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Imaging: The UK Way

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imaging

The UK Way

Kopana Terry
Senior Image Management Specialist
Digital Programs, University of Kentucky Libraries
Imaging 101

Fundamental rules:

1. SCAN ONCE - HANDLE ONCE
2. SCAN AT TRUE DPI ONLY
3. SCAN AT THE HIGHEST DPI YOU HAVE STORAGE TO HANDLE
4. SCAN WITH ANTICIPATION FOR THE FUTURE
5. SCAN WITH A GREAT DEGREE OF ATTENTION
Imaging 101

There are three options with image capture:

1. Bi-tonal
2. Grayscale
3. Color

Capture three ways:

1. Microfilm scanner
2. Flatbed scanner
3. Digital Camera
Imaging 101

• Preservation microfilm is black and white
  – (rare to find continuous tone or color microfilm)
• It’s high contrast: causes loss of detail in illustrative matter
  – Bi-tonal capture basically means pixels are either black or white: causes further loss of detail
  – Grayscale capture is better able to mimic what’s on the microfilm: increase in detail
Imaging 101

• Quality Control (henceforth known as QC)
  – For all images:
    • Crop
    • Deskew
  – For bi-tonal images (1-8 bit)
    • Remove spots caused by foxing or marginalia
  – For color images (16, 24, or 32 bit)
    • Adjust brightness, contrast & color balance using levels or curves only
  – For grayscale (8-16 bit) images converted to bi-tonal
    • Maintain threshold to allow high detail values
    • Remove spots caused by foxing or marginalia
Imaging 101

OCR/OWR can’t be generated from grayscale images

Regardless of format and aesthetic value, with textural image capture you’re always scanning to achieve the highest possible OCR/OWR accuracy.
Grayscale image converted to bi-tonal for OCR/OWR

meta | morphosis

[the university of kentucky film-to-digital institute]
• easy to scan
• easy to clean
• easy to move
(small file sizes)
Books
Microfilm grayscale scans

- harder to scan
- harder to QC
- harder to move
  (bigger file size)
Books in Color
Via flatbed or camera

• Way harder to scan
  – (not from film)
• Way harder to QC
  – (color correction)
• Poses OCR/OWR challenges
  – (must be transcribed!)
If you want high production... lower your imaging standards.
This calculation accounts for $3,350,896, which do not fall within the ordinary current expenses of the government. Deduct then from this $3,688,700 the sum of

and we have the sum of $1,284,053.56 in favor of Mr. Adams's Administration during the three years, instead of seven or eight millions against it.

The present Administration has charged with great extravagance, on the expenses of our foreign intercourse. We cannot present a more full and satisfactory view of this subject, than that given by Mr. Bartlett, a distinguished member from New Hampshire, in a speech delivered in Congress, during last winter, upon which a careful examination, we believe to be correct. In answer to Mr. Rice of Virginia, he said,

"The fallacy or error of the statement (of Mr. R.) is in supposing the expenses incurred and provided for, before he came to the office. The appropriation for 1825, was made in February, and with which Mr. Adams had no more to do, than his successor, whereas he may, now has with the appropriation of this year. The amount of appropriations for foreign intercourse then stands thus:

<table>
<thead>
<tr>
<th>Under Mr. Monroe</th>
<th>Under Mr. Adams</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 1823: $92,000</td>
<td>In 1825: $357,000</td>
</tr>
<tr>
<td>In 1824: $104,000</td>
<td>In 1826: $20,000</td>
</tr>
<tr>
<td>In 1825: $213,000</td>
<td>In 1827: $40,000 (Panama)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$450,000 |

"Leaving the expense of the three last years, $37,000 less than the three last appropriations of the preceding administration. But let us look still further back, and first, to Washington's administration. The foreign intercourse appropriations were then as follows:

| In 1791 | $1,733 33 |
| 1792 | $28,766 67 |
| 1793 | $39,000 09 |
| 1794 | $46,403 01 |
| 1795 | $56,805 12 |
| 1796 | $109,730 64 |
| 1797 | $133,827 27 |
| 1798 | $200,734 27 |

In Mr. Jefferson's time, these expenses, exclusive of the expense of the Barbary intercourse, were:

| In 1801 | $139,351 73 |
| 1802 | $416,352 62 |
| 1803 | $1,691,966 34 |
| 1804 | $1,129,391 92 |
| 1805 | $1,233,438 89 |
| 1806 | $2,665,710 62 |
| 1807 | $3,002,062 09 |
| 1808 | $4,333,245 61 |
| 1809 | $4,344,628 39 |
| 1810 | $7,791,435 89 |

These tables are authentic, and show how very near the fact may be the nature of the expenditures, respecting the increasing extravagance and prodigality of the government.

Again: That item of the expense of foreign intercourse, embraced under the title of contingent expenses, has been advertised, as a source of great abuse. Here, for instance, let us resort to official documents. There was expended of this fund:

<table>
<thead>
<tr>
<th>Under Mr. Monroe</th>
<th>Under Mr. Adams</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 1823: $35,854 37</td>
<td>In 1823: $12,627 08</td>
</tr>
<tr>
<td>1824: $28,145 78</td>
<td>1824: $20,940 63</td>
</tr>
<tr>
<td>1825: $27,574 93</td>
<td>1825: (no appropriation)</td>
</tr>
<tr>
<td>1826: $26,000 06</td>
<td>1826: $34,675 70</td>
</tr>
</tbody>
</table>

This, which is designated as the contingent fund, till after the close of Jefferson's term, was not distinguished, but embraced in a general sum for foreign intercourse.
This calculation accounts for $3,003,003, which do not fall within the ordinary current expenses of the government. Deduct them from the

\[
\text{\$2,767,774.42}
\]

and we have the sum of

\[
\text{\$1,264,033.58}
\]

in favor of Mr. Adams's Administration during the three years, instead of seven or eight million against it.

The present Administration has been charged with great extravagance, as to the expenses of our foreign intercourse. We cannot present a more full and satisfactory view of this subject than that given by Mr. Barrett, a distinguished member from New Hampshire, in a speech delivered in Congress, during last winter, which, upon a careful examination, we believe to be correct. In answer to Mr. Eves of Virginia, he said,

"The falsity or error of the statement (of Mr. R.) is in impugning to Mr. Adams the year of the expenses incurred and provided for, before he came to the office. The appropriation for 1825, was made in February, and with which Mr. Adams had no more to do, than his successor, whoever he may be, now has with the appropriation of this year. The amount of appropriations for foreign intercourse then stands thus:

\[
\begin{array}{lcc}
\text{UNDER MR. MONROE} & \text{UNDER MR. ADAMS} \\
\text{1825} & \text{\$22,000} & \text{\$187,000} \\
\text{1826} & \text{\$195,000} & \text{\$92,000} \\
\text{1827} & \text{\$213,000} & \text{\$85,000} \\
\text{\$434,000} & \text{\$457,000} & \\
\end{array}
\]

\[\text{\$1,264,033.58}\]

Leaving the expense of the three last years, $27,000 less than the three last appropriations of the preceding administration. But let us look still further back it is only first to Washington's administration. The foreign intercourse appropriations were then as follows:

\[
\begin{array}{lcccc}
\text{1819} & \text{1820} & \text{1821} & \text{1822} & \text{1823} \\
\text{\$127,333} & \text{\$78,768} & \text{\$92,508} & \text{\$140,460} & \text{\$124,710} \\
\end{array}
\]

In the time of Mr. John Adams:

\[
\begin{array}{lcccc}
\text{1796} & \text{1797} & \text{1798} & \text{1799} & \text{1800} \\
\text{\$102,729} & \text{\$105,645} & \text{\$107,440} & \text{\$113,327} & \text{\$119,734} \\
\end{array}
\]

\[\text{\$769,642.59}\]

Mr. Jefferson's time these expenses, exclusive of the expense of the Barbary intercourse, were:

\[
\begin{array}{lcccc}
\text{1901} & \text{1902} & \text{1903} & \text{1904} & \text{1905} \\
\text{\$129,591} & \text{\$142,292} & \text{\$144,445} & \text{\$141,445} & \text{\$265,766} \\
\end{array}
\]

These tables are authentic, and show how very far from the fact may be the misconceptions and assertions, respecting the increasing extravagance and profligacy of the government.

Again: That item of the expense of foreign intercourse, embraced under the title of contingent expenses, has been adapted to, as a source of gribance. Here, as another set of receipts for official documents. There was expended of this fund:

\[
\begin{array}{lcc}
\text{UNDER MR. MONROE} & \text{UNDER MR. ADAMS} \\
\text{1825} & \text{\$50,500} & \text{\$20,750} \\
\text{1826} & \text{\$51,545} & \text{\$22,000} \\
\text{\$102,045} & \text{\$42,750} \\
\end{array}
\]

\[\text{\$76,205.65}\]

\[\text{\$34,076.70}\]

This, which is designated as the contingent fund, till after the close of Jefferson's term, was not distinguished, but embraced in a general sum for foreign intercourse.
The calculation accounts for $3,958,008, which do not fall within its ordinary current expenses of the government. Deduct then from this sum:

$3,958,008

and we have the sum of

$1,080,000

in favor of Mr. Adams's administration during the three years, instead of seven or eight millions against it.

The present administration has been charged with great extravagance, as to the expenses of our foreign intercourse. "We cannot present a more full and satisfactory view of this subject, than that given by Mr. C. Franks, a distinguished member from New Hampshire, in a speech delivered in Congress, during last winter, which upon a careful examination, we believe to be correct. In answer to Mr. Keres of Virginia, he said,

"The fallacy or error of the statement (of Mr. R.) is in implying to Mr. Adams one year of the expenses incurred and provided for, before he came to the office. The appropriation for 1825, was made in February, and with which Mr. Adams had no more to do, than his successor, whoever he may be, now has with the appropriation of this year. The amount of appropriations for foreign intercourse then stands thus:"

<table>
<thead>
<tr>
<th>Year</th>
<th>Under Mr. Monroe</th>
<th>Under Mr. Adams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1823</td>
<td>$89,000</td>
<td>$187,000</td>
</tr>
<tr>
<td>1824</td>
<td>$189,000</td>
<td>$250,000</td>
</tr>
<tr>
<td>1825</td>
<td>$215,000</td>
<td>$40,000</td>
</tr>
<tr>
<td>[ Panama ]</td>
<td>$104,000</td>
<td></td>
</tr>
</tbody>
</table>

"Leaving the expense of the last three years, $327,000 less than the three last appropriations of the preceding administration. But let us look still further back: and first, to Washington's administration. The foreign intercourse appropriations were then as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Under Mr. Monroe</th>
<th>Under Mr. Adams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801</td>
<td>$17,353</td>
<td>$457,000</td>
</tr>
<tr>
<td>1802</td>
<td>$20,756</td>
<td>$77,000</td>
</tr>
<tr>
<td>1803</td>
<td>$29,500</td>
<td>$46,000</td>
</tr>
<tr>
<td>1804</td>
<td>$246,000</td>
<td>$16,000</td>
</tr>
<tr>
<td>1805</td>
<td>$312,000</td>
<td>$16,000</td>
</tr>
<tr>
<td>1806</td>
<td>$189,700</td>
<td>$16,000</td>
</tr>
<tr>
<td>1807</td>
<td>$1,235,637</td>
<td>$750,724</td>
</tr>
</tbody>
</table>

"In Mr. Jefferson's time these expenses, exclusive of the expense of the Barbary intercourse, were:

<table>
<thead>
<tr>
<th>Year</th>
<th>Under Mr. Monroe</th>
<th>Under Mr. Adams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1808</td>
<td>$120,000</td>
<td>$2,660,769</td>
</tr>
<tr>
<td>1809</td>
<td>$120,000</td>
<td>$2,660,769</td>
</tr>
<tr>
<td>1810</td>
<td>$416,525</td>
<td>$1,610,222</td>
</tr>
<tr>
<td>1811</td>
<td>$1,091,598</td>
<td>$1,610,222</td>
</tr>
<tr>
<td>1812</td>
<td>$1,159,591</td>
<td>$1,610,222</td>
</tr>
<tr>
<td>1813</td>
<td>$1,215,591</td>
<td>$1,610,222</td>
</tr>
</tbody>
</table>

These tables are authentic, and show how very far from the fact may be the conjectures and assertions, respecting the increasing extravagance and profligacy of the government.

Again: That item of the expense of foreign intercourse, embraced under the title of "contingent expenses, has been advertised to, as a source of great abuse. Herein, for answer, let us resort to official documents. There was expended this fund:

<table>
<thead>
<tr>
<th>Year</th>
<th>Under Mr. Monroe</th>
<th>Under Mr. Adams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1809</td>
<td>$80,000</td>
<td>$2,500,000</td>
</tr>
<tr>
<td>1810</td>
<td>$80,000</td>
<td>$2,500,000</td>
</tr>
<tr>
<td>1811</td>
<td>$80,000</td>
<td>$2,500,000</td>
</tr>
</tbody>
</table>

This, which is designated as the contingent fund, till after the close of Jefferson's term, was not distinguished, but embraced in a general sum for foreign intercourse.
Post QC (from microfilm)

This calculation accounts for $3,253,206, which do not fall within the ordinary current expenses of the government. Deduct then from this $3,686,606 the sum of

\[ \frac{6,574,492}{4} \]

and we have the sum of

\[ 1,284,633 \]

in favor of Mr. Adams's Administration during the three years, instead of seven or eight millions against it.

The present Administration has been charged with great extravagance, as to the expenses of our foreign intercourse. We cannot present a more full and satisfactory view of this subject, than that given by Mr. Bartlet, a distinguished member from New Hampshire, in a speech delivered in Congress, during the winter, which upon a careful examination, we believe to be correct. In answer to Mr. Rice of Virginia, he said,

"The fallacy or error of the statement (of Mr. R.) is in imputing to Mr. Adams one year of the expenses incurred and provided for, before he came to the office. The appropriation for 1825, was made in February, and with which Mr. Adams had no more to do, than his successor, whoever he may be, now has with the appropriation of this year. The amount of appropriations for foreign intercourse then stands thus:

**Under Mr. Monroe.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1824</td>
<td>$20,000</td>
</tr>
<tr>
<td>1825</td>
<td>$75,000</td>
</tr>
<tr>
<td>1826</td>
<td>$40,000</td>
</tr>
</tbody>
</table>

**Under Mr. Adams.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1827</td>
<td>$85,000</td>
</tr>
<tr>
<td>1828</td>
<td>$25,000</td>
</tr>
<tr>
<td>1829</td>
<td>$40,000</td>
</tr>
<tr>
<td>1830</td>
<td>$49,000</td>
</tr>
</tbody>
</table>

Leaving the expense of the three last years, $27,000 less than the three last appropriations of the preceding administration. But let us hold still further back; and first, to Washington's administration. The foreign intercourse appropriations were then as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1799</td>
<td>$1,725</td>
</tr>
<tr>
<td>1800</td>
<td>$76,756</td>
</tr>
<tr>
<td>1801</td>
<td>$99,500</td>
</tr>
<tr>
<td>1802</td>
<td>$166,403</td>
</tr>
<tr>
<td>1803</td>
<td>$128,435</td>
</tr>
<tr>
<td>1804</td>
<td>$169,739</td>
</tr>
</tbody>
</table>

**In Mr. Jefferson's time these expenses, exclusive of the expense of the Barbary intercourse, were:**

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801</td>
<td>$139,351</td>
</tr>
<tr>
<td>1802</td>
<td>$410,105</td>
</tr>
<tr>
<td>1803</td>
<td>$1,091,988</td>
</tr>
<tr>
<td>1804</td>
<td>$1,199,091</td>
</tr>
</tbody>
</table>

**Under Mr. Monroe.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1827</td>
<td>$30,582</td>
</tr>
<tr>
<td>1828</td>
<td>$228,448</td>
</tr>
<tr>
<td>1829</td>
<td>$31,472</td>
</tr>
</tbody>
</table>

These tables are authentic, and show how very far from the fact may be the conjectures and assertions, respecting the increasing extravagance and profligacy of the government.

Again: That item of the expense of foreign intercourse, embraced under the title of contingent expenses, has been adverted to, as a source of great abuse. Here, for answer, let us resort to official documents. There was expended of this fund:

**Under Mr. Monroe.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1827</td>
<td>$26,825</td>
</tr>
<tr>
<td>1828</td>
<td>$44,705</td>
</tr>
</tbody>
</table>

This item, when designated as the contingent fund, till after the close of Jefferson's term, was not distinguished, but embraced in a general sum for foreign intercourse.
This calculation permits for $150,000, which is not included in the ordinary current expenses of the government. Deduct item from this $4,675,000 42

and we have the sum of $1,254,000 43
in favor of Mr. Adams's administration during the three years, instead of seven or eight millions against it.

The present administration has been charged with great extravagance, to the expense of our foreign intercourse. We cannot present a more full and satisfactory view of this subject than that given by Mr. Barbour, a distinguished member of New Hampshire, in a speech delivered in Congress, during last winter, which upon a careful examination, we believe to be correct. In answer to Mr. Eves of Virginia, he said,

"The history of the state of Mississippi (Mr. B.) is interesting to Mr. Adams. His administration has been charged with great extravagance, to the expense of our foreign intercourse. We cannot present a more full and satisfactory view of this subject than that given by Mr. Barbour, a distinguished member of New Hampshire, in a speech delivered in Congress, during last winter, which upon a careful examination, we believe to be correct. In answer to Mr. Eves of Virginia, he said.

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“Blank” page targets are used in place of the blank page in the book.
Records

Same set-up as the books except...

- They’re usually filmed on 16mm
- Scan challenges may be carbon copies and dot matrix pages
Photographs & Maps

• *Remember:* Scan once – handle once

• Use minimal QC

• dpi/ppi based on NARA guidelines
Create a new “standard”

Adopt “Tech Spec” for user benefit

- In the case of the Board of Trustees, the minutes were read to identify missing reports or pages then compiled into an easy to read form accessible online
- Brief explanation for equipment used and QC methodology
And then there are *newspapers*!

Once you’ve got a scanner that can capture at a true dpi (*not* interpolated), it’s all a matter of what you want…

- **Do you want “boutique” images?**
  - i.e. bi-tonal/grayscale hybrids

- **Do you want fast production?**
  - resulting in inconsistent quality (at best)

- **Do you want consistent quality?**
  - resulting in slower production (though not always)
Newspapers

Good looking image

• Good contrast
• Even text & lighting
• Excellent rendering of film base (does not detract from image)
Newspapers

Not so good looking image

No contrast (which results in...)
  Text legibility strain
  Loss of detail
  Text legibility strain
  Obvious film base
  Text legibility strain

Did I mention lack of aesthetic quality?
NEWSPAPERS

meta | morphosis
[the university of kentucky film-to-digital institute]
Sunday in April 1899. I baptized six men that Sunday in June and
search the same Sunday.

We have now one

I baptize twelve baptized men
Newspaper challenges

Notice the light fall off at edge!

Fragmentation

The Cosine Law!!

*meta | morphosis*

[the university of kentucky film-to-digital institute]
Newspaper challenges

Copy bed color affects scanner detection
Newspaper challenges

Orientation raises three issues:

- detection
- splitting
- crop/deskew
Newspaper challenges

- Newton rings (caused by rehydration of the film)
- Splice tape

Notable artifacts
  - Dust
  - Film stock ID
Scratches… if they’re bad enough, they can impact the aesthetics
Newspaper challenges

Remember this?

Standards have come a long way!
The most important thing you can have