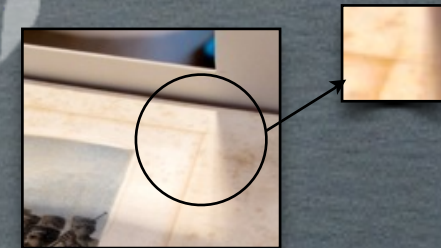
Airborne oxides (Sulphur/Nitrogen) when combined with moisture produce acids that attack cellulose materials

Composition of woods, paper and boards change as they age producing different substances, including various acids which will increase the deterioration of artwork e.g

Breakdown of Lignin

Wood-burn

Discolouration of papers adjacent to poor quality boards



CONSERVATION PRINCIPLES

FATG Conservation Level

FATG's Normal Conditions

Display

Out of Direct Sunlight

Temperature Range

10°C → 25°C

Relative Humidity

40% → 60%



LIGHT

Light damage is most pervasive and difficult to avoid.
The degree of damage depends on two factors:

The intensity of the light source
Duration of exposure

Damage manifests itself in several ways

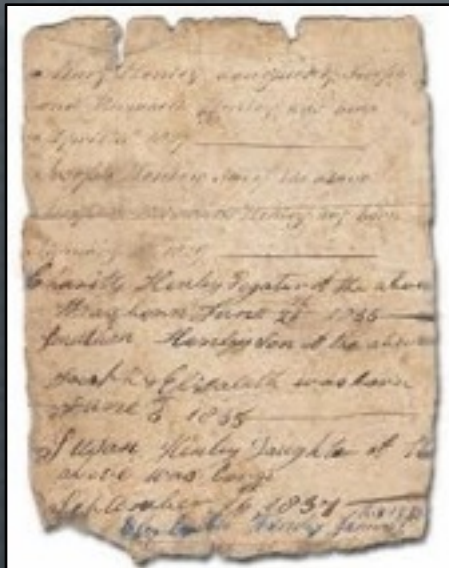
Causes cellulose materials to bleach, darken and yellow

Weakens and embrittles cellulose fibres

Causes pigments and dyes to fade and/or change colour

Yellowing and
embrittlement
of old paper

Trees appear blue due to the
loss/fading of the yellow tones
from the green



Light Damage is Cumulative and Irreversible

FADING

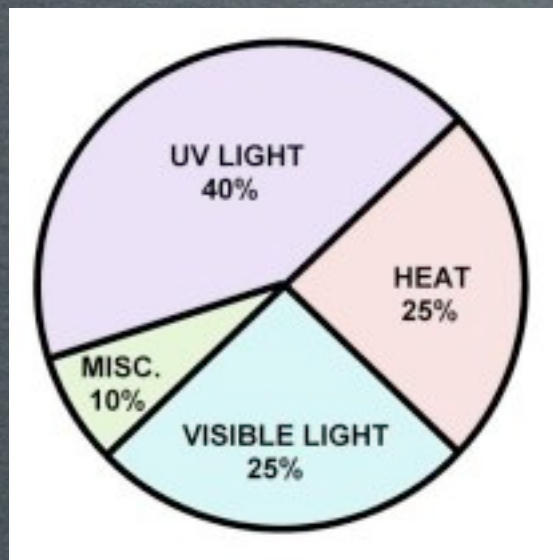
UV Filters Do Not **STOP** Fading, They Help **REDUCE** Fading

The cause of fading is due to a photochemical reaction involving UV and visible light

Research has shown that:

40% of fading is caused by UV rays.

25% being caused by normal visible light.



25% of fading is due to heat.

10% cause of fading is from indoor artificial lighting, humidity, and poor dye anchorage.

CONSERVATION PRINCIPLES

FATG Conservation Level

FATG's Normal Conditions

Display

Out of Direct Sunlight

Temperature Range

10°C → 25°C

Relative Humidity

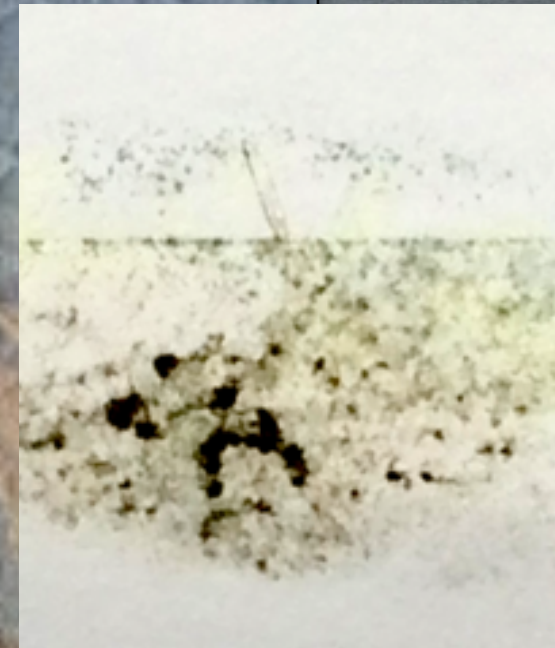
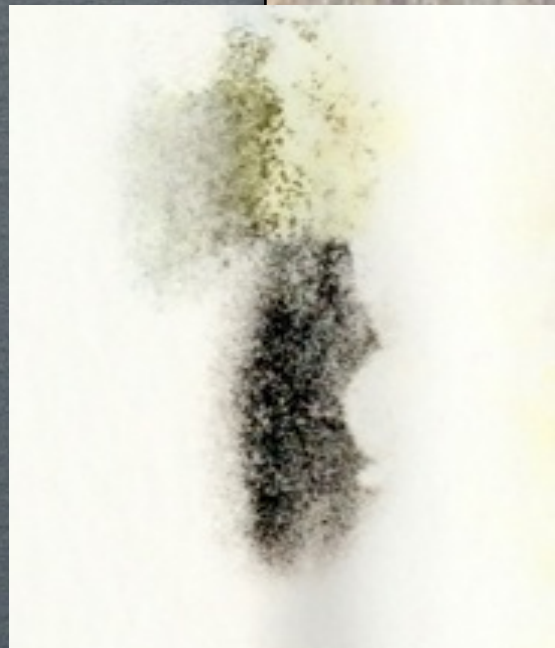
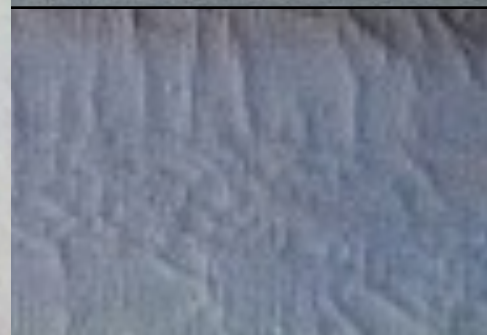
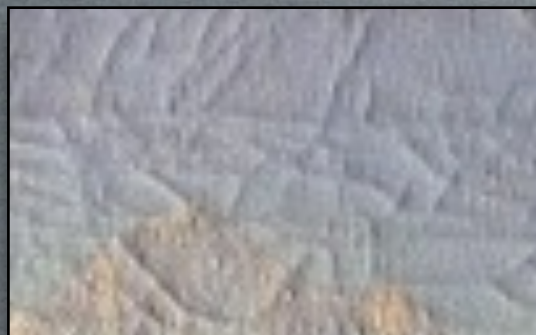
40% → 60%



HEAT

Heat has the effect of

deterioration.



- Cockling, buckling, wrinkling

to photographic emulsions

Differential expansion of

mediums leads to cracking

CONSERVATION PRINCIPLES

FATG Conservation Level

FATG's Normal Conditions

Display

Out of Direct Sunlight

Temperature Range

10°C → 25°C

Relative Humidity

40% → 60%



RELATIVE HUMIDITY

Major problem that contributes, influences and triggers many of the factors

Defined as the amount of moisture in the air compared to what the air can hold at a given temperature.



Cubic Metre

= Equilibrium =

50% RH
20C



Cubic Metre

RH changes cause dimensional changes to paper



RH greater than 70% fungal growth becomes possible e.g foxing

CONSERVATION PRINCIPLES

L&A/COURIER/LOAN COPY

N NATURAL HISTORY MUSEUM

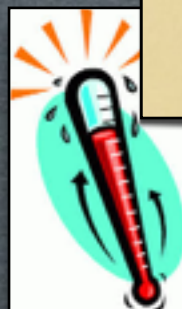
Natural History Museum
Cromwell Road
London SW7 5BD
+44 (0)20 7942 5460

CONDITION STATEMENT FOR LOAN/EXHIBITION
LIBRARY AND INFORMATION SERVICES

LOAN/EXHIBITION TITLE: A Great Endeavour. Joseph Banks, Lincolnshire Gentleman and his legacy

OBJECT DETAILS			
LIBRARY ITEM ID NUMBER	NZ4/176 BOT	PLATE MARK NUMBER:	
DIMENSIONS (mm) HxWxD	735 x 573 (with mount) 505 x 335 (object)	DATE:	1783
TITLE/SUBJECT:	Phormium tenax	ARTIST/MAKER:	Nodder
OBJECT TYPE:	Watercolour drawing on laid	MATERIALS:	Watercolour

REQUIRED LIGHT LEVEL (PLEASE TICK):	<input type="checkbox"/> ≤50 lux	<input checked="" type="checkbox"/> ✓	<input type="checkbox"/> ≤250 lux	<input type="checkbox"/> >250 lux
FOR BOOKS:				
ENVIRONMENT RANGE SHOULD BE AS BELOW:				
RH: 40-60% RH Fluctuations: <5% per hour Temperature: 16-23° C UV Levels: 0µW/lumen				



Te

Re

Dark stains (refer to image)
Ink annotations (artist's name and date) bottom LH corner

Verso
Watermark fleur de lis in the centre
Skinned areas at RH side and bottom LH side

MOUNTING REQUIREMENTS:
The object is mounted on museum board.
'V' hinged at top edge.

HANDLING (ALWAYS WASH HANDS OR WEAR NITRILE GLOVES):
Portrait mount, opening RH side. Item unframed. To be framed by borrowing institution

CONSERVATOR: Konstantina Konstantinidou DATE: 03/01/2014

Signature: *Konstantina Konstantinidou*



CONSERVATION PRINCIPLES

Conclusions

Good Quality Conservation framing can and does provide good protection from the afore-mentioned problems in most circumstances and when properly maintained.

However; problems may occur in the following situations

Extended exposure to high values of RH - effects may be limited by the use of Moistop and or Artsorb

Exposure to direct sunlight resulting in high temperatures within the frame, this may increase the chemical deterioration rate and may cause ageing of the paper.

The interaction of microclimates and and macro climates is one of the key factors in understanding the relationship between Conservation and the environment



CONSERVATION PRINCIPLES

Conservation/Restoration

Resto



returning an i



dition

LONDON, ENGLAND.

MEMO.

1. A reconnoitering patrol will go out immediately tonight (2nd. March 1917).
2. Strength - one officer (Mr. Albert Williamson) - one NCO, and the other men.
3. Objectives - to ascertain if blowing of mine might (1) be worth creating a crater, obtain as much detail as possible as to position, width, depth etc. of mine crater, if any. Also find if possible any - shell holes etc. and other points of interest.
4. Point and hour of attack at the discretion of patrol leader.
5. - OFFICER - involve Mr. T. G. Jones. Other members - officer should walk mine course and one in advance.

Lieut. A. J. J. J.

Copy No. 1. "A" Coy., Copy No. 2 "B" Coy. Copies kept. Not to be used.

The incident of night at 11:30 p.m. must be placed in return file.



55th (West Lancashire) Division
 The name of SERGEANT GORDON has been brought to my notice for gallant conduct on the night 21/1/17 at SALLES WOOD, and a reward has been made.
 W. Gordon
 Honorary Major

3/4/17
 Dear Mr. Chamberlain,
 I wish to express my appreciation of your letter to duty but must give my best wishes.
 Very sincerely yours,
 Alphonse Montandon

Government-General of the Colonies,
 100, Whitehall Lane,
 London, W.C. 2.

Dear Sir,

I beg to acknowledge your letter of the 10th inst. in reply to the letter of the 1st inst. in relation to the military cross for your gallant conduct on the night 21/1/17.

Alphonse Montandon

10th March 1917.

POST OFFICE TELEGRAPHS.

Buckingham Palace
 London W.C. 2
 11/5P

TO 2nd Lt Cameron Macintosh 5th
 Lt Col Rgt Pk Hall of Cavalry
 your attendance is required at
 Buckingham Palace on Wednesday next
 the fifteenth instant at ten
 o'clock in service dress except
 that no one except those
 to be invited can be

POST OFFICE TELEGRAPHS.

TO admitted to the Palace please
 Telegraph Acknowledgement
 Lord Chamberlain
 Edm.

CAMERON H. M'INTOSH
FIGHTING IN TRENCHES

Former Worcester Boy Writes Harry W. Gordon,
 Telling of Pals Who Are Killed by His Side; Says
 War Leaves Father Almost Penniless

By the service of Harry W. Gordon, a former Worcester boy, it is learned that the name of CAMERON H. M'INTOSH has been brought to my notice for gallant conduct on the night 21/1/17 at SALLES WOOD, and a reward has been made.

PHOTOGRAPHS

at Palace Please
 Acknowledgement
 Lord Chamberlain

Headed Kingdom of
 King's Defender

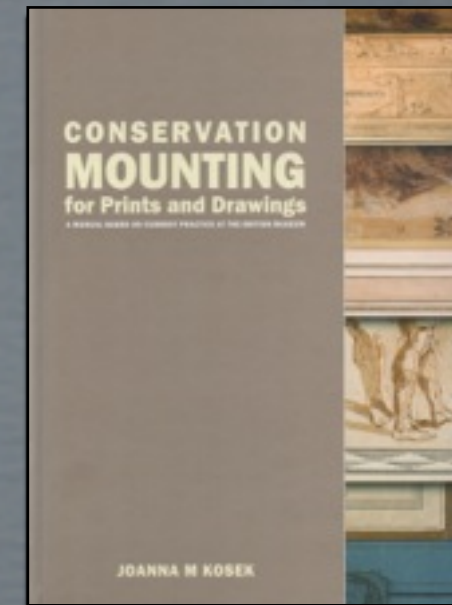
Seeing
 and good conduct to be
 considered. I am
 happy and delighted to
 see you in the way
 of a satisfaction with
 all the discipline in
 your best interests
 and thank you for your
 services as far
 as to the King and
 King's Defender

PSH
 NOTES

Gordon
 says
 the

Continuing Professional Development

Ref: Conservation Mounting
by
Joanna M Kosek



Framing Workshops

Harlequin Frames, Lincolnshire

Textile, conservation & 3D framing workshops
Individually designed to meet your requirements

Contact: Mal Reynolds GCF Adv
01673860249

mal@harlequin-frames.co.uk



