A Novel Workflow for Large Scale Thesis Digitization

TCDL 2016

A Novel Workflow for Large Scale Thesis Digitization

Texas State University
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Why Digitize?

- Faculty interest
- Space issues

Library infrastructure renovation- Archives losing ~500 linear feet

ETDs required 201 linear feet of shelf space

3 copies -preservation microfilm copy, Archives hard copy, and a hard copy in the stacks.

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How Many?

- Starting with theses that have a silver halide microfilm preservation copy and second hard copy to debind
- Approximately 5,000 theses between 1930 - 2010

Since 2005, some theses have been digitized and uploaded into our local Institutional Repository.

More recently, the Graduate College is requiring that all thesis and dissertation be submitted electronically.

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How to make available?

- The copyright and permissions issue is unresolved.
- No public access at this time.
- Plan for the future and create digitization workflows that will facilitate batch uploading into the Institutional Repository later.

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Novel Process?

1. Prepare physical and digital space
2. Pre-Process physical items
3. Digital Capture
4. Post-Process physical and digital items

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Prepare physical and digital space

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Algorithmic Project Design

- Discrete micro-processes apply to physical as well as digital
  - Check
  - Move
  - Check
  - Store
  - Check

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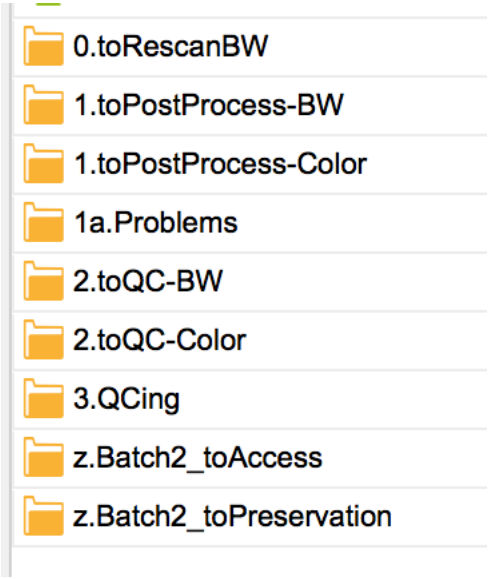
Organizing Space

- Physical and digital space should aid, not hinder the process



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Pre-Process physical items

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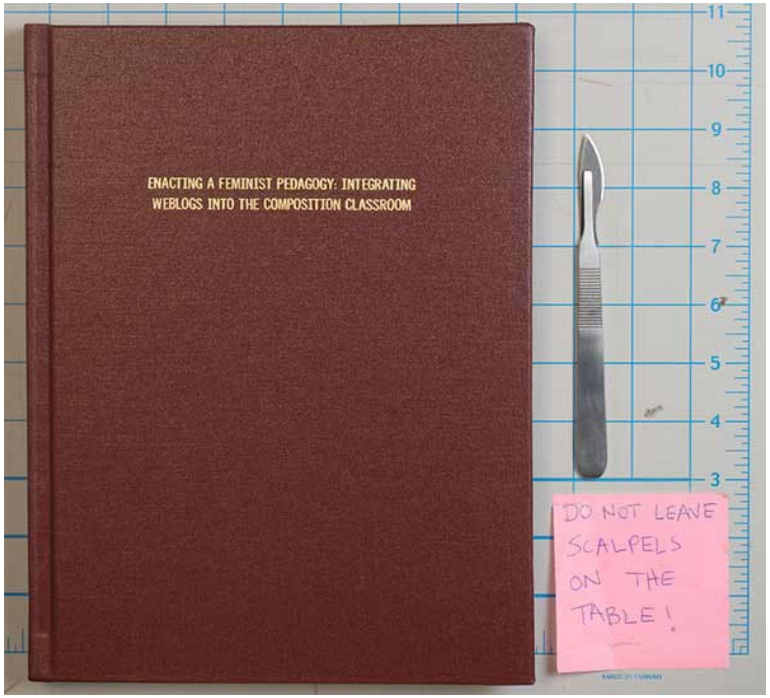
Sacrificing Theses

- **Binding, printing, paper quality changes with each thesis**
  - 8.5 x 11 in. in library buckram
  - Large margins
  - Printed on one side; simplex
- Scalpels > Exacto knives
  - Thank you to Jessica Phillips, Head of Preservation at UNT Libraries
- **Binding, printing, paper quality changes with each thesis**



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Chop! Triumph 4315 Stack Cutter

- Inspect pages before and after chopping
  - **Binding, printing, paper quality changes with each thesis**

- Cutting theses to 8.11 in. wide because we had to pick something
  - **Binding, printing, paper quality changes with each thesis**

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Digital Capture

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Scanning

- Fujitsu fi-6670
  - Straight-through feed path
  - Software allows for scanning once and outputting multiple files
  - **Binding, printing, paper quality changes with each thesis**
- MarcEdit Z39.50 client to download Catalog record
- Name scan folder and MARC record the same:
  - lastName_firstName_year.file Format

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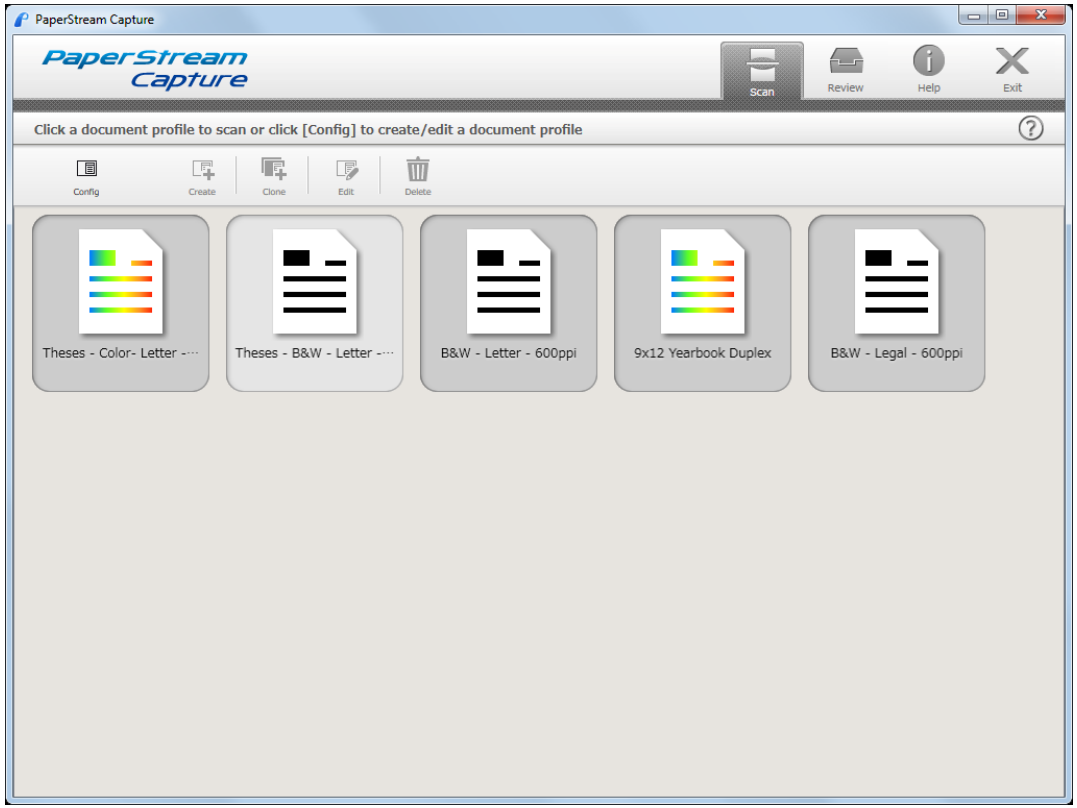
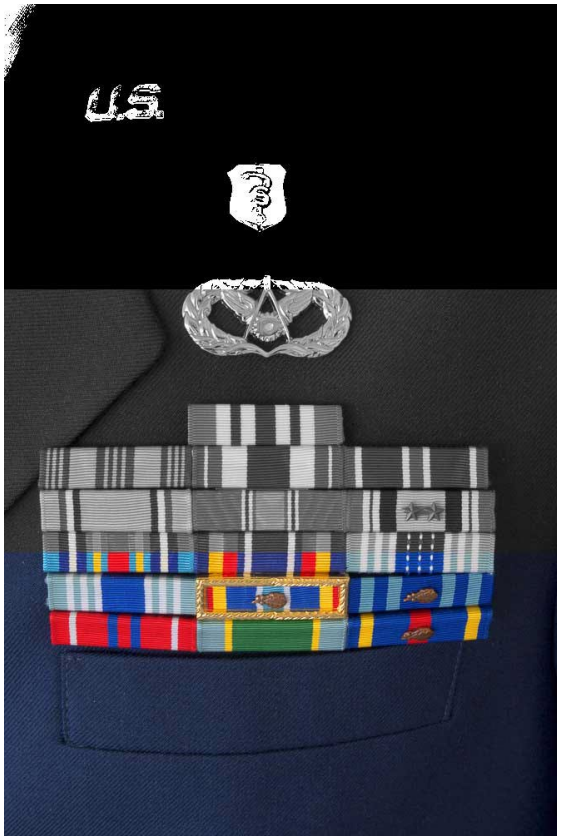
B&W vs Color

- B&W, or bitonal, is *Only Black and White*
- *Color* is a catch-all term for *Not Bitonal*



1 bit vs 8 bit vs 24 bit
or
B&W vs Gray vs Color

- Black and White (Bitonal) – 1 bit
  - 600 ppi
  - ~4 MB uncompressed TIFF
  - <1 MB group4 TIFF ***SPACE SAVINGS***
- Grayscale – 8 bit
  - 400 ppi
  - ~15mb uncompressed TIFF
- Color – 24 bit (3 x 8 bit)
  - 400 ppi
  - ~45 MB TIFF uncompressed



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Post-Process physical and digital items

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It’s about the end product

- It’s about the end product
  - It’s about the end product
    - It’s about the end product
      - It’s about the end product
        - It’s about the end product
          - It’s about the end product
            - It’s about the end product
              - It’s about the end product
                - Details matter

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Whatever Works (within reason)

- BASH Shell scripts that will automatically copy, convert, move, name, rename, deskew, resize folders and files
- Different scripts to process the B&W and Color theses
- Color pages have a different process than Bitonal
- Adobe Photoshop and/or ImageMagick to process pages as necessary
- ABBYY Finereader Hot Folders to batch create and OCR PDFs from Preservation TIFFs

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```
#!/bin/bash

# ProcessBWTheses.sh
# jeremy.moore@txstate.edu
# 01-27-2016

for dir in *; do
        cd "$dir"
        echo "$dir"
        mkdir -pv "$dir"
        x=1
        for img in *.tif; do
                mv "$img" `printf "%s/%s_%04d.tif" \
                        "$dir" "$dir" $x`
                x=$(($x+1))
        done
        cp `printf "%s.mrc" "$dir"` "$dir"
        cd "$dir"
        echo "Processing images"
        find . -name "*.tif" -print0 | xargs -0 -I {} -n 1 -P 4 \
                mogrify -deskew 40 -gravity east \
                -extent 5100x6600 -compress group4 "{}" 2>/dev/null
        echo "Images processed"
        cd ../..
done
```

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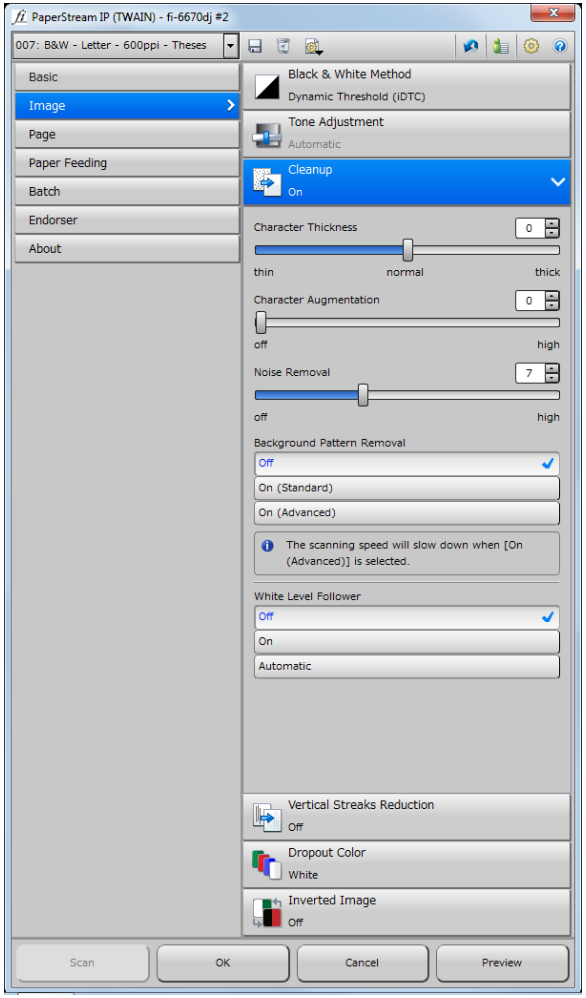
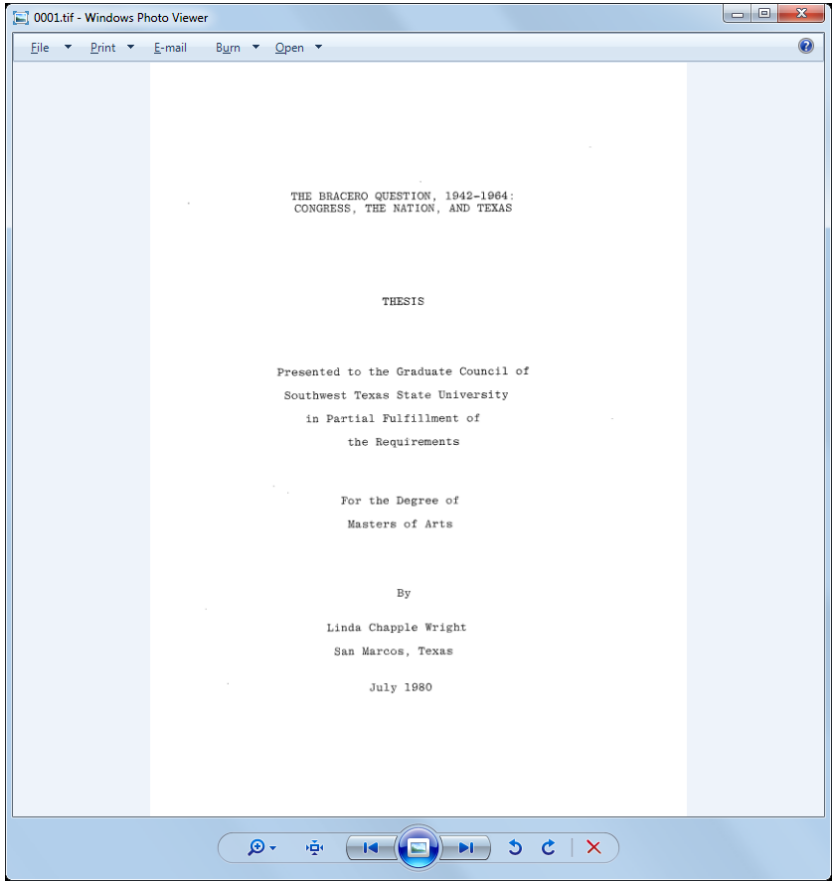
Software Agnosticism





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Cast of Characters

- Joan Heath, Assistant Vice President & University Librarian
- Kristine Toma, University Archivist
- Megan North, Assistant Archivist, University Archives
- Ray Uzwyshyn, Director, Collections and Digital Services
- Jeanne Hazzard, Digital Collections Librarian
- Stephanie Towery, Copyright Officer
- Aaron Sinkar, Assistant Director, Administrative Services
- Misty Hopper, Head, Cataloging and Metadata Services
- Selene Hinojosa, Collection Development Librarian
- Paivi Rentz, Library System Coordinator
- Amy Eoff, Database Management Services Assistant
- Cliff Wood, Library Facilities Assistant
- Joshua Van Meter, Library Facilities Assistant
- Digital Imaging Technicians
  - Oscar Martinez, Project Lead
  - Luke Sebree
  - Ashton Woodward
  - Vincente Rangel
  - Wenlan Cai (now graduate research assistant with University Archives)

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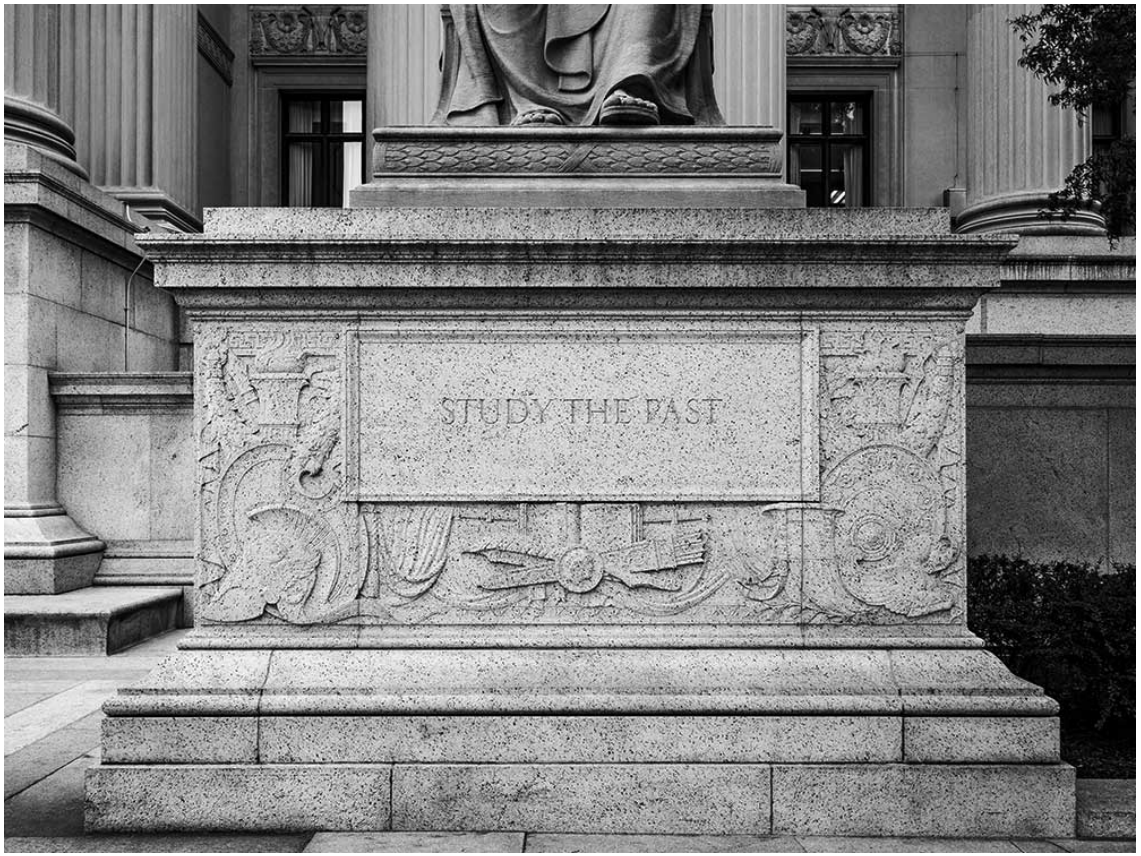
Project Management

- Fail quickly and often to find strong/weak links in the production chain



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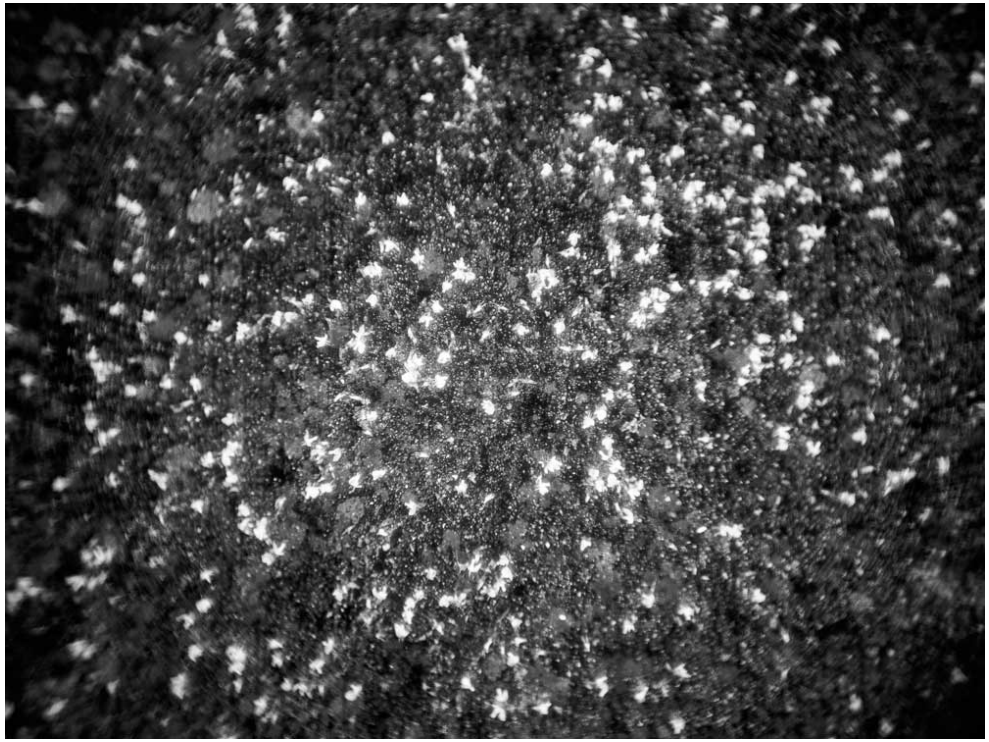
Training vs. Teaching

- Everything is the same until it isn't and everything is unique, except it's not.
  - **Binding, printing, paper quality changes with each thesis**



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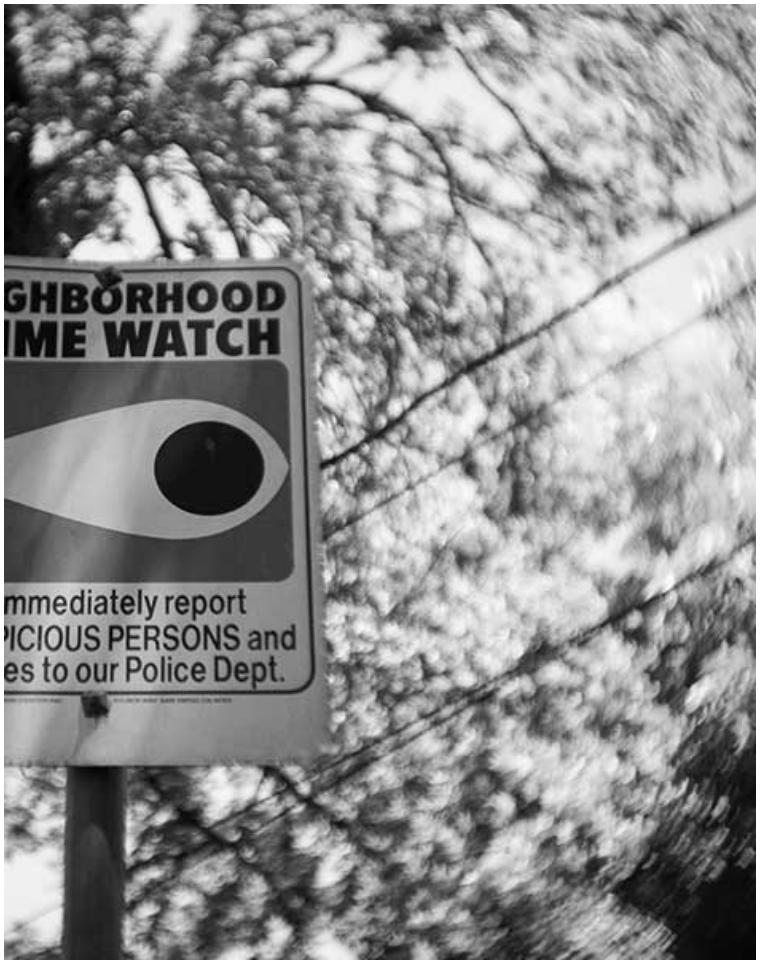
Fail fast = Skip problems

- No Ctrl+Z for most of the process

Leverage Strengths

- Human
  - Kinesthetic
  - Aesthetic
  - Intuitive
  - Creative
  - Pattern recognition
  - Reliable (with oversight)
- Computer
  - Works weekends/holidays
  - Repetitive
  - Pattern recognition
  - Reliable (with oversight)



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Provide Training Wheels

- Start with looking and seeing: Quality Control
- PHP Web Application for sorting Color pages from B&W

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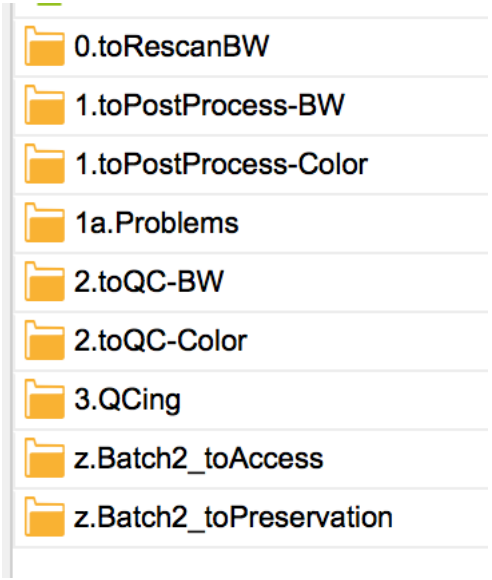
Take them away!

- **Binding, printing, paper quality changes with each thesis**
- Personal paths to the end product, not a checklist of steps
- 'Problem' volumes are now opportunities for creativity and growth



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Quality Control for Documents

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Questions?

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