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METS documents for objects digitised from analogue originals at NLW

What is METS?

The METS schema is a standard for encoding descriptive, administrative and structural metadata within a digital library, using the XML schema language of the World Wide Web Consortium. The standard is maintained by the MARC Standards Office within the Library of Congress and is developed as an initiative of the Digital Library Federation in the United States. For more information go to www.loc.gov/mets.

What is the intention of this document?

This document intends to set out the “rules” by which METS documents are written at the National Library of Wales specifically for objects digitised from analogue originals. This document refers to version 1.3 of METS adopted on 2003-05-05, <<http://www.loc.gov/standards/mets/mets.xsd>>.

METS document *mets*

Our METS documents will use more than one standard/schema for the different classes of metadata to be recorded, therefore at the beginning of the document the relevant namespace declarations should occur. In the example that follows, the namespace declaration refers to the METS schema itself, in addition to MODS (www.loc.gov/mods) and DC (purl.org/dc/shemas).

```
xmlns:METS="http://www.loc.gov/METS/"
xmlns:mods="http://www.loc.gov/mods/"
xmlns:dc="http://purl.org/dc/elements/1.1/"
xmlns:xlink="http://www.w3.org/TR/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.loc.gov/METS/
http://www.loc.gov/standards/mets/mets.xsd http://www.loc.gov/mods/
http://www.loc.gov/standards/mods/mods.xsd
http://purl.org/dc/elements/1.1/
http://uk.dublincore.org/schemas/xmls/simpledc20021212.xsd"
```

In METS documents for digitised materials the MODS schema (Metadata Object Description Schema, <<http://www.loc.gov/standards/mods/>>, v.3 2003-12-05) and the simple DC XML schema (Dublin Core, <<http://uk.dublincore.org/schemas/xmls/>>, v. 2002-12-12) will be used.

Every METS document should have the following attributes:

- ID, an XML ID.
Examples: ID="GSFmets1"; ID="DUCmets1".
- OBJID, an NLW identifier for the document.
Examples: OBJID="archifddigidol.llgc.org.uk/duc00001.xml";
OBJID="archifddigidol.llgc.org.uk/cyb00001.xml".

- LABEL, a title or text string to identify the document for users.
Examples: LABEL="Photographs of American Scenery"; LABEL="Llyfr Taliesin"; LABEL="NLW MS 77A".
- TYPE, a type for the object based on the source, where possible the type should be based on GMD/SMD.
Examples: TYPE="book"; TYPE="photograph"; TYPE="album"; TYPE="manuscript"; TYPE="archival material"; TYPE="map".
[In due course a list should be drawn up of all the terms which can be used as TYPE attribute; TYPE might eventually decide on how an object is presented.]
- PROFILE
Here a reference is made to this document as the NLW METS guidelines, so that other users of our documents will know which rules have been followed.
Example: PROFILE="NLWproffill"

In working with objects which are digital versions of analogue originals, we will usually use the following sections in a METS document: **metsHdr**, **dmdSec**, **amdSec**, **fileSec** and **structMap**

METS document header *metsHdr*

Every METS document should include the header section *metsHdr*. The header supplies information concerning the METS document itself and not the digital object. Every METS *metsHdr* should include the following attributes:

- ID, an XML ID for every METS object. It will be formed from the ID for the METS document with the abbreviation for the header.
Examples: ID="GSFhdr1"; ID="DUChdr1"; ID="BWPhdr1".
- CREATEDATE, date and time of the document's creation.
Example: CREATEDATE="2003-02-27T17:00:00"
- LASTMODDATE, date and time the METS document was last modified.
Example: LASTMODDATE="2003-03-04T13:00:01"
- RECORDSTATUS, a string noting the status of the document. It can include various values, but the following are values that should be used: “**draft**” (when the METS document is in the process of being drafted), “**hidden**” (when the drafting of the document is complete but it is not to be published), and “**public**” (when the document ready for publication).
Examples: RECORDSTATUS="hidden"; RECORDSTATUS="public"; RECORDSTATUS="draft".

The *metsHdr* should also include multiple *agent* elements recording those responsible for various aspects of the METS document's creation and distribution

- *agent*,

this element is used to keep track of all who have responsibility for the document from creation to dissemination. This element will be repeated to declare the various responsibilities associated with a METS document. Typically an NLW METS document will include elements for the person(s) responsible for creating/editing a document and the Library as custodian and disseminator. This element will have the following attributes.:

- ID, and XML ID which is formed from the ID for the METS documents with the name of the element.
[Could NLW keep one list of IDs for all those who work with METS documents?]
Examples: ID="GFSagent1"; ID="DUCagent3"
- ROLE, typically, the attribute will include one of the optional values supplied by the schema: CREATOR, EDITOR, ARCHIVIST, PRESERVATION, DISSEMINATOR, CUSTODIAN or IPOWNER. If a different value is required then use value OTHER for the ROLE attribute and record the value(s) using the OTHERROLE attribute.
- TYPE, this attribute will include a declaration if the *agent* is and INDIVIDUAL or

ORGANIZATION.

Examples:

```
<METS:agent ID="DUCagent1" ROLE="CREATOR" TYPE="INDIVIDUAL">
  <METS:name>Gareth Wyn Davies</METS:name>
</METS:agent>

<METS:agent ID="GSFagent3" ROLE="EDITOR" TYPE="INDIVIDUAL">
  <METS:name>Lyn Léwis Dafis</METS:name>
</METS:agent>

<METS:agent ID="BWPagent1" ROLE="DISSEMINATOR" TYPE="ORGANIZATION">
  <METS:name>Llyfrgell Genedlaethol Cymru : The National Library
of Wales</METS:name>
</METS:agent>
```

Descriptive metadata section *dmdSec*

This section describes the digital object. If the digital object is derived from an analogue original, then that original will be described in the source metadata section *sourceMD* within the Administrative metadata section *amdSec*. A METS document allows any number of *dmdSec* elements in order to record descriptive metadata for every single *div* within a METS object if that is needed.

Example:

```
<METS:dmdSec ID="DUCdmd1">
  <METS:mdWrap MDTYPE="MODS">
    <METS:xmlData>
      <mods:mods>
        <mods:titleInfo>
          <mods:title>Llyfr du Caerfyrddin</mods:title>
          <mods:subTitle>digital version</mods:subTitle>
        </mods:titleInfo>
      </mods:mods>
    </METS:xmlData>
  </METS:mdWrap>
</METS:dmdSec>
```

As in the example above every *dmdSec* element will have a different ID and that is used as a reference within the METS document. The ID will be formed from the ID for the METS document with the abbreviation *dmd* and a number.

Examples: ID="DUCdmd1"; ID="LWHdmd34"; ID="BALdmd56".

Within the *dmdSec* the MODS metadata schema is used for description (www.loc.gov/mods, v.3, 2003-12-05). This description is held within the METS document within the *mdWrap* and *xmlData* elements as in the example above.

The following elements from the MODS schema are used to describe digitised objects: ***titleInfo***, ***name***, ***typeOfResource***, ***originInfo***, ***physicalDescription*** using the appropriate subelements and attributes.

- ***titleInfo***

Title information should be recorded in the original language and that language noted as an *xml:lang* attribute using the relevant language code from ISO 639:1988 "Code for the representation of names of languages", see <http://ftp.ics.uci.edu/pub/ietf/http/related/iso639.txt>. To enable bilingual Welsh-English presentation another ***titleInfo*** element should be included with the appropriate ***subTitle*** subelement.

The ***titleInfo*** element will have the following subelements:

- *title*
- *subTitle*

Every *title* subelement should include the *xml:lang* attribute using the relevant language code from ISO 639:1988 "Code for the representation of names of languages", see <http://ftp.ics.uci.edu/pub/ietf/http/related/iso639.txt>.

The *subTitle* subelement marks the object described as the digitised version and should include the value "fersiwn digidol" in Welsh and "digital version" in English.

If the title itself is also translated into Welsh or English then the attribute *type="translated"* should be used with that *titleInfo* element along with the appropriate *xml:lang* code.

Examples:

```
<mods:titleInfo xml:lang="cy">
  <mods:title>Llyfr du Caerfyrddin</mods:title>
  <mods:subTitle>fersiwn digidol</mods:subTitle>
</mods:titleInfo>
<mods:titleInfo xml:lang="en" type="translated">
  <mods:title><mods:nonSort>The </mods:nonSort>black book of
  Carmarthen</mods:title>
  <mods:subTitle>digital version</mods:subTitle>
</mods:titleInfo>

<mods:titleInfo xml:lang="cy">
  <mods:title>Cyflog byw</mods:title>
  <mods:subTitle>fersiwn digidol</mods:subTitle>
</mods:titleInfo>
<mods:titleInfo xml:lang="en" type="translated">
  <mods:title>
  <mods:nonSort>A </mods:nonSort>living wage</mods:title>
  <mods:subTitle>digital version</mods:subTitle>
</mods:titleInfo>
```

- *name*

With the various subelements and attributes required for the subject if applicable.

Example:

```
<mods:name authority="naf">
  <mods:namePart type="family">Williams</mods:namePart>
  <mods:namePart type="given">Gari</mods:namePart>
  <mods:namePart type="date">1946-1990</mods:namePart>
  <mods:displayForm>Gari Williams, 1946-1990</mods:displayForm>
  <mods:role><mods:roleTerm
  type="text">creator</mods:roleTerm></mods:role>
</mods:names>

<mods:name authority="naf" type="corporate">
  <mods:namePart>Honourable Society of Cymmrodorion (London,
  England)</mods:namePart>
  <mods:displayForm>Honourable Society of Cymmrodorion (London,
  England)</mods:displayForm>
  <mods:role><mods:roleTerm
  type="text">creator</mods:roleTerm></mods:role>
</mods:role>
```

- *typeOfResource*

a value should be chosen from the following list:

- text
- cartographic
- notated music
- sound recording-musical

- sound recording-nonmusical
- sound recording
- still image
- moving image
- three dimensional object
- software
- multimedia
- mixed material

The element can also include the attribute *manuscript (yes)* or *collection (yes)* if applicable.

Examples:

```
<mods:typeOfResource manuscript="yes">text</mods:typeOfResource>
```

```
<mods:typeOfResource>cartographic</mods:typeOfResource>
```

```
<mods:typeOfResource>still image</mods:typeOfResource>
```

```
<mods:typeOfResource>sound recording</mods:typeOfResource>
```

- **originInfo**

Records information about the creation of the digital version. For bilingual presentation in Welsh and English the information can be recorded in separate elements with an appropriate *xml:lang*. It will include the following subelements:

- **place**
usually, Aberystwyth (Wales);
- **publisher**,
usually Llyfrgell Genedlaethol Cymru, or, The National Library of Wales;
- **dateCaptured**
recorded following ISO8601:1988 (for more information see <http://hydracen.com/dx/iso8601.htm>);
- **dateIssued**
recorded following ISO8601:1988.

Example:

```
<mods:originInfo>
  <mods:place>
    <mods:placeTerm>Aberystwyth (Wales)</mods:placeTerm>
  </mods:place>
  <mods:publisher>Llyfrgell Genedlaethol Cymru = The National Library
of Wales</mods:publisher>
  <mods:dateCaptured encoding="iso8601">2002-10/2002-
12</mods:dateCaptured>
  <mods:dateIssued encoding="iso8601">2003-03-31</mods:dateIssued>
</mods:originInfo>
```

```
<mods:originInfo xml:lang="en">
  <mods:place>
    <mods:placeTerm type="text">Aberystwyth
(Wales)</mods:placeTerm>
  </mods:place>
  <mods:publisher>National Library of Wales</mods:publisher>
  <mods:dateCaptured encoding="iso8601">2002-10/2002-
12</mods:dateCaptured>
  <mods:dateIssued encoding="iso8601">2003-03-31</mods:dateIssued>
</mods:originInfo>
```

```
<mods:originInfo xml:lang="cy">
  <mods:place>
    <mods:placeTerm type="text">Aberystwyth
(Wales)</mods:placeTerm>
```

```

</mods:place>
<mods:publisher>Llyfrgell Genedlaethol Cymru</mods:publisher>
<mods:dateCaptured encoding="iso8601">2002-10/2002-
12</mods:dateCaptured>
<mods:dateIssued encoding="iso8601">2003-03-31</mods:dateIssued>
</mods:originInfo>

```

- **physicalDescription**

Will include the following subelements:

- **form**

usually with the value "electronic"; the term will be taken from the *Source Codes for Form* list maintained by the MARC standards office

<<http://www.loc.gov/marc/sourcecode/form/formsource.html>>.

- **reformattingQuality,**

usually with the value "preservation"

- **internetMediaType**

the value will be taken from the list of registered MIME (multi-purpose internet mail extensions) types. For more information see

<<http://www.mhonarc.org/~ehood/MIME/MIME.html>>.

Examples:

```
<mods:internetMediaType>image/jpeg</mods:internetMediaType>
```

```
<mods:internetMediaType>text/html</mods:internetMediaType>
```

```
<mods:internetMediaType>video/mpeg</mods:internetMediaType>
```

```
<mods:internetMediaType>text/xml</mods:internetMediaType>
```

- **extent**

records the number of computer files comprising the object or duration if the object is time-based;

- **digitalOrigin**

usually "reformatted digital".

Example:

```

<mods:physicalDescription>
  <mods:form authority="marcform">electronic</mods:form>
  <mods:reformattingQuality>access</mods:reformattingQuality>
  <mods:internetMediaType>image/tiff</mods:internetMediaType>
  <mods:internetMediaType>image/gif</mods:internetMediaType>
  <mods:internetMediaType>image/jpeg</mods:internetMediaType>
  <mods:extent>33 computer files</mods:extent>
  <mods:digitalOrigin>reformatted
  digital</mods:digitalOrigin>
</mods:physicalDescription>

```

- **identifier**

Usually the name of the METS XML document for the digital object.

Example:

```
<mods:identifier type="local">CYB00001.xml</mods:identifier>
```

- **recordinfo**

- **recordIdentifier**

The reference number of the bibliographic description on the GEAC and/or CAIRS systems

Example:

```
<mods:recordInfo>
  <mods:recordIdentifier>CAIRSSaan273531</mods:recordIdentifier>
</mods:recordInfo>
```

Captions

Any captions which are needed for elements within the digital object should be recorded as separate *dmdSec* elements with an ID referring to the relevant *div* rather than included as part of the *label* attribute in the *div*.

DC is more suited than MODS for caption-type metadata. If captions are needed for any items the title will be encoded in *dc:title* with any further text in *dc:description*.

Administrative metadata section *amdSec*

The section is divided into four subsections. For items digitised by NLW metadata is prepared for three of those subsections, that is technical metadata *techMD*, rights metadata *rightsMD*, and descriptive metadata about the analogue source object *sourceMD*. *amdSec* only has one attribute, ID, and that ID is formed from taking the ID for the document with the suffix *amd* and a number.

Examples: ID="CYBamd1"; ID="LHWamd1".

Within the administrative metadata the following standards are used:

- DC schema is used at present for *techMD* technical metadata, but when the **MIX schema** <<http://www.loc.gov/standards/mix/>> is developed it should be adopted for digital still images;
- DC is used for rights metadata *rightsMD*, but the adoption of the **METSRights schema** <<http://www.loc.gov/standards/rights/METSRights.xsd>> for rights metadata should be investigated;
- MODS schema is used for source metadata *sourceMD*.

Technical metadata *techMD*

The *techMD* element includes technical metadata for text, image, sound and video files. It has only one attribute, ID, and that is used in order to refer from *file/fileGrp* elements. The ID is formed from the ID for the document with the suffix *tech* and a number.

Examples: ID="GSFtech2"; ID="ASTtech6".

There is no limit to the number of times this element can be repeated, so it would be possible to have separate technical metadata for every file in the object.

For its digitisation programme the NLW captures the preservation metadata elements outlined in the list of 16 preservation metadata elements produced by an RLG Working Group on Preservation Issues of Metadata in its final report of May 1998 <<http://www.rlg.org/preserv/presmeta.html>>. The metadata will be encoded within the METS document using a combination of **dc** elements and supplied labels. Other technical metadata will be recorded in an unstructured form within a **dc:description** element.

Example of encoding RLG preservation metadata elements:

```
<METS:techMD ID="techMD1">
  <METS:mdWrap MDTYPE="DC">
    <METS:xmlData>
      <dc:date>Date created: 2004-06-15</dc:date>
      <dc:contributor>Producer: National Library of Wales Imaging Unit;
SCW.</dc:contributor>
      <dc:format>Capture device: Kronton 3012.</dc:format>
      <dc:format>Capture details: Nikon 24mm lens; high frequency
fluorescent studio camera lights, Videsence, model P1330, with Osram 55 watt
```

```

3200 degree color temperature.</dc:format>
  <dc:format>Change history: Image sharpened.</dc:format>
  <dc:format>Validation key: No validation key.</dc:format>
  <dc:format>Encryption: No encryption.</dc:format>
  <dc:format>Watermark: No watermark.</dc:format>
  <dc:format>Resolution: 600 dpi.</dc:format>
  <dc:format>Compression: No compression used.</dc:format>
  <dc:format>Colour: 8-bit.</dc:format>
  <dc:format>Colour management: Profile/80 (color sync profile
maker).</dc:format>
  <dc:description>Colour/Greyscale bar: Kodak Q60 color input
target.</dc:description>
  <dc:description>Control target: No control target.</dc:description>
</METS:xmlData>
</METS:mdWrap>
</METS:techMD>

```

Example of metadata which is not part of the 16 RLG metadata elements:

```

<METS:amdSec ID="CYBamd1">
  <METS:techMD ID="CYBtech1">
    <METS:mdWrap MDTYPE="DC">
      <METS:xmlData>
        <dc:description xml:lang="en">Image has been turned 90deg.
for display purposes.</dc:description>
        <dc:description xml:lang="cy">Cafodd y ddelwedd ei throï
90gradd er mwyn ei harddangos.</dc:description>
      </METS:xmlData>
    </METS:mdWrap>
  </METS:techMD>
</METS:amdSec>

```

Rights metadata *rightsMD*

The *rightsMD* element contains metadata on right holders. It has only one attribute, ID, and it is used to allow reference from/to *file/fileGrp/div* elements. The ID is formed from taking the ID for the document with the suffix *rights* and a number.

Examples: ID="LLTrights1"; ID="OSPrights6".

There is no restriction on the repetition of this element so it would be possible to record separate rights metadata for each file in the object.

The *rightsMD* element is used as an envelope for rights metadata. At present this is recorded in unstructured form using **dc:rights** element. This element will be displayed to users it is recorded in both Welsh and English with an *xml:lang* attribute using the relevant language code from ISO 639:1988 "Code for the representation of names of languages", <<http://ftp.ics.uci.edu/pub/ietf/http/related/iso639.txt>>.

Example:

```

<METS:amdSec ID="CYBamd1">
  <METS:rightsMD ID="CYBrights1">
    <METS:mdWrap MDTYPE="DC">
      <METS:xmlData>
        <dc:rights xml:lang="cy">Llyfrgell Genedlaethol Cymru sydd berchen
yr hawl ar y delweddau a rhaid anfon cais at y Llyfrgellydd,
Llyfrgell Genedlaethol Cymru, Aberystwyth, Ceredigion, SY23 3BU os
am ganiatad i'w hatgynhyrchu mewn unrhyw fodd.</dc:rights>
        <dc:rights xml:lang="en">The National Library holds the rights to
the images and prior permission to reproduce them in any medium
must be sought from the Librarian, National Library of Wales,
Aberystwyth, Ceredigion, UK, SY23 1DT.</dc:rights>
      </METS:xmlData>
    </METS:mdWrap>
  </METS:rightsMD>

```


</METS:amdSec>

Source metadata *sourceMD*

The *sourceMD* section contains metadata describing the original source of the digital object. Since a record exists for the source on CAIRS and/or GEAC record exists only basic information elements required for identification is recorded.

[It should be possible in the future to link the original's bibliographic record or EAD finding aid to the METS document using a MDref element.]

It has only one attribute, ID, as it is used to allow reference from *file/fileGrp* elements. The ID is formed from taking the ID for the document with the suffix *source* and a number.

Examples: ID="AGRsource1"; ID="JTSsource1".

There is no limit on the occurrences of this element so it would be possible to record separate source metadata for every single file.

The *sourceMD* is used as an envelope for descriptive metadata and uses the MODS schema. The following elements will be used: *titleInfo*, *name*, *originInfo*, *identifier*, *recordInfo*.

The following example includes metadata in the METS document encoded using MODS with a pointer to external data using *MDref*.

Example:

```
<METS:amdSec ID="HSBamd1">
  <METS:sourceMD ID="HSBsource1">
    <METS:mdWrap MDTYPE="OTHER" OTHERMDTYPE="mods">
      <METS:xmlData>
        <mods:mods>
          <mods:titleInfo>
            <mods:title>[Hafod sketchbook]</mods:title>
          </mods:titleInfo>
          <mods:name authority="naf">
            <mods:namePart type="family">Jones</mods:namePart>
            <mods:namePart type="given">Thomas</mods:namePart>
            <mods:namePart type="date">1742-1803</mods:namePart>
            <mods:displayForm>Thomas Jones, 1742-1803</mods:displayForm>
            <mods:role>
              <mods:roleTerm>creator</mods:roleTerm>
            </mods:role>
          </mods:name>
          <mods:originInfo>
            <mods:dateCreated>1786-1792</mods:dateCreated>
          </mods:originInfo>
          <mods:identifier type="local">NLW Drawing volume 519
            (8vo)</mods:identifier>
          <mods:recordInfo>
            <mods:recordIdentifier>CAIRSSaan201693</mods:recordIdentifier>
          </mods:recordInfo>
        </mods:mods>
      </METS:xmlData>
    </METS:mdWrap>
  </METS:sourceMD>
  <METS:sourceMD ID="HSBsource2">
    <METS:mdRef LOCTYPE="URL" MDTYPE="MARC"
      xlink:href="http:cairsweb.llgc.org.uk/363524"/>
  </METS:sourceMD>
</METS:amdSec>
```

Content file section *fileSec*

In the content file section information is recorded concerning the data files which form the digital object described in the METS document. It has one attribute, ID, and it is formed from taking the ID for the document with the suffix *file* and a number.

Example: ID="ASTfile1"; ID="BWPfile1"; ID="MSTfile1".

The *fileSec* section will include the following elements:

- **fileGrp**

The *fileGrp* element is used to group together the files which are part of the same digital object into structured groups. So files should be grouped according to their formats and their use – a group for archive, reference and thumbnail files, and perhaps separate groups for reference files with different functions. In METS documents created by the National Library the content of these files will be kept separate from the METS document itself. **FLocat** element will be used to point to the relevant file. Metadata from the *admSec* can be linked to groups of files through the IDREF. The following attributes will be used in the *fileGrp* element.

- ID,

formed from the ID for the METS document with the suffix *grp* and a number,

Example: ID="GSFgrp1"; ID="CYBgrp3"; ID="DUCgrp6".

- ADMID,

will include the ID for metadata from the *admSec* relevant to each group of files. This will include information about whether the files are intended as archive, reference, thumbnail or zoom files.

Example: ADMID="MSTtech2 MSTrights4 MSTsource1".

- USE,

which will declare the use of the group of files in the group.

Example: USE="archive"; USE="reference"; USE="thumbnail";
use="zoom"; use="transcript".

- **file**

The element *file* includes the subelement **FLocat** which points to an external content file. This element will have the following attributes.

- ID,

this is the ID use to reference a file within the *structMap* section. It is formed from taking the ID for the document and adding a running number.

Examples: ID="BWP23"; ID="BRO354"; ID="BAL34".

- MIMETYPE,

here is recorded the type of file which is pointed to using the MIME categories (for more information see <http://www.mhonarc.org/~ehood/MIME/MIME.html>):

Examples: MIMETYPE="image/tiff"; MIMETYPE="video/mpeg";
MIMETYPE="text/xml".

- SEQ,

a running number which denotes the order of the file in relation to other files in a group.

Examples: SEQ="23"; SEQ="56"; SEQ="98".

- SIZE,

the size of a file reference by **FLocat** pointer expressed in bytes.

Examples: SIZE="152325kb"; SIZE="42102514kb".

- CREATED,

the date a file reference by **FLocat** pointer was created..

Example: CREATED="2002-08-11T15:23:56".

- ADMID,
which includes an IDREF to an ID for metadata in the *adminSec* section. Generally it is not expected that NLW will keep metadata on a *file* level, but rather at the level of groups of files, *fileGrp*.

Example: ADMID="MSTtech2 MStrights4 MSTsource1".

- GROUPID,
an identifier which will establish a relationship between the files of one group and another group. Every GROUPID will be different but will follow the same pattern. The first ID will be given to the archive files and every derived file will share the same number. The ID for *fileGrp* will be formed from the ID for the group with a hyphen and a running number for the number of the file within the group – in the case of archive files this will be the same number as *SEQ*. This will not necessarily be true of other groups where an archive file in one format will have produced reference files in different formats.

Examples: GROUPID="ASTgrp1-27"; GROUPID="ASTgrp3-27";
GROUPID="ASTgrp4-27".

- **FLocat**

Within the *file* element the subelement *FLocat* points to the content file. *FLocat* is an empty element, but it has a number of attributes, of which the following are used in NLW at the present.

- LOCTYPE,
to indicate the type of location given in the *FLocat* element. At present "URL" is used, except for the digital archive files which are given the value "OTHER".

- xlink:href,
the URL is recorded here for the file, or the location of the archive file.,
Examples: xlink:href="http://cairsweb.llgc.org.uk/images/cyb/cyb00023.gif";
xlink:href="archifddigidol.llgc.org.uk/cyb00023.tif".

- xlink:type,
this will always have the value "simple".

Example:

```
<METS:fileSec>
  <METS:fileGrp ID="SWSgrp1" ADMID="SWSrights1 SWStech1 SWStech2 SWS-
    source1">
    <METS:file ID="SWS1" MIMETYPE="image/tiff" SEQ="1" GROUPID="SWSgrp1-
      1">
      <METS:FLocat LOCTYPE="OTHER" xlink:type="simple"
        xlink:href="archifddigidol.llgc.org.uk/sws00001.tif"/>
    </METS:file>
  </METS:fileGrp>
  <METS:fileGrp ID="SWSgrp2" ADMID="SWSrights1 SWStech1 SWStech3 SWS-
    source1">
    <METS:file ID="SWS56" MIMETYPE="image/jpeg" SEQ="1" GROUPID="SWSgrp2-
      1">
      <METS:FLocat LOCTYPE="URL" xlink:type="simple"
        xlink:href="http://cairsweb.llgc.org.uk/images/sws/sws00001.jpg"/>
    </METS:file>
  </METS:fileGrp>
</METS:fileSec>
```

[*FLocat* references to the archival files will always take the form of a pointer to the digital archive along with the file name. This will be referred to as an URL in the LOCTYPE, even though it is not an URL in reality. For the derived files (reference, thumbnail, zoom) they will be given 'real' URLs. At present the files are stored on the Cairswab server, but it is intended that they will be migrated to a dedicated server in due course.]

Structural map section *structMap*

The structural map section *structMap* records the hierarchical structure of the original object by using a series of nested *divs*. The following attributes are used in NLW at present for the *structMap* element.:

- ID,
identifier for the element formed from the ID for the document with the suffix *struct* and running number.

Examples: ID="EMCstruct1"; ID="YLHstruct1"; ID="CEWstruct1".

- TYPE,
attribute which declares what sort of structure is outlined in the structural map. NLW METS documents can have multiple *structMap* reflecting both the physical and the logical content of the resource. The values of the attribute will typically be either "PHYSICAL" or "LOGICAL".

Examples:

```
<METS:structMap ID="MSTstruct1" TYPE="physical">
```

```
<METS:structMap ID="CEWstruct2" TYPE="logical">
```

```
<METS:structMap ID="YLHstruct1" TYPE="physical">
```

• *div*

An item is represented structurally in the METS standard by a series of nested *div* or division elements, that is, as a hierarchy (e.g. pages in a book), and every *div* in the structural map can be linked to content files which represent that part of the whole document. The following attributes are used at present in NLW within the *div* element.

- ORDER,
a number representing the order of the *div* element in relation to the other *div* elements.

Example: ORDER="1"; ORDER="341".

- ORDERLABEL,
a text string representing the order of the *div* element in relation to the other *div* elements. This should be machine searchable.

Examples: ORDERLABEL="xii"; ORDERLABEL="45r"; ORDERLABEL="3".

- LABEL,
a string describing the *div* to a user viewing the document. The LABEL should be specific to its level in the structural map. A LABEL should not contain descriptive metadata or be a caption (this should be done using the appropriate *dmdSec* and *sourceMD* elements).

Examples: LABEL="p. 1"; LABEL="f. 34 v"; LABEL="photograph 24"; LABEL="NLW Drawing vol. 248 (8vo)".

In order to understand the difference between ORDER, ORDERLABEL and LABEL take for example a text with 10 pages numbered in roman and 10 pages numbered in arab numerals. Page iii would have the following attributes: ORDER="3"

ORDERLABEL="iii" LABEL="Page iii"; page 13 would have the following attributes: ORDER="13" ORDERLABEL="3" LABEL="Page 13".

- DMDID,
the *div* element can be linked to the metadata in the *dmdSec* by using an ID here.
- ADMID,
the *div* element can be linked to the metadata in the *amdSec* by using an ID here.
- TYPE,
an attribute denoting the type of division represented by the *div* element (e.g., "chapter", "article", "page", etc.).

Examples:

```
<METS:div ORDER="56" ORDERLABEL="46" LABEL="p. 46" DMDID="CYBdmd1"  
ADMID="CYBsource1">
```

```
<METS:div ORDER="2" ORDERLABEL="ii" LABEL="p. ii" DMDID="BALdmd4"
ADMID="BALsource1">
```

```
<METS:div ORDER="10" ORDERLABEL="5v" LABEL="f. 5 v" DMDID="ASTdmd1"
ADMID="ASTsource1">
```

- ***fptr***,
an element pointing to the content file representing the ***div*** element. The file is pointed to through a FILEID attribute which references the ID value of the content file ***file*** element pointing to the file which represents the div. There may be multiple ***fptr*** elements for each ***div*** element referencing the archive, reference and thumbnail files and other content files representing the ***div***. ***fptr*** is an empty element.

Examples:

```
<METS:fptr FILEID="CYB1"/>
<METS:fptr FILEID="CYB100"/>
<METS:fptr FILEID="CYB200"/>
```

- ***mptr***
in some circumstances the content of a ***div*** element will be represented by another METS document, and in these cases an ***mptr*** element will be used to reference the document and not a ***fptr*** element. Such a case would be a METS document for a journal run where there would be separate documents for each volume and every number within the run. This element will have the following attributes in NLW:

- ID, identifier for the element formed from the ID for the document with the suffix ***mptr*** and a running number. *Example:* ID="BRYmptr1";
- LOCTYPE, to indicate the type of location, at present we use "URL";
- XLINK:HREF, the attribute which supplies the data which allows the document to find the external resource in the form of another METS document;
- XLINK:ROLE, usually with the value "part";

Example:

```
<METS:div ORDER="3" LABEL="cyfrol 3 = volume 3">
  <METS:mptr LOCTYPE="URL"
xlink:href="http://digidol.llgc.org.uk/METS/BRY00033.xml"
xlink:role="part"/>
</METS:div>
```

This document is based entirely upon the varied documentation available at www.loc.gov/mets.

Lyn Lewis Dafis

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