

JPEG 2000 at the Wellcome Library

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JP2 Summit

12-13 May 2011

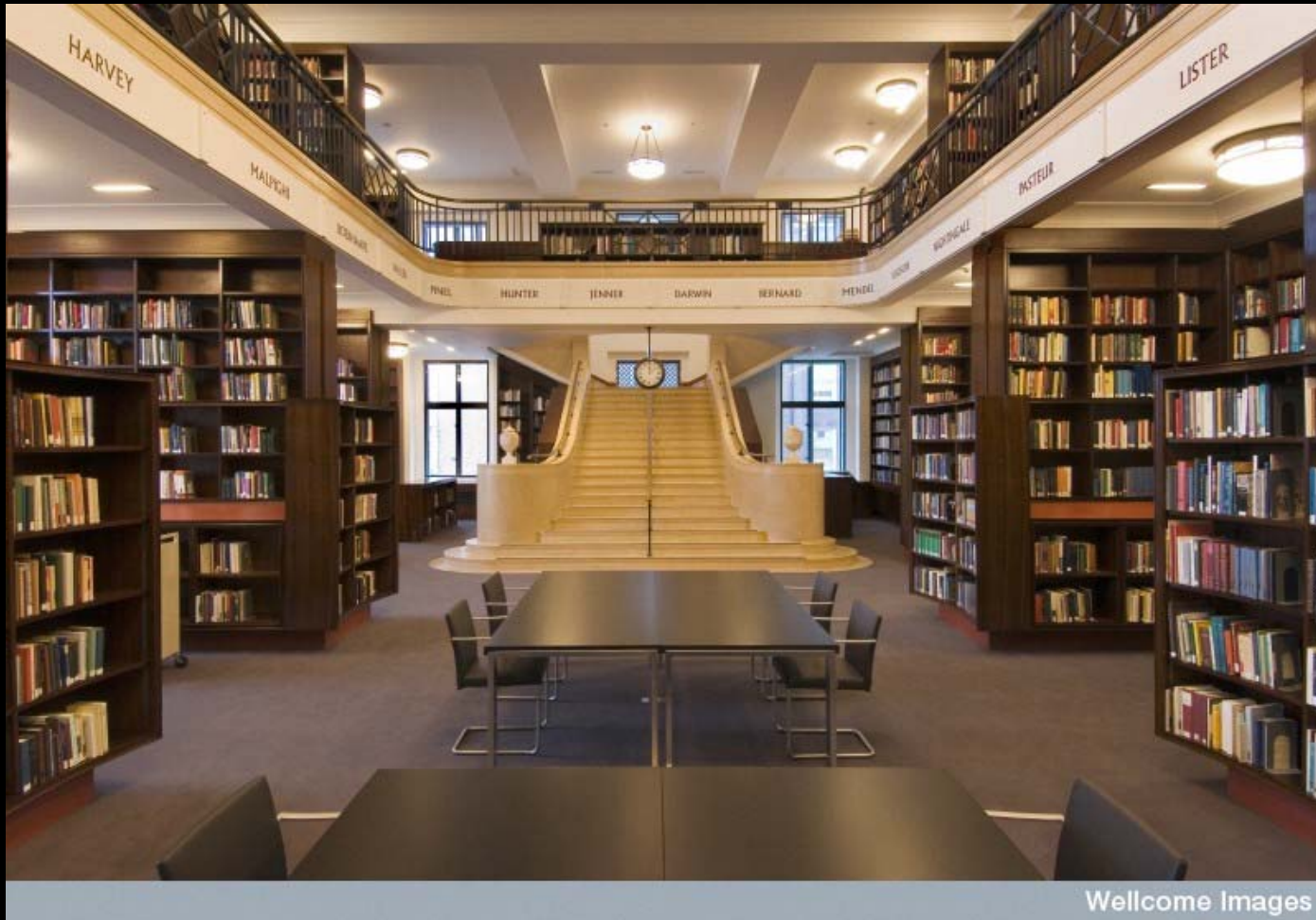
Library of Congress

The Wellcome Trust



- A global charitable foundation
- Achieving extraordinary improvements in human and animal health
- Supporting the brightest minds in biomedical research and the medical humanities
- Exploring medicine in historical and cultural contexts

The Wellcome Library



The Wellcome Library

Collections of books, manuscripts, archives, films and pictures on the history of medicine from the earliest times to the present day.

The screenshot shows the homepage of the Wellcome Library website. At the top, there is a navigation bar with links for Home, About us, Contact us, Opening hours, FAQ, Join the Library, and Site search. Below this is a secondary navigation bar with links for Using the Library, Catalogues, Electronic resources, Collections, Exhibitions, Projects, and Schools, along with a search box. The main content area is divided into several sections: a left sidebar with contact information and opening times; a central 'Quick search' section with a search box and a 'View list of databases and electronic journals' link; a 'Library news' section featuring an article about Easter and bank holiday closures; a 'Library blog' section with an article titled 'If Walls Could Talk'; a 'Wellcome catalogues' section with links to the Library catalogue, Archives and manuscripts, and Wellcome Images; and an 'External catalogues' section with a link to Research Pro. A large illustration of a man in traditional attire is positioned in the center-right. The footer contains the library's address, contact details, and a sitemap/privacy statement link.

wellcome library

wellcome collection

Home | About us | Contact us | Opening hours | FAQ | Join the Library | Site search

The Wellcome Library is part of Wellcome Collection | Wellcome Trust websites

Using the Library | Catalogues | Electronic resources | Collections | Exhibitions | Projects | Schools

Quick catalogues search Search

home

Wellcome Library

Collections of books, manuscripts, archives, films and pictures on the history of medicine from the earliest times to the present day.

Find out more about what we hold

183 Euston Road,
London NW1 2BE, UK

Tel: +44 (0)20 7611 8722
Email: library@wellcome.ac.uk

[Map/getting here](#)

Opening times

Monday	10.00-18.00
Tuesday	10.00-18.00
Wednesday	10.00-18.00
Thursday	10.00-20.00
Friday	10.00-18.00
Saturday	10.00-16.00
Sunday	Closed

Popular links

- [Joining](#)
- [Photocopying/imaging](#)
- [Remote access](#)
- [Ordering](#)
- [Guides and video tutorials](#)
- [Workshop calendar](#)

Quick search

Search Wellcome Library catalogues for books, journals, films, archives, images and more.

[View list of databases and electronic journals](#)

Library news

Easter and bank holiday closures

Check out library opening hours during April 2011. (18 April)

Library blog

If Walls Could Talk


Last week, Dr Lesley Hall, Senior Archivist, Wellcome Library, appeared in an episode of BBC4's new history series, If Walls Could...

Roger Money-Kyrle papers

Archives and Manuscripts is extremely pleased to announce that the papers of the eminent Kleinian psychoanalyst, Roger Money-Kyrle...

Wellcome Library Workshop

This week's free Wellcome Library workshop is: Making the most of my library: the Wellcome Library catalogue and how to personalise...



Wellcome catalogues

Library catalogue

Books, journals, pictures, films and more.

Archives and manuscripts

Personal papers and organisations' records.

Wellcome Images

Unique, searchable collection covering the history of medicine and human culture.

External catalogues

Research Pro

Simultaneously search multiple databases.

Wellcome Library, 183 Euston Road, London NW1 2BE, UK tel:+44 (0)20 7611 8722 email: library@wellcome.ac.uk

[Sitemap](#) | [Privacy statement](#) | [Disclaimer](#)

The Wellcome Digital Library pilot, 2010-2013

Genetics and its Modern Foundations

A new online resource for everyone interested in the history of human and animal health.

Aims

- ***build sustainable/expandable mechanism*** – foundation stone for WDL
- ***digitise key library holdings*** - relating to a major Trust challenge area
- ***digitise important third party content*** – linked to theme
- ***use innovative content and tools*** – to encourage discovery and use
- ***explore commercial partnerships*** – enhance access to non-theme material



JPEG 2000 conversion – scope



- ***Wellcome Images*** – image library, legacy images, 300,000 images in the archive
- ***Current projects*** – pilot digitisation projects, 7m images 2010 - 2014
- ***Long-term plans*** – digitisation of *large proportion* of our collections (mainly special collections), 15m – 25m images 2014 and beyond

Type of content

- **Printed books** – early printed books, modern books (monographs), pamphlets, reports

- **Archives** – personal papers, institutional papers, unpublished works, mostly 20th century

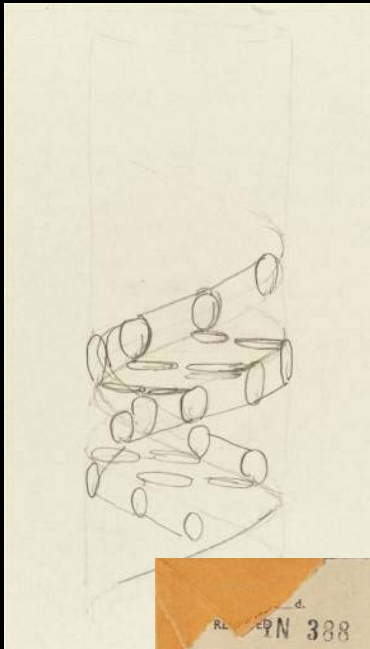
- **Manuscripts** – unpublished, handwritten “manuscript books” and related materials, mostly 17th, 18th and 19th century, can be fragile

- **Artworks** – prints, paintings, posters, drawings, glass slides, etc.



The Francis Crick Archive

KEEP THE LEFTIES OUT: CRICK FOR SOD
 ENOCH IS A RIGHT PRATT
 BUT WHAT IS STRANGE!



	U	C	A	G	
U	PHE	SER	TYR	CYS	U
	PHE	SER	TYR	CYS	C
	LEU	SER	Octo	?	A
	LEU	SER	Ambr	Tryp	G
C	((L)) LEU	PRO	HIS	ARG	U
	Leu	PRO	HIS	ARG	C
	Leu	PRO	GLUN	ARG	A
	((Leu))	PRO	GLUN	ARG	G
	ILEU	THR	ASP	((Leu)) SER	U
A	ILEU	THR	ASP	((Leu))	C
	? ((Leu)) MET	THR	LYS	((Leu)) ARG (arg)	A
	MET	THR	LYS		G
	VAL	ALA	ASP	GLY	U
	VAL	ALA	ASP	GLY	C
G	VAL	((ALA)) ALA	GLU	((GLY))	A
	Val	ALA	GLU		G

Capitals = Nucleic acids
 others = other proteins and other sources.

15th April '65
 FRC

POST OFFICE DL 18 OCT 62 OFFICE STAMP

TELEGRAM

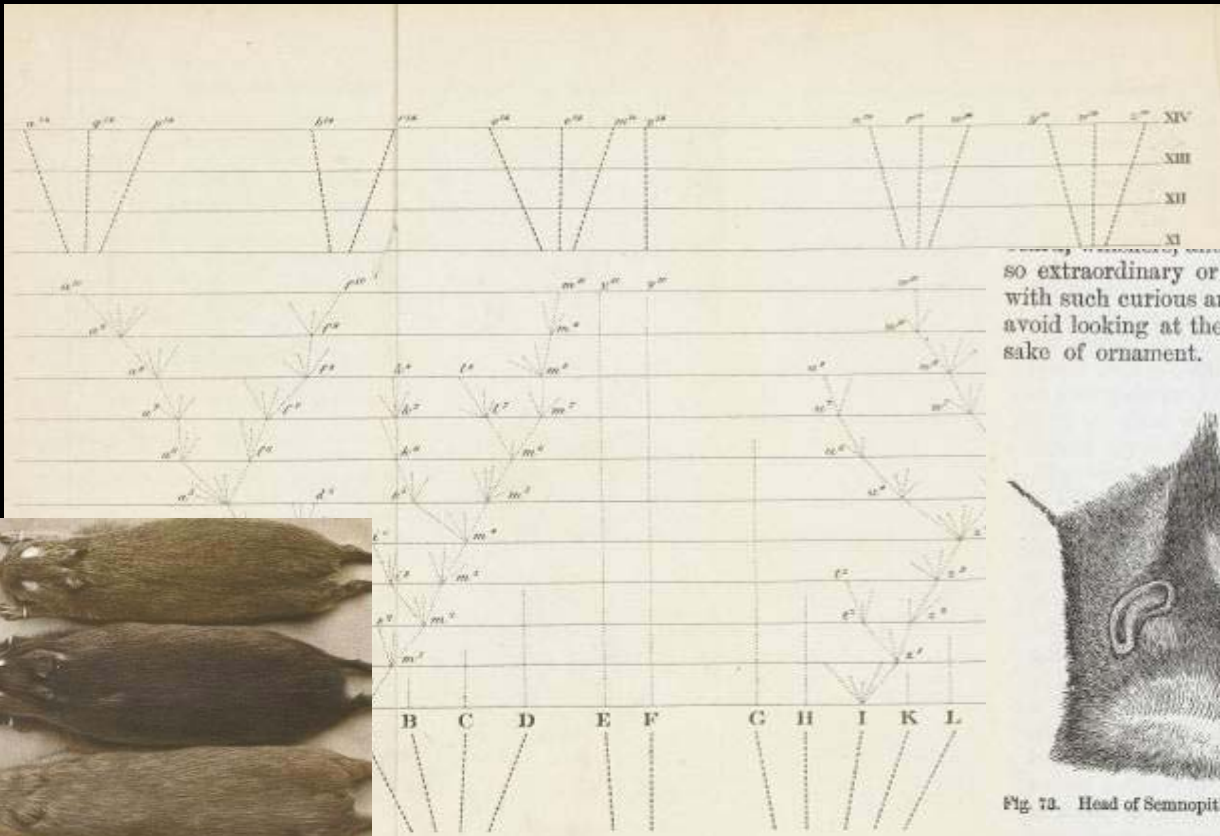
216 GN L1484 STOCKHOLM 67W 18/10 1325

VIA NORTHERN =

DR FRANCIS HARRY COMPTON CRICK INSTITUTE OF MOLECULAR BIOLOGY CAMBRIDGE

= THE CAROLINE INSTITUTE HAS DECIDED TO AWARD THIS YEARS NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE JOINTLY WITH ONE THIRD EACH TO YOURSELF, DR

Books related to genetic research



so extraordinary or so beautiful a manner, and are furnished with such curious and elegant crests of hair, that we can hardly avoid looking at these characters as having been gained for the sake of ornament. The accompanying figures (figs. 72 to 76)



Fig. 73. Head of *Semnopithecus comatus*



Fig. 74. Head of *Cebus capucinus*.

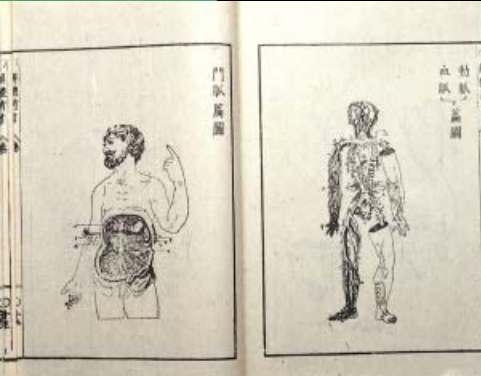
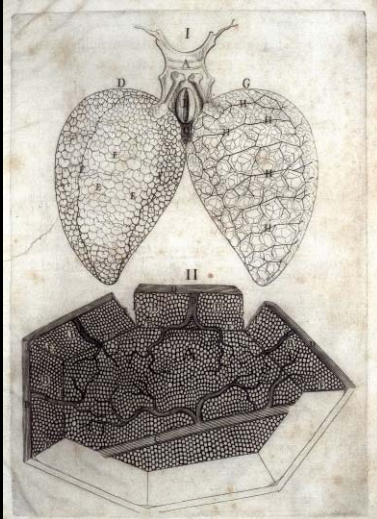


Fig. 75. Head of *Ateles marginatus*.



Fig. 76. Head of *Cebus vellerosus*.

Early printed books



Artworks, manuscripts



Wednesday July 13th 1797

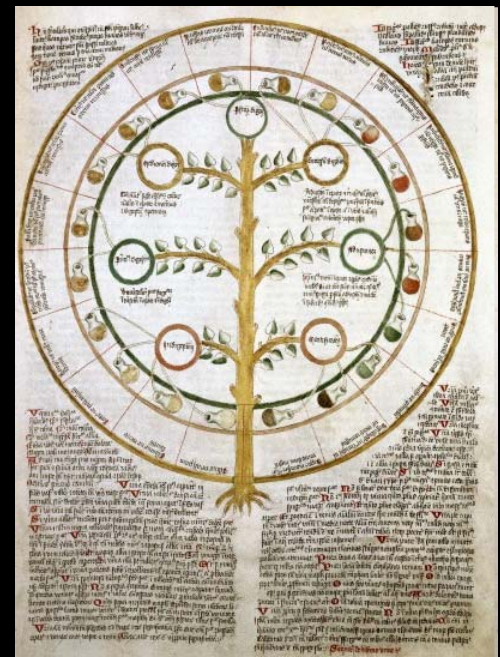
My dear friend

So it is remarkable, that a disease is peculiar to a region as the Cow-pox, which has appeared for so long a series of years and sometimes in some other countries where Diseases are kept, that it should have escaped investigation? Finding the persons which appeared on the subject, both among Men of four professions, & those extremely rare & unexplainable. I have instituted an strict an Inquiry into the causes & effects of this singular malady, in circumstances would admit. — The following are on the result such, my dear doctor, from the most appropriate word, I subscribe to you.

Believe me your ever faithful friend
Chas. Jenner

The Inquiry into the natural History of a Disease known in the West of England particularly in Gloucestershire under the name of the Cow Pox.

The Deviations of Man from the state in which he was originally placed by Nature, seems to have proved to him a prolific source of Diseases. From the love of splendour, from the indulgence of luxury, and from the fondness for a moment, he has fancied, and himself with a great number of his male, that may not be daily have been intended for his associates. The Wolf, disarmed of its ferocity, is now followed in the day, and the Dog, the last of the Wolf in a degenerated state.



Decision to adopt JP2



JPEG 2000 was found to answer the following needs:

- **Storage costs** – 20/30m TIFFs stored on online, backed-up storage = multiple petabytes. Needed something cost-effective.
- **Quality** – needed a high-quality compressed format that would cover a wide range of content types.
- **Robustness** – needed a well-established image format with a high chance of long-term support.
- **Practical** – feasible to use in a Library digitisation workflow.

Finding our way

Working with JP2 opened up a whole new world – reading specifications, finding conversion software, so many choices.

Commissioned the report: [*JPEG 2000 as a Preservation and Access Format for the Wellcome Trust Library*](#)

Goal to find a single version of JPEG 2000 that would meet the needs of both long-term preservation and flexible delivery needs.



The result

Parameter	Settings
File format	Part 1 (.jp2)
Compression	Lossy (6:1, 10:1)
Tiling	1024 x 1024
Progression order	RLCP
Decomp levels	5
Quality layers	8
Code block size	6, 64x64
Regions of interest	No
TLM markers	Yes
Bypass	N/A

Embedding JP2

Chose [LuraWave](#) command line tool

- Some issues (bugs, or inconvenient implementations) arose, and all have been successfully addressed by LuraTech
- Created a firm consensus to use JP2 as the format for *all* still-image digital imaging (with one or two exceptions)
- No plans to use JP2 for digital video – but never say never
- Internal information sharing – digital archivists, systems administrators, IT department, programme board members
- External communication and networking



Current status, future plans



- Conversion of all new digital images is now carried out as standard
- Nearing the final stages of a project to convert 450k image backlog to JP2 (reducing current footprint from 20 Tb to 5.5 Tb)
- Large projects use lossy JP2, legacy picture library uses lossless
- Developed a strategy to determine compression levels
- Currently using the GUI, but will use the command line interface with our new workflow system, streamlining conversion and QA
- Medium term, will look at automating compression level selection

Quality control for compression



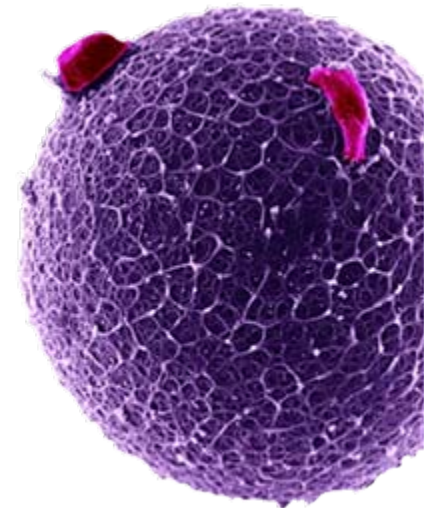
- Visual inspection
- Color shifts, loss of detail, halo effects, pixelation, blurring, etc.
- Collection-based, representative sample
- Test range of compressions with intervals such as 2:1, 4:1, 6:1
- Once artefacts are discovered, step back to previous compression ratio
- Worst-performing image rules, for any particular collection
- Efficient for homogenous collections – less so for heterogenous collections with wide variety of content
- Archives particularly difficult – black and white compresses very well – colour drawings and photographs, not so well

Establishing the JP2K-UK group

- Unknown who in the UK were using JPEG 2000, or considering it
- Unknown who was even *interested* in JPEG 2000
- No one wants to work in a vacuum...
- Discovered a high level of interest: British Library, The National Archives, Oxford, King's College London, Cambridge and Southampton Universities, Digital Preservation Coalition, commercial companies/consultants
- Loose affiliation of the like-minded – a user group



Remit of the JP2K-UK group



- Initial meeting in December 2009
- Everyone had a little knowledge – no one knew enough
- Agreed the need to approach JP2 implementation from practitioner's point of view
- “Practitioner” meaning those who manage digital imaging strategies and implementation
- Agreed need to share information and collaborate
- Discussed ideas for a conference, and creating some guidelines for the user community
- Wellcome encouraged to write a blog about specific experiences working with JP2

Outputs



- JPEG 2000 Seminar, held in London in November 2010
 - > 80 attendees
 - > UK and European speakers and delegates
 - > mostly non-technical audience
- Advocacy for practitioner's needs
 - > discussing and airing the needs and concerns of practitioners has influenced software developers, and even the JPEG Committee
 - > JPEG 2000 at the Wellcome Library blog

www.jpeg2000wellcomelibrary.blogspot.com

Future plans for JP2K-UK

- Guidance for practitioners
 - > Human readable
 - > Focus on practicalities
 - > Enable practitioners to make informed choices
 - > Advice on implementation
- Community building
 - > Case studies
 - > Lessons learned
 - > Networking (nationally and internationally)

