APPLAUSE: archive building

www.plate-archive.org

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APPLAUSE: from plates to catalogs

Organising physical historic material:

– collect plates, envelopes, logbooks, and observer notes
– collect data about location, site, and instrumentation

Ordering into coherent collections

– chosen approach: an *archive*

• has the following basic characteristics:
  – Institution
  – Site
  – Instrument
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Digitising process:

plates, envelopes, logbooks, and observer notes

all material (= Cultural Heritage) objects get digital images as counterparts

• plates
  – previews of plates preserve the original image
  – scans of plates are taken after cleaning

• logbooks, observer notes
  – scan (or digital photo) of each page and book cover

• envelopes
  – scan (or digital photo) of each
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Metadata: transcription of information about CHO for digital processing:

- plates (from envelopes, logbook pages, observer notes) coordinates, emulsion, exposure time, observation date, ...
  \((plate_id \leftrightarrow logpage_id, preview_id, scan_id, archive_id)\)
- logbooks, observer notes, envelopes type, book metadata
  \((logbook_id \leftrightarrow logpage_id, logpage_type, archive_id)\)
  \((logpage_id \leftrightarrow logpage_type, plate_id, archive_id, (logbook_id))\)
- content of logpage pertaining to plate transcribed into table
- filenames for each digitised entity (CHO)
- FITS header extension & database tables design
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FITS header:

Phase I: include all relevant metadata for CHO

Phase II: include all relevant metadata from processing and extraction
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FITS header:

Phase I:

FITS Header for Photoplates

1 Introduction
2 Proposed FITS header format
2.1 Group 1 – mandatory and array-description keywords
2.2 Group 2 – original data of the observation
2.3 Group 3 – information about the photographic plate
2.4 Group 4 – computed data of the observation
2.5 Group 5 – scan details
2.6 Group 6 – data files
2.7 Group 7 – World Coordinate System (WCS)
2.8 Group 8 – modification history and acknowledgements
3. Sample Header
3.1 Complete sample header (new)
3.2 Complete sample header (2011)

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Phase II:
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Environment, hardware, setup

DR3:

c. 100TB for scans, previews, other material and processing

c. 100TB for processed material

(FITS files, image files, database)

backup, tape archive space ~80 TB

compute facilities: 32 cores, 2GB RAM/core on 2 workstations

directory structures setup (and maintenance)

sync processes with other source archives (Bamberg, Hamburg,...)

database for ingest, database for publication
Database tables:

- **archive**: Collections of photographic plates and logbooks from Hamburg, Bamberg, Potsdam, Tautenburg and Tartu
- **plate**: Plate metadata: physical size, emulsion, telescope, instruments, weather, notes
- **plate_logpage**: Relation between plates and logpages
- **logbook**: Logbooks and observer notebooks
- **logpage**: Logbook pages and envelopes as images
- **preview**: Preview images of plates in JPEG or PNG format
- **scan**: High-resolution scans in FITS format
- **exposure**: Exposure metadata: observation times, sky coordinates, target names
- **exposure_sub**: Individual sub-exposures of interrupted exposures
- **process**: Main data on processes: source extraction, astrometric and photometric calibration
- **source**: Extracted sources
- **source_calib**: Sources with calibrated coordinates and magnitudes
- **lightcurve**: Calibrated magnitudes from single-exp. plates, combined with observation times
- **solution**: Astrometric solutions for whole scans
- **astrom_subfield**: Astrometric calibration in sub-fields
- **phot_subfield**: Photometric calibration in sub-fields
- **phot_calib**: Summary of photometric calibration
- **phot_cterm**: Estimation of plate color term
- **phot_color**: Resulting plate color term
APPLAUSE: publication services

Daiquiri framework:

- publication of scientific tabled data and other data formats
- Generic SQL query interface
- VO compliant API (TAP, ADQL) (scriptable)
- Basic plotting facility
- Specialised query forms (cone search for plates, or sources)
- Europeana compliant viewer (and OAI-PMH API)
- User table space
- Project description and documentation of published material
- DOI for each published CHO
APPLAUSE: Summary

• Collect ample metadata along with your data
• Keep good documentation records
• Keep also auxiliary data (temperatures, general weather info, etc.)
• Make provisions for publication of your data
• Start to build with tools available, not from scratch
• Share your code, your methods, your data, your tools
• Document your processing + pipelining