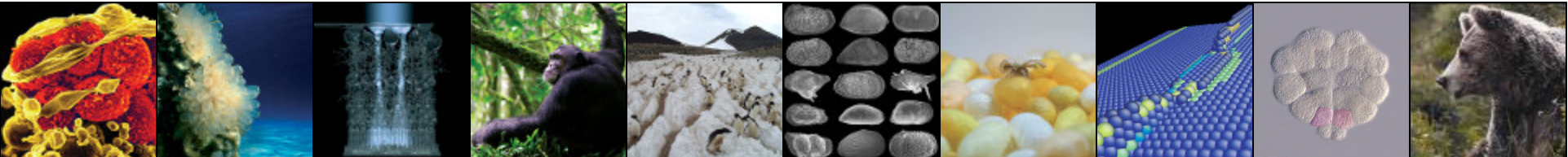


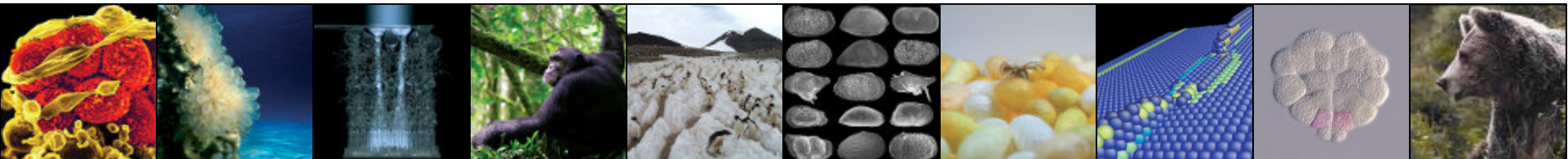
Digital Image Manipulation Screening: The PNAS Experience

Dana M. Compton



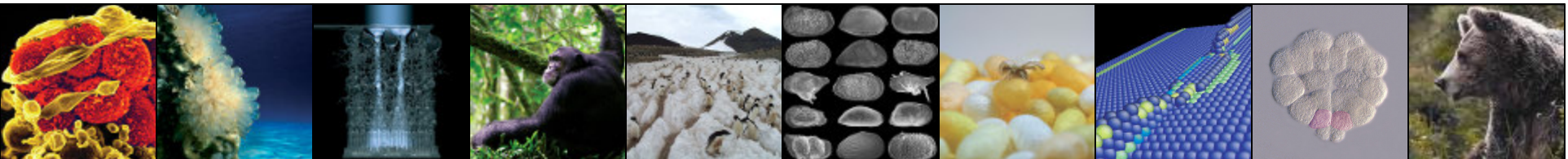
Establishing our Program

- Volume
- Planning
- Workflow
- Communication
- Reporting
- Experiences to-date
- Challenges



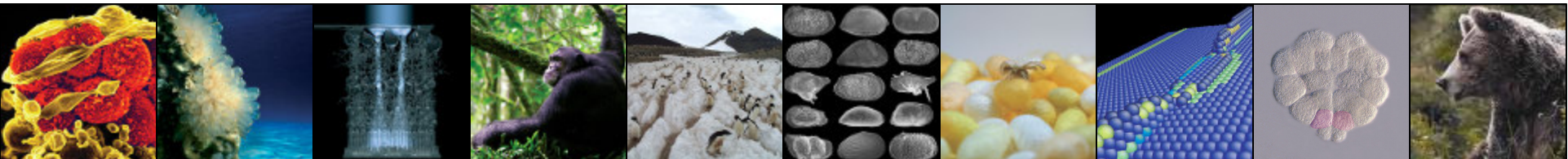
Annual Volume (based on 2007)

- 21,022 editorial pages
- 3,513 research articles
- ~25,000 images (including Supporting Information)
- Experiment to screen 20% of figures



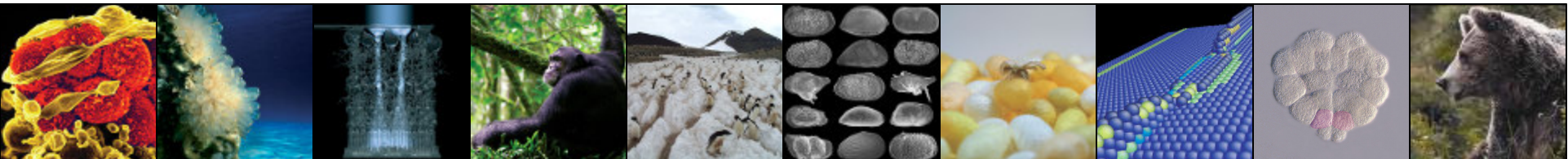
Planning

- In-house vs. outsource?
- Scalable
- Cost-effective
- Manual vs. programmatic



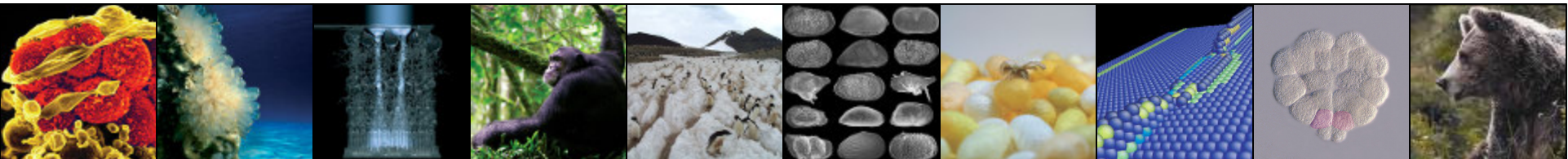
Workflow

- Which 20% to screen?
- When will images be screened?
- How long does screening take?
- Who contacts the author?



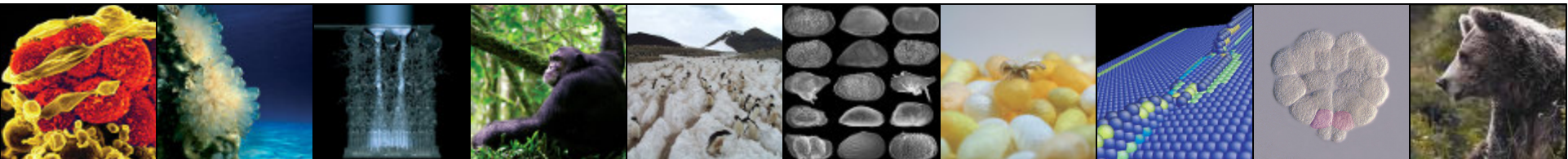
Communication

- Information for Authors (<http://www.pnas.org/misc/iforc.shtml>)
 - Comprehensive
 - Straightforward
- Letters to authors
 - Non-accusatory
 - Clear instructions



Reporting

- Results of screening for individual figures
 - Manuscript and figure information
 - Summary of findings
 - Graphical representation
- Monthly reports
 - Recordkeeping and project analysis



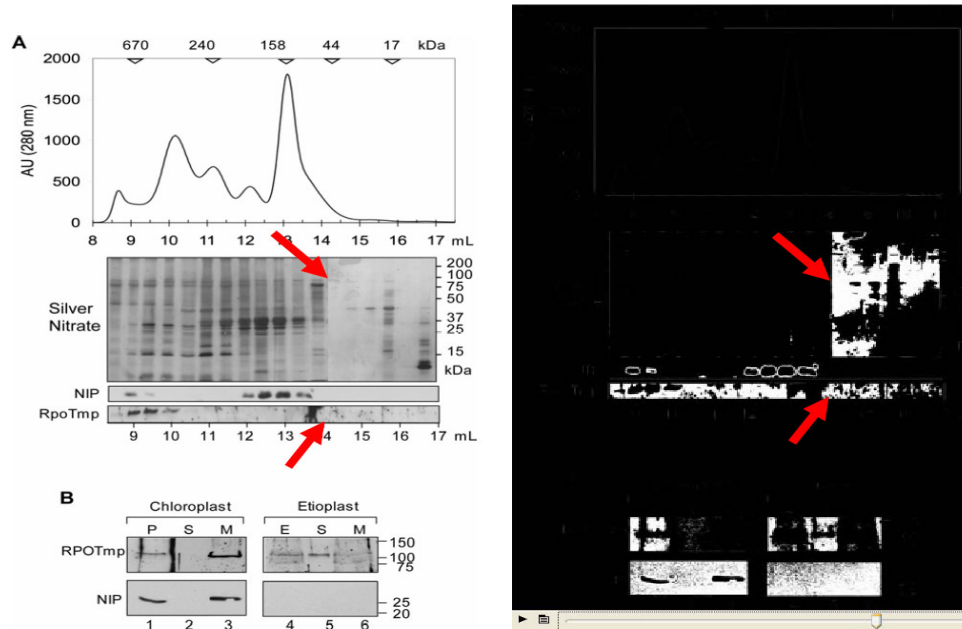
 Digital Art Analysis	CUSTOMER	PNAS	REPORT NO.	41508-1
	DATE RECEIVED	14-April-08	DATE ANALYZED	15-April-08
	IMAGE EDITOR	VP	PHONE NO.	X6973
	FIGS WITH HALFTONES/TOTAL FIGS	1, 2, 3, 4, sf1/ 5	ORIGINAL FORMAT	PDF
			ARTICLE NO.	08-00909
			ARTICLE NO.	zpq-0314
			RIGOUR / VISUAL / BOTH?	Both

Summary:

Figure 3: Vertical lines could result from images combined from multiple sources. These anomalies are visible in the originally submitted figure and are only included in this report in case they were missed by the reviewer. Subject to that review, anomalies are enough to warrant request for first-generation source files.

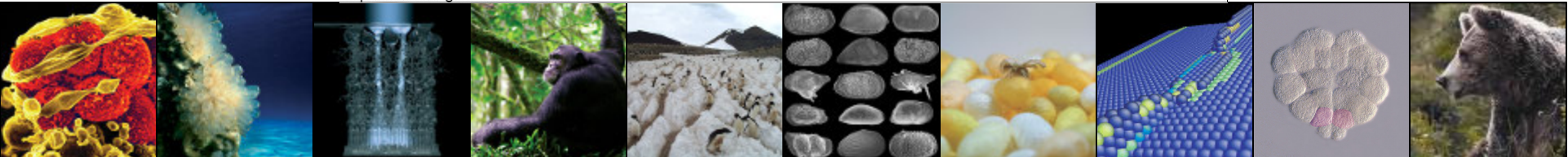
Figure 1, 2, 4, sf1: Analyzed but yielded no (or inconclusive) results and therefore not included in this report.

Figure No.: 1 (l to r: original, decomposition)



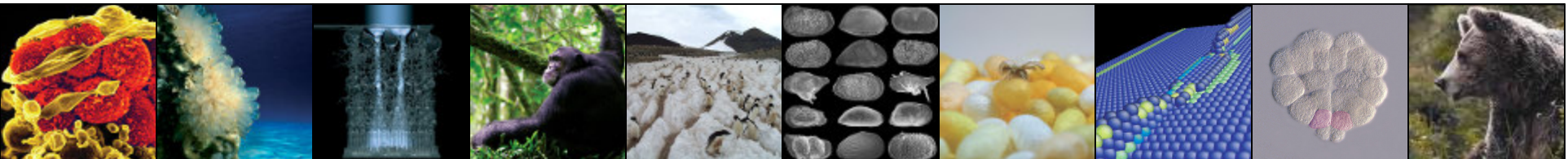
Findings	Comment	Location
Visual & Decomposition Conclusion	Image shows clear visible vertical lines between lanes	Part A, near lane 14, as indicated

Vertical lines could result from images combined from multiple sources. These anomalies are visible in the originally submitted figure and are only included in this report in case they were missed by the reviewer. Subject to that review, anomalies are enough to warrant request for first-generation source files.



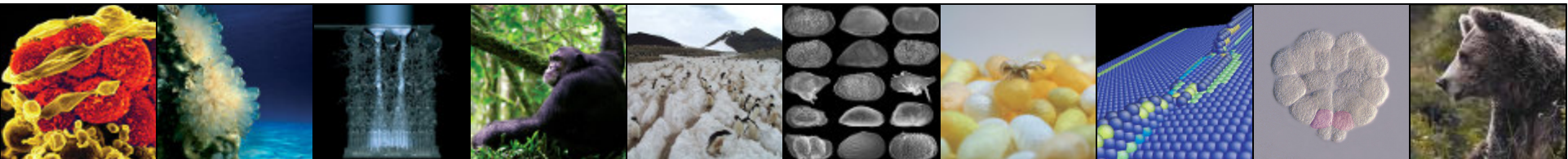
Experiences to-date

- 591 images screened
- 22 flagged for PNAS review (~4%)
- Fewer suspicious figures than expected!
- Why? Some problems resolved by Cadmus? Rigour not catching everything?



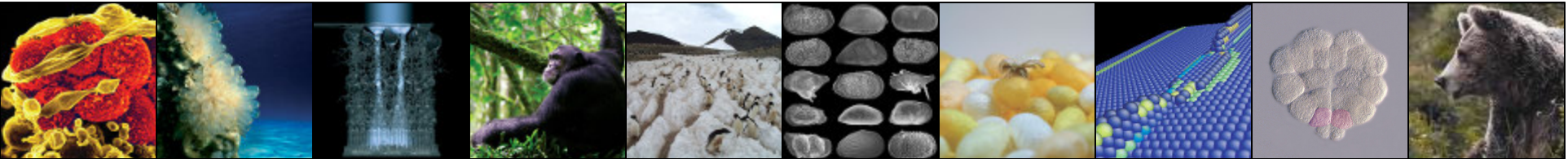
Experiences to-date

- What kinds of problems are we seeing?
- How are we resolving the problems?



Challenges

- 20% vs. 100%
- Post-publication screening
- Interpreting reports
- Timing
- Reporting impact on time in production



Thank you!

Dana M. Compton
Production Manager, PNAS

dmcompton@nas.edu

