



NATIONAL COLLECTION  
OF AERIAL PHOTOGRAPHY

Institut géographique national

Monday 3 June 2019

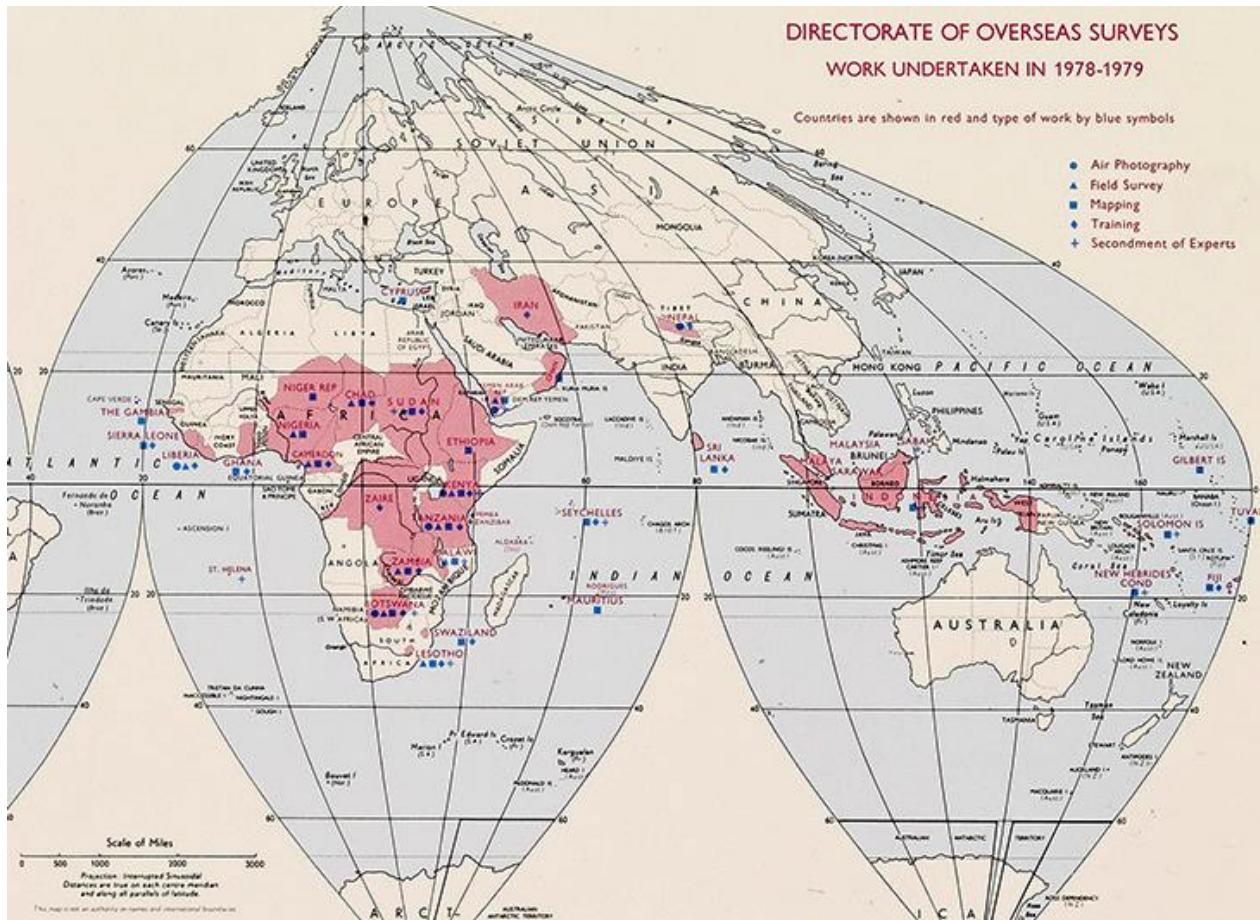
# National Collection of Aerial Photography (NCAP)



- One of the largest and most significant collections of historical aerial imagery in the world.
- Official custodian of UK Government declassified / released aerial imagery of locations worldwide.
- Over 30 million aerial images dating from the 1920s onwards.

RAF Photographic Reconnaissance (PR) Spitfire of 106 Group, RAF Benson (Source: NCAP).

# NCAP Key Record Groups



- Aerial imagery declassified by the UK Ministry of Defence (1920s - 1998) - annual declassification ongoing.
- Air survey imagery released by UK Government agencies.
- Civilian-flown air survey imagery of the UK (pro-actively collected by NCAP).

Directorate of Overseas Surveys (DOS) Activity Map for the year 1978/1979 (Source: DOS Collection, NCAP).

# NCAP Legal Context



Ministry  
of Defence



- Most of the aerial imagery held by NCAP is UK Government ‘public record’ held under the provisions of the Public Records Act (1958).
- Most of the imagery was declassified and released by the Ministry of Defence, and remains its property.
- The National Archives is responsible for ensuring the imagery is preserved and publicly accessible.
- NCAP does not receive any public funding, from any source, and is required to be financially self-sustaining.

# Key NCAP Holdings: ACIU Collection



- Over 10 of the 30 million images held, date from the Second World War.
- 5.5 million of those are uniquely held as contact prints in the ACIU Collection.
- The ACIU holdings reflect the inter-Allied nature of the Photographic Reconnaissance effort during the war.

Photographic technicians of the US 7th Photographic Reconnaissance Group, surrounded by air cameras, RAF Mount Farm (Source: Museum of the Mighty Eighth).

# Allied Central Interpretation Unit (ACIU)



- The requisitioned Danesfield House, 30 miles west of central London became RAF Station Medmenham, the headquarters of Allied Photographic Intelligence.
- With a reliance on subject specialists (notably academics), the ACIU proved to be an unorthodox but war-winning intelligence unit.

Danesfield House, Medmenham, Buckinghamshire (Source: Medmenham Association).

# Z Section



- The second-phase interpreters of Z Section highlight the inter-Service, inter-Allied, nature of RAF Station Medmenham.
- The Photographic Intelligence (rich) product was the result of three-phases of interpretation.
- Third-phase interpretation being greatly reliant on comparative cover.

Z Section, as recorded in the unpublished 'Chalk House with the Tudor Chimneys' ACIU unit history  
(Source: Medmenham Association).

# E Section



- Specialist third-phase interpreters, of enemy camouflage schemes and smoke screens.
- The collation and interpretation of comparative cover, unmasked even the most elaborate enemy efforts.

E Section, as recorded in the unpublished ‘Chalk House with the Tudor Chimneys’ ACIU unit history  
(Source: Medmenham Association).

# Stereoscopic Comparative Cover

1945



1939



1940



1941



1942



1943



1944



Cologne, North Rhine-Westphalia, throughout the Second World War (Source: NCAP)

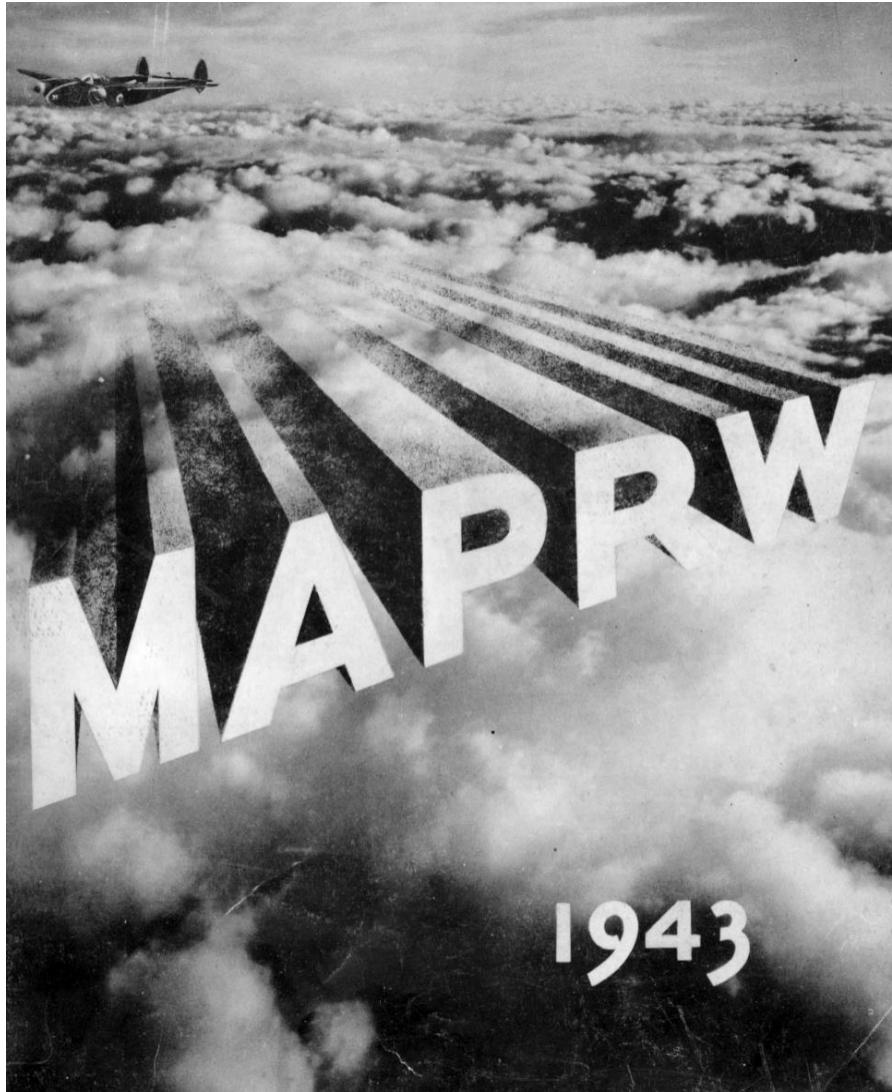
# World History: D-Day



- The historic aerial imagery in NCAP records many key moments of world history as they happened.
- From unique coverage of the Bomber Offensive, and the D-Day landings to the hunt for secret German weapon installations and concentration camps.

US 7th Photographic Reconnaissance Group image of Gold Beach, June 6 1944 (Source: ACIU Collection, NCAP).

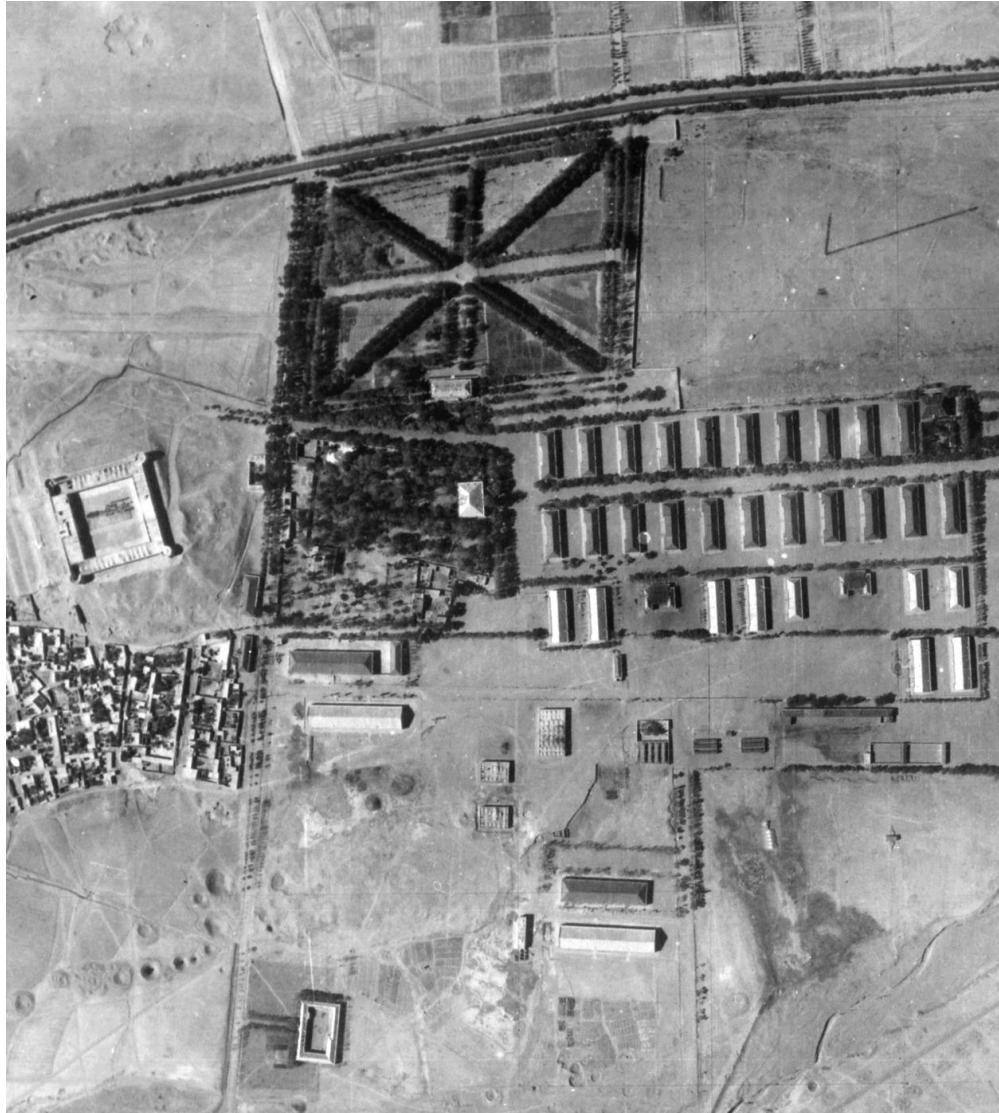
# Mediterranean Theatre



- Most aerial imagery created during operations in north Africa were accidentally destroyed.
- Extensive volumes of imagery created by the Mediterranean Allied Photo Reconnaissance Wing survives with NCAP (and significantly partner organisations).

Mediterranean Allied Photo Reconnaissance Wing (MAPRW) Booklet (Source: Allan Williams).

# Middle / Near / Far East Theatres



- Beyond the cover of Europe and the Mediterranean - which constitute the vast majority of holdings - the interests of Britain and its Allies around the world during the Second World War (and beyond) are reflected in NCAP holdings.

Survey of Tehran, Iran, October 1942, as recorded by a Bristol Blenheim of 1434 (Photo Survey) Flight, based at RAF Habbaniyah, Iraq (Source: JARIC Collection, NCAP).

# GX Collection



- Over 1.5 million aerial images created by the German Luftwaffe were captured by the British at the close of the war.
- The intelligence windfall codenamed GX - which provided large-scale cover of the Eastern Bloc in particular - galvanised Anglo-American efforts in Air Intelligence during the early Cold War.

British-captured German Luftwaffe cover of Helsinki, Finland, February 4 1945 (Source: GX Collection, NCAP).

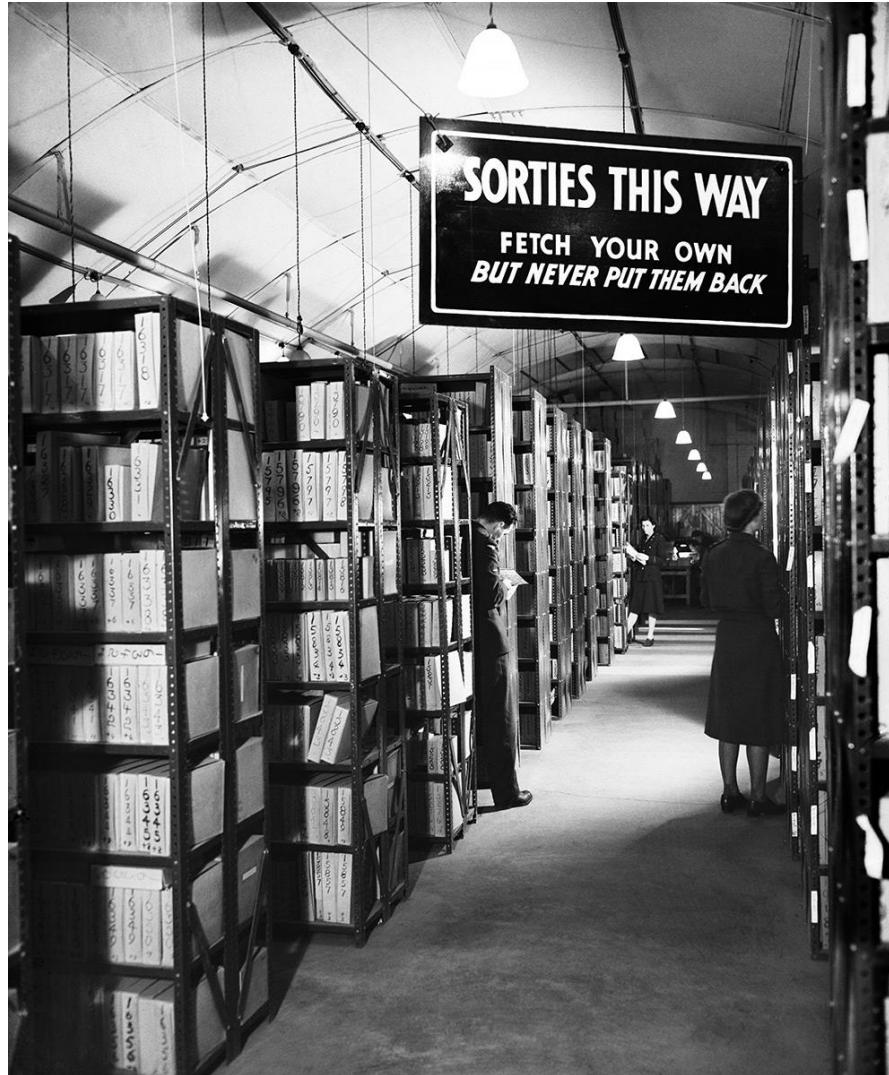
# Operation Casey Jones



- To inform post-war military planning, comprehensive survey-standard cover of Europe and north Africa is created during the Fog of War.
- Recording and tallying the vast number of orders for imagery was the work of Progress Section.

Progress Section, as recorded in the unpublished 'Chalk House with the Tudor Chimneys' ACIU unit history (Source: Medmenham Association).

# Project SEGMED



- The Air Ministry held a post-war aspiration to create a National Library of Aerial Photography.
- Cold War frost resulted in the shelving of plans in the late 1950s, and the instigation of Project SEGMED.
- Whilst cover of Eastern Bloc countries would be retained by the UK Ministry of Defence, most of the Print Library was destined to be destroyed in the furnaces of Battersea Power Station.

The Medmenham Print Library, as recorded in the unpublished 'Chalk House with the Tudor Chimneys' ACIU unit history (Source: Medmenham Association).

# University of Keele



- The tenacity of Professor Stanley Beaver, results in the transfer of 5.5 million contact prints from Medmenham in 1962/1963.
- With no cataloguing, the restrictive caveats of the Official Secrets Act, and no public funding, Beaver considered it a ‘bittersweet victory’.

Keele Hall at the University of Keele, Newcastle-under-Lyme, Staffordshire, home to NCAP before its 2008 transfer to Edinburgh (Source: Allan Williams).

# Explosive Ordnance Disposal (EOD)



- As less than 10% of the ordnance failed to detonate, many are still present underground or underwater and pose a significant risk to life and safety.
- The 1984 'Hamburg Agreement' with the Federal Republic of Germany, marked a turning point in the use of historical aerial photography for the location of unexploded ordnance.

The images show the impact of the attack on the German city of Darmstadt by RAF Bomber Command on 11 September 1944 (Source: NCAP).

# Key NCAP Holdings: JARIC Collection



- For the first time since 1963, between 2004 and 2008, circa twenty million images were declassified and released to NCAP by JARIC, the Joint Air Reconnaissance Intelligence Centre.
- JARIC imagery is now chronologically declassified / released by the UK Ministry of Defence annually.
- Cover directly reflects the intelligence interests of the UK / FVEY / NATO.

The RAF retired its last English Electric Canberra PR9, as illustrated above, in 2006 (Source: Royal Air Force).

# JARIC Collection: Suez Crisis



Port Said, Egypt, 17 November 1956 (Source: French Air Force, JARIC Collection, NCAP)

# Key NCAP Holdings: DOS Collection



- In addition to its military-declassified holdings, NCAP also holds aerial imagery commissioned by UK government civilian agencies.
- Most notably, this includes the aerial photography created by/for the Directorate of Overseas Surveys (DOS), which mapped the Empire, and Commonwealth.

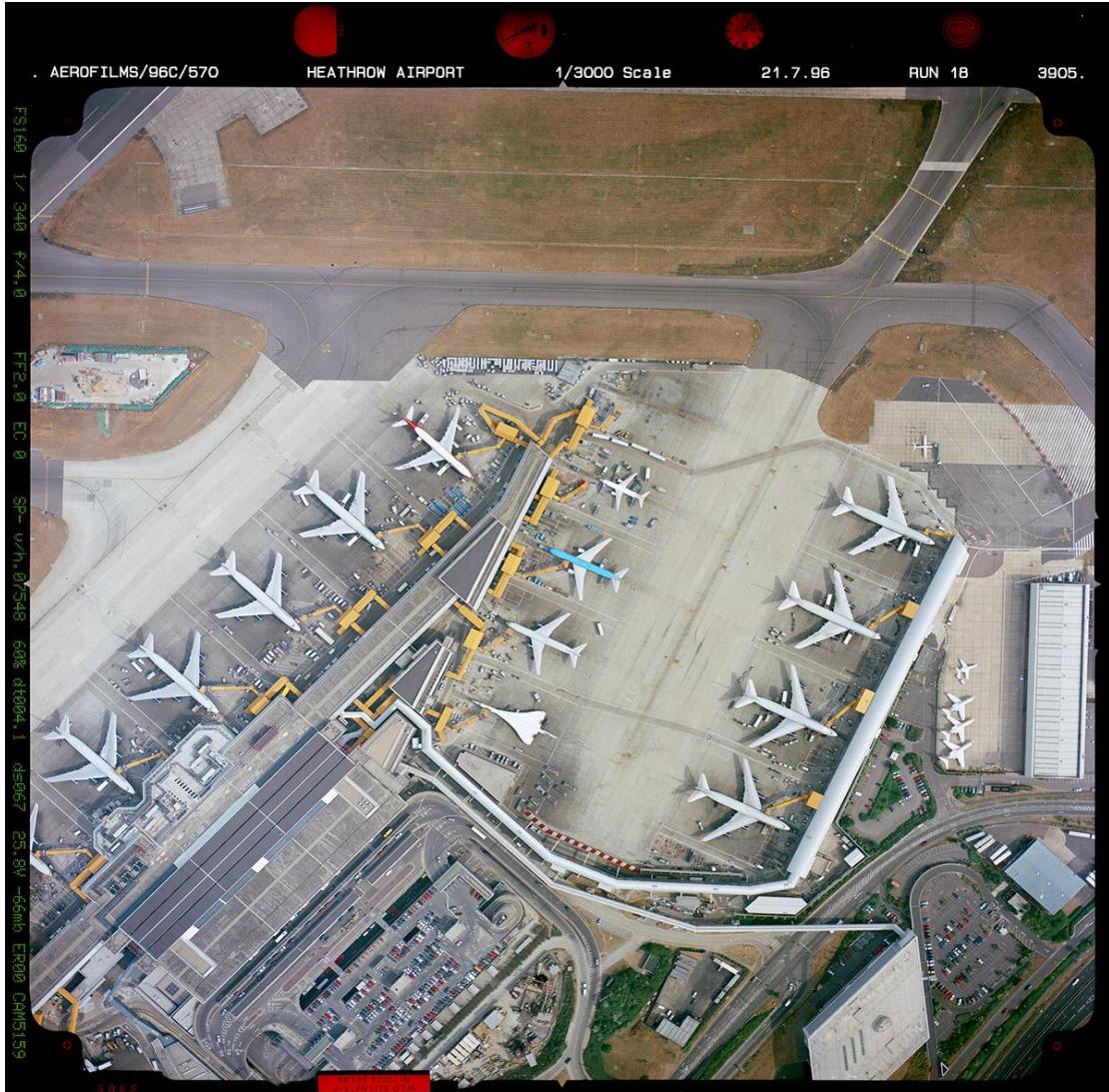
# DOS Comparative Cover



- DOS photography comprehensively records 55 countries of the world, and pre-dating Landsat satellite imagery, it facilitates the study of large-scale environmental change over decades.

Environmental change at Big Bend, on the Lusutfu River, in eastern Swaziland (Source: DOS Collection, NCAP).

# Key NCAP Holdings: Civilian-Flown Air Surveys



- Since 2007/2008, when the UK air survey industry began the transition to born-digital imagery, NCAP has pro-actively engaged with the sector.
  - NCAP now holds circa four million frames of air survey photography (principally of the UK).
  - From 2007 onwards NCAP began heavily investing in photogrammetric imaging systems.

London Heathrow Airport, July 21 1996 (Source: NCAP).

# NCAP Relocation



- Following the rapid growth of the collection, in 2008 NCAP relocated to Edinburgh, Scotland.
- With a business model of financial self-sufficiency, and despite now holding in excess of 30 million images, operational and development costs continue to be covered by commercial income generation.
- NCAP is currently (and legally) a non-core part of Historic Environment Scotland.



Edinburgh Castle (Source: Historic Environment Scotland).

# NCAP Key Challenges / Opportunities



- Key challenges and opportunities facing the development of NCAP include:
  - Collections Care
  - Cataloguing & Interpretation
  - Digitisation
  - Income Generation
  - Online Dissemination
  - Capital Projects
  - Partnership Working

The poor storage conditions for part of the DOS Collection, prior to its accessioning in 2014 (Source: NCAP).

# Collections Care: Record Storage



- With the NCAP team based in central Edinburgh, over 54,000 cubic feet of NCAP records are currently held in remote storage.
- Although not the archival ideal, the facility is highly secure, has limitless expansion space, and advanced fire-suppression systems.

Iron Mountain Storage Facility, Livingston, Scotland (Source: Historic Environment Scotland).

# Collections Care: Record Storage



- Within its central Edinburgh facility, NCAP has storage facilities for records recalled for physical preservation/ digitisation.

The in-house storage of newly re-housed records prior to their return to remote storage (Source: NCAP).

# Collections Care: Preservation



- Given the age, range of media types held, and variety of historical storage conditions, NCAP faces many physical preservation challenges.
- In addition to aerial film and contact prints, holdings include tens-of-thousands of microfilm, and millions of sheets of paper / acetate plotting.

Original ACIU Print Library Box, from RAF Medmenham (Source: NCAP).

# Collections Care: Preservation



- Before digitisation - to ensure no physical damage is caused to the photographic emulsion or paper base - all contact prints are humidified, using procedures developed with a photographic conservator, and flattened using a nipping press.
- The challenges of digitising contact prints, highlights why physical preservation (and record preparation) is typically more time-consuming than the digital imaging.

Humidification Chamber used to uncurl (Source: NCAP).

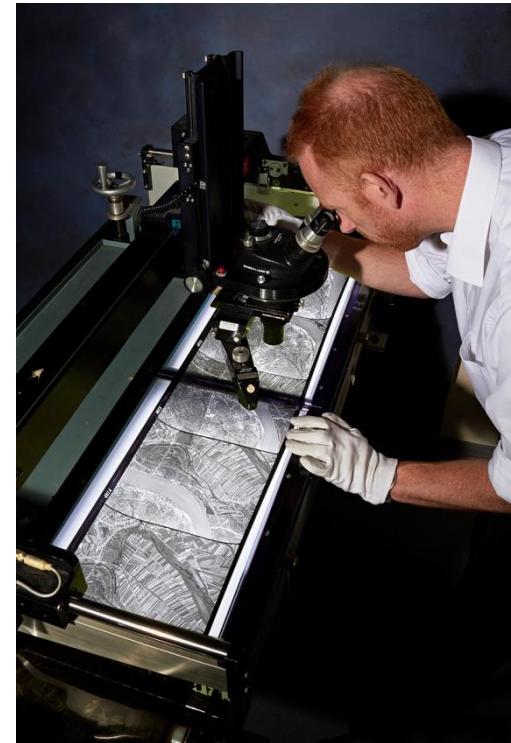
# Collections Care: Preservation



- By following these procedures NCAP best guarantees the flatness of the print during digitisation, and the creation of the highest-quality digital surrogate.
- By re-housing into pH neutral archival-standard boxes, the longevity of the collection is further enhanced (historically significant original boxes are retained).

Uncurled and re-housed prints from the ACIU collection (Source: NCAP).

# Collections Care: Preservation



- The need to safely handle aerial film, during physical preservation and its optical interpretation prior to digital imaging, highlights the ongoing requirement for light tables and associated analogue equipment.

Richards Light Tables surplus to JARIC requirements following the digital transition (left), and (right) the operation of a Richards MIM Light Table at NCAP (Source: NCAP)

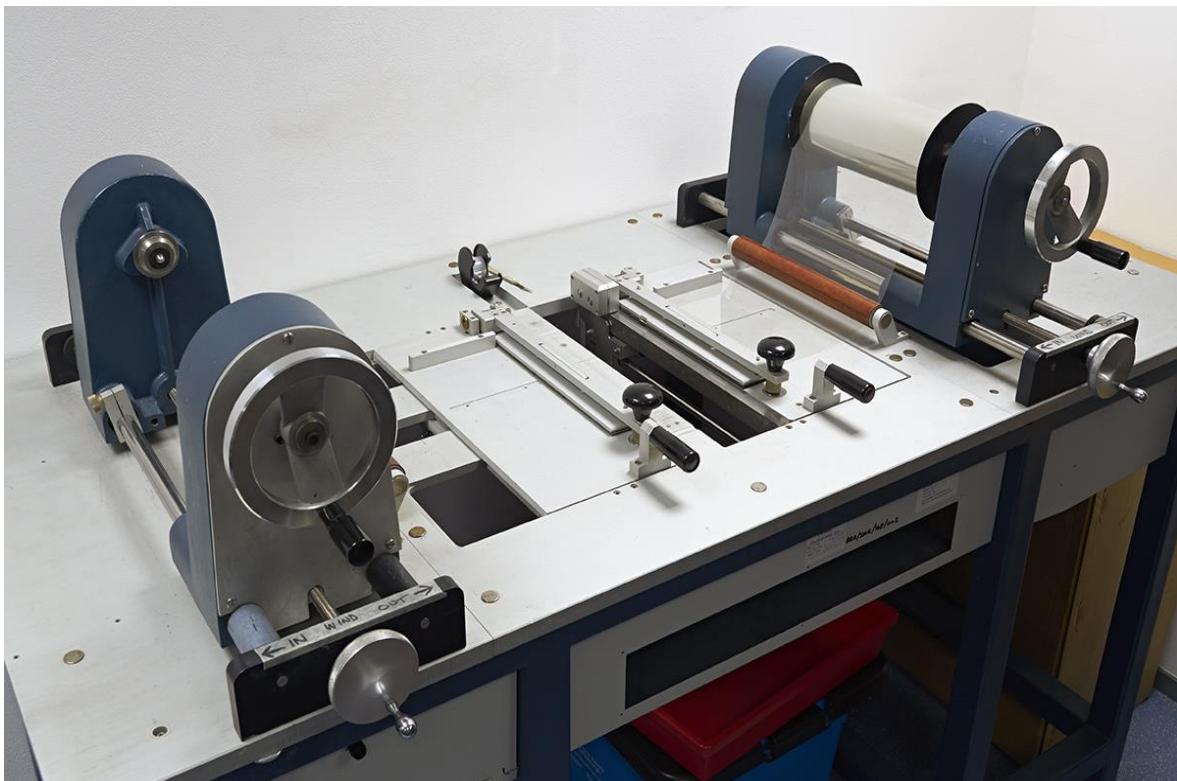
# Collections Care: Preservation



- Given the age, range of film types, film canisters, spools, and historical storage conditions, NCAP faces a myriad of physical preservation challenges.

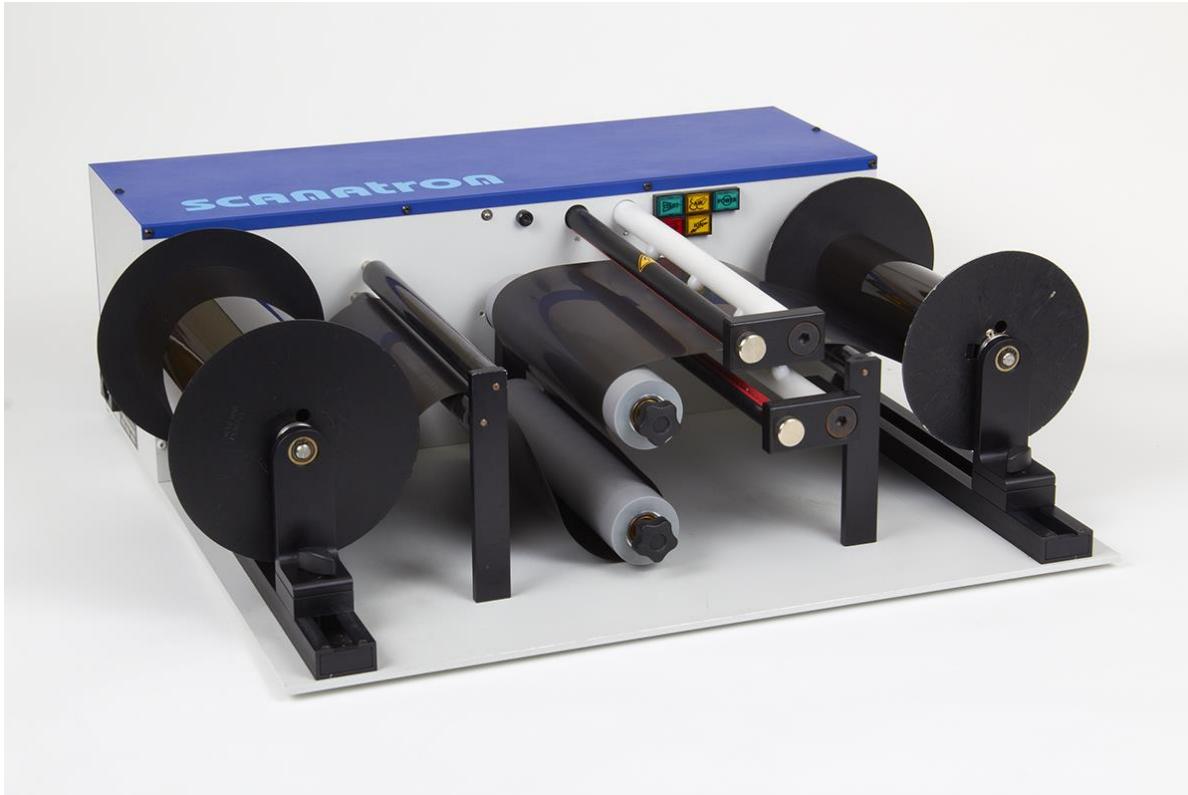
Water damaged aerial film (Source: NCAP).

# Collections Care: Preservation



- As aerial films are often devoid of leaders / trailers - or they have been created from the unprocessed film - new lengths of inert polyester (Mylar®) film are attached to aerial films.

# Collections Care: Preservation



- In order to remove dust and dirt - which can scratch aerial film during the digitisation process - electrostatic film cleaners are used. The usage of manual and automated film cleaners also ensures the creation of the highest quality digital surrogate

Scanatron electrostatic film cleaner (Source: NCAP).

# Collections Care: Preservation



- Metal film canisters and spools represent a preservation challenge.
- This challenge, and the digital transition, has required NCAP to manufacture its own archival-standard consumables for 9-Inch format aerial film:
  - Plastic Canisters (6 & 7 Inch Diameter);
  - 9-Inch Film Cores;
  - Metal Flanges (multiple diameters);
  - Plastic Storage Flanges (multiple diameters).
- These chemically inert consumables have been approved by NARA (and other) photographic conservators / material scientists.

NCAP manufactured 9-Inch film core and flanges (Source: NCAP)

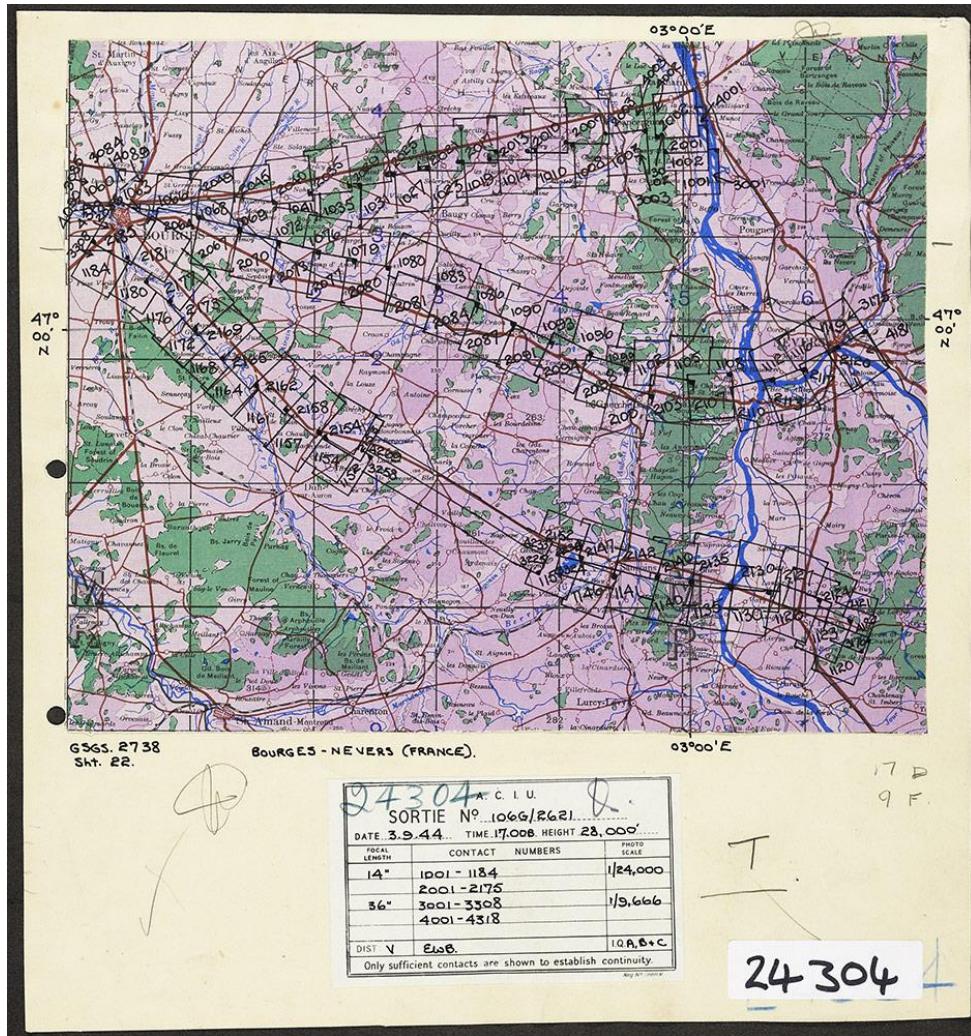
# Collections Care: Preservation



- As no manufacturers of aerial film winders are known to exist, NCAP manufactures its own fixed-width aerial film winding system.
- The fixed-width nature of the unit ensure that film tracks perfectly straight, and minimises film damage.
- These film winders have been approved for use by the NARA (and other) photographic conservators.

NCAP-manufactured aerial film winding system in operation with a flatbed scanner  
(Source: NCAP).

# Cataloguing & Interpretation: Plotting



- As the ACIU Collection was transferred from RAF Medmenham to Keele University in an unsearchable form, it was necessary to re-catalogue all of the sortie plots.
- Across the collections held by NCAP, the style and format of plotting varies considerably.
- To facilitate the cataloguing of sortie plots a toolkit has been developed using the open-source QGIS software.

ACIU plot for Sortie 106G/2621 - Medmenham Library Reference 24304 (Source: ACIU Collection, NCAP).

# Cataloguing & Interpretation: Plotting



E515082		G-VTEQSLH		E5108	
B19	M 14.7.44	28581	L 23.12.44	31144	L 20/13/45.
C32	S 7.6.44	28621	L 25.12.44	31162	A
11314	LE	28721	A 24.12.44	31206	A
/6633	M 12.5.44	28722	A "	31219	L 20/13/45. ✓
16753	A 9.5.44	28901	M 24.12.44	31319	A
18680	?	28910	S "	31320	S
20730	A 3.7.44	28911	S "	31401	A
25216	A 19.9.44	28919	M 26-12-44	31464	L 20/13/45
25478	A 28.9.44	29629	M 23-1-45	31567	5
26005	A 6.10.44	30264	M 21/2-45	31570	M
26049	A 5.10.44	< 30380	L 20-3-45	31708	M
26237	L 12.10.44	30472	A 2-3-45	31812	M
26295	A "	30545	A	31813	M
26514	S 22.10.44	30852	L 14/12/45	31814	M
26902	L 19.11.44	30899	L 23/1/45	31815	M
28156	S	31086	L 19/3/45	31816	M

- From the mid 1960s generations of students linked each of the targets on the plots to the corresponding ten-minute(s) of latitude and longitude.
- Until 2004, when all the ACIU sortie plots and index cards were digitised, searching the 5.5 million ACIU images was entirely manual, analogue, and very time consuming.

Extract from ACIU sortie plot 106G/1845 (top), illustrating the geo-information available for one target (Amsterdam), and (bottom) an example of an ACIU Ten-Minute-Square card (Source: ACIU Collection, NCAP).

# Cataloguing & Interpretation: Plotting



- As the JARIC collection is declassified, it is released into the public domain in as unsearchable a form as the ACIU Collection was.
- Since surrogate copies of the sortie plots are only available in microfilm format, work to catalogue the cover continues through the processing of 30million+ frames.
- To add further complexity, the microfilm contains millions of unique images.

One of fourteen-thousand JARIC 3M microfilm (Source: JARIC Collection, NCAP).

# Cataloguing & Interpretation: Aerial Imagery



- For all aerial images which have been digitised, geographical centroids have been created.
- As the next-generation cloud-hosted NCAP web-platform is currently being developed, all the centroid data is being re-processed to create spatial footprint data .
- This has involved the creation of a new cloud-hosted cataloguing toolkit for vertical and oblique aerial imagery, that avoids the need for GIS .

# Cataloguing & Interpretation: Aerial Imagery

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Cataloguing PROJECT DATA FOOTPRINTS Hi, Allan

## Footprints

Add New Run

run\_1 run\_2

Add New Run

Add Symbol

□ □

Edit Tools

↶ ↷ ↸ ↹ ↻ ↺

Resize Symbol

Focal Length

Flying Height

Resize

Generate Footprints

Number between 1 - 2

Number between 2 - 3

Generate

Save

The screenshot shows a web-based application interface for cataloguing aerial imagery. At the top, there's a navigation bar with 'NCAP' logo, 'Cataloguing', 'PROJECT', 'DATA', 'FOOTPRINTS' (which is underlined), and 'Hi, Allan'. On the left, a sidebar titled 'Footprints' contains buttons for 'Add New Run' (with 'run\_1' and 'run\_2' listed), 'Add New Run', 'Add Symbol' (with square icons), 'Edit Tools' (with various icons for selection, zoom, and orientation), 'Resize Symbol' (with input fields for 'Focal Length' and 'Flying Height', and a 'Resize' button), and 'Generate Footprints' (with input fields for 'Number between 1 - 2' and 'Number between 2 - 3', and a 'Generate' button). The main area is a satellite map of a region featuring a large river flowing through agricultural fields. Three specific areas are highlighted with cyan diamonds, each containing a small thumbnail image of the aerial view. In the top right corner of the map area, there are two small icons: a grid and a diamond shape. In the bottom right corner of the map area, there is a 'Save' button.

Footprint Creation from Digitised Aerial Images

# Cataloguing & Interpretation: Aerial Imagery

NCAP NATIONAL COLLECTION OF AERIAL PHOTOGRAPHY Cataloguing PROJECT DATA FOOTPRINTS Hi, Allan

## Footprints

Add New Run

run\_1  
run\_2

Add New Run

Add Symbol

□ □

Edit Tools

↶ ↷ ↸ ↹ ↻ ↺

Resize Symbol

Focal Length

Flying Height

Resize

Generate Footprints

Number between 1 - 2

Number between 2 - 3

Generate

Save

The interface shows a satellite map of a rural area with a winding river and various agricultural fields. A cyan polygon, representing a footprint, is drawn along the river's course. On the left, there is a sidebar with tools for creating new runs and generating footprints. The 'FOOTPRINTS' tab is currently selected. A 'Save' button is located in the bottom right corner of the map area.

Footprint Creation from Digitised Aerial Images

# Cataloguing & Interpretation: Aerial Imagery

NCAP NATIONAL COLLECTION OF AERIAL PHOTOGRAPHY Cataloguing PROJECT DATA FOOTPRINTS Hi, Allan

## Footprints

Add New Run

run\_1 run\_2

Add New Run

Add Symbol

□ □

Edit Tools

▶ □ □ □ □ □

Resize Symbol

Focal Length Flying Height

Resize

Generate Footprints

Number between 1 - 2

Generate

Save

The screenshot displays the NCAP Cataloguing software's 'FOOTPRINTS' tab. On the left, a sidebar shows two runs: 'run\_1' and 'run\_2'. Below this is a 'Add New Run' section with 'Add Symbol' and 'Edit Tools' buttons, and input fields for 'Focal Length' and 'Flying Height' with a 'Resize' button. Further down are 'Generate Footprints' controls with a 'Number between 1 - 2' input field and a 'Generate' button. The main area shows a satellite map of a river and agricultural fields. An orange dot is placed on the riverbank. Two blue rectangular footprints are drawn on the land, with labels '001' and '002' indicating their respective areas. The interface includes standard map controls (zoom, pan) and a 'Save' button in the bottom right corner.

Footprint Creation from Digitised Aerial Images

# Cataloguing & Interpretation: Aerial Imagery

NCAP  
NATIONAL COLLECTION  
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Cataloguing PROJECT DATA FOOTPRINTS Hi, Allan

## Footprints

Add New Run

run\_1 run\_2

Add New Run

Add Symbol

□ □

Edit Tools

▶ □ □ □ □ □

Resize Symbol

Focal Length Flying Height

Resize

Generate Footprints

Number between 1 - 2

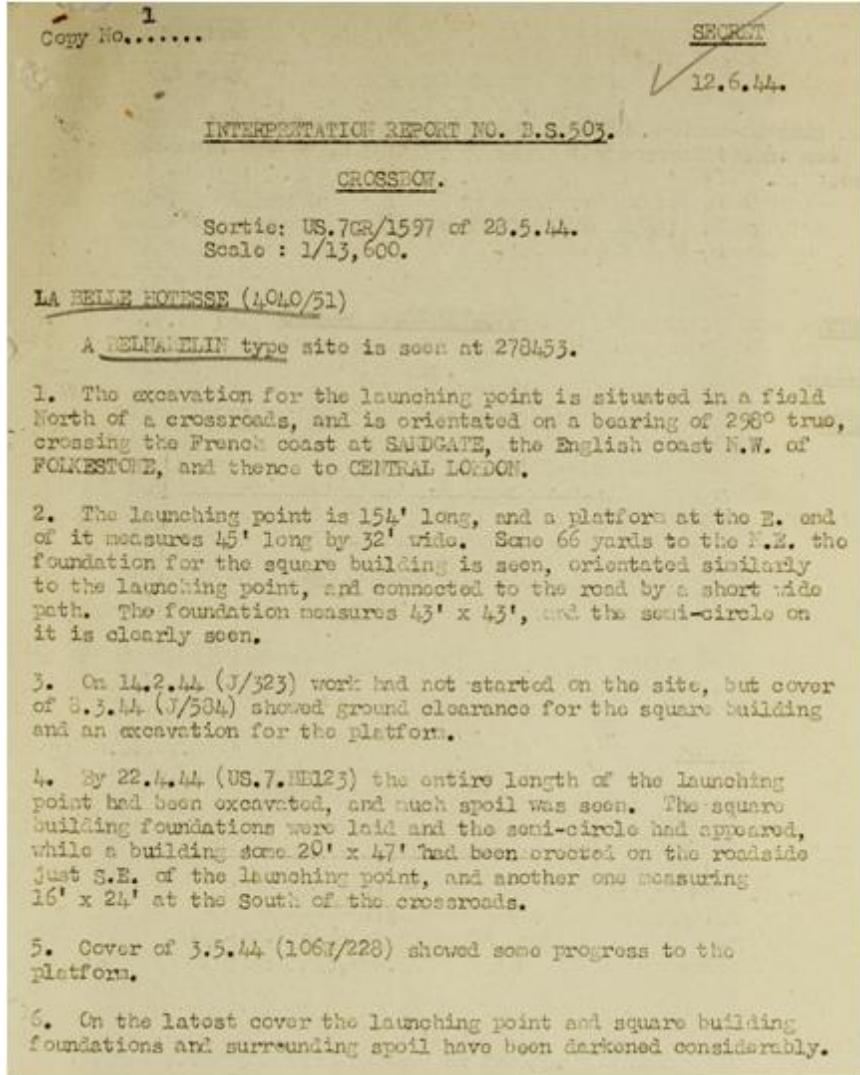
Generate

Save

The screenshot shows a web-based application for cataloguing and interpreting aerial imagery. The top navigation bar includes 'Cataloguing', 'PROJECT', 'DATA', 'FOOTPRINTS' (which is currently selected), and a user profile 'Hi, Allan'. On the left, a sidebar titled 'Footprints' lists two runs: 'run\_1' and 'run\_2'. Below this is a 'Add New Run' section with options for 'Add Symbol' (checkboxes for square and rectangle) and 'Edit Tools' (a set of icons for selection, zoom, and other editing functions). There are also sections for 'Resize Symbol' (with fields for 'Focal Length' and 'Flying Height') and 'Generate Footprints' (with a field for 'Number between 1 - 2' and a 'Generate' button). The main area is a satellite map of a rural landscape featuring a river and various fields. A blue rectangular footprint is being drawn over a specific area of the map. In the bottom right corner of the map area, there is a legend with symbols for roads, water bodies, and buildings.

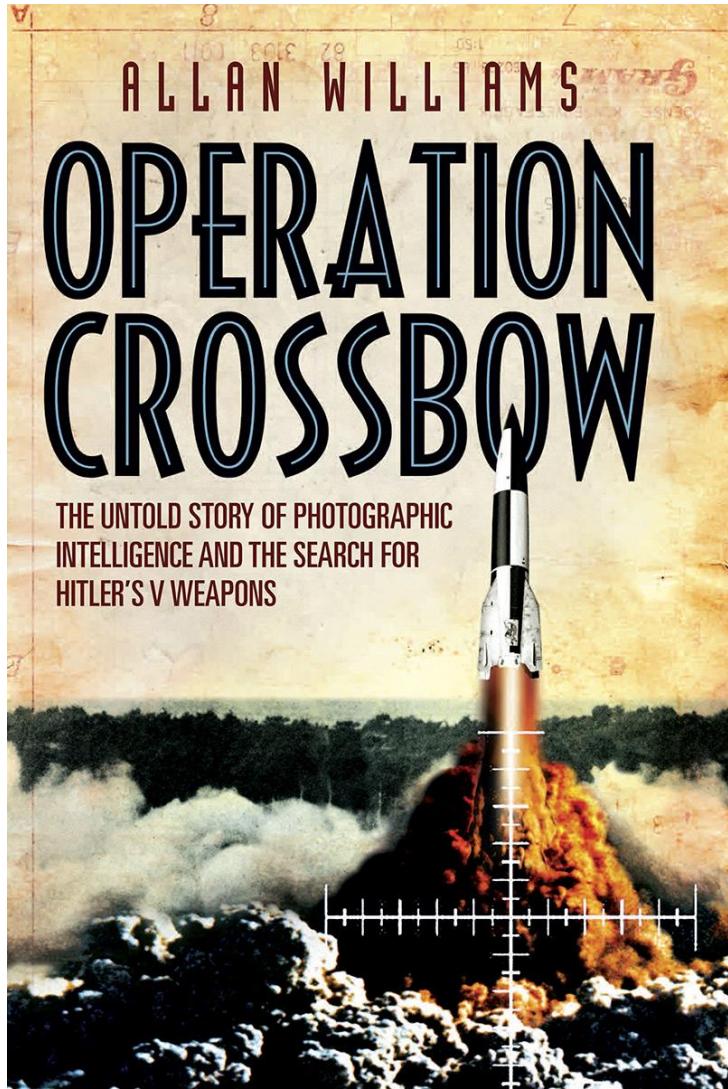
Footprint Creation from Digitised Aerial Images

# Cataloguing & Interpretation: Textual Records



- All the non geo-spatial records held by NCAP are catalogued to the International Council on Archives ISAD(G) standard.
- Providing a link between the geospatial data and associated textual information adds-value to the NCAP offer.
- As a large quantity of intelligence was extracted from the aerial imagery, held by The National Archives, digitally re-uniting this information is a long-held aspiration.

# Cataloguing & Interpretation: Academic Research



- As NCAP does not receive public funding, there has been limited scope to undertake academic research (within office hours) to date.
- It remains a long-standing aspiration to grow research capacity within the team, given the potential across a multitude of academic disciplines, and more widely.

Book Cover - Operation Crossbow (Source: Random House).

# Digitisation



- NCAP undertakes the digital imaging of historical aerial imagery using:
  - Flatbed scanners;
  - DSLR / Medium Format Cameras;
  - Photogrammetric Imaging Systems.
- As NCAP holdings also include a large collection of (28,000) microfilm, and paper / acetate plotting, it also operates a range of production-grade microfilm / large-format scanners.

NCAP Microtek flatbed scanners at the US National Archives & Records Administration (NARA) facility in College Park, Maryland (Source: NCAP).

# Digitisation - Flatbed Scanning



- NCAP was an early adopter of flatbed scanners, as this was the only practical and, at the time, affordable option.
- Given the need to comply with the highest standards of collections care, NCAP uses modified Microtek, Context and Epson flatbed scanners.

NCAP Microtek flatbed scanners at the US National Archives & Records Administration (NARA) facility in College Park, Maryland (Source: NCAP).

# Digitisation - Medium Format / DSLR Cameras



- NCAP developed a rostrum camera system in order Medium-Format/DSLR cameras could be used to rapidly create a digital copy of aerial images for website dissemination.
- Whilst a rapid means of creating a low-resolution digital surrogate, the relatively poor radiometric and geometric accuracy has meant this route is no longer favoured by NCAP.

# Digitisation - Photogrammetric-Standard Imaging



- NCAP has a significant photogrammetric-standard imaging capability (25 units). The hardware operated includes:
  - Leica DSW 700
  - Vexcel Ultrascan 5000
  - Vexcel VX4000HT
  - Wehrli RM3
  - Wehrli RM6
  - Z/I Imaging Photoscan
- Wherever possible from a conservation perspective, and technically, the automated imaging of aerial film is undertaken, on the basis of cost and quality.

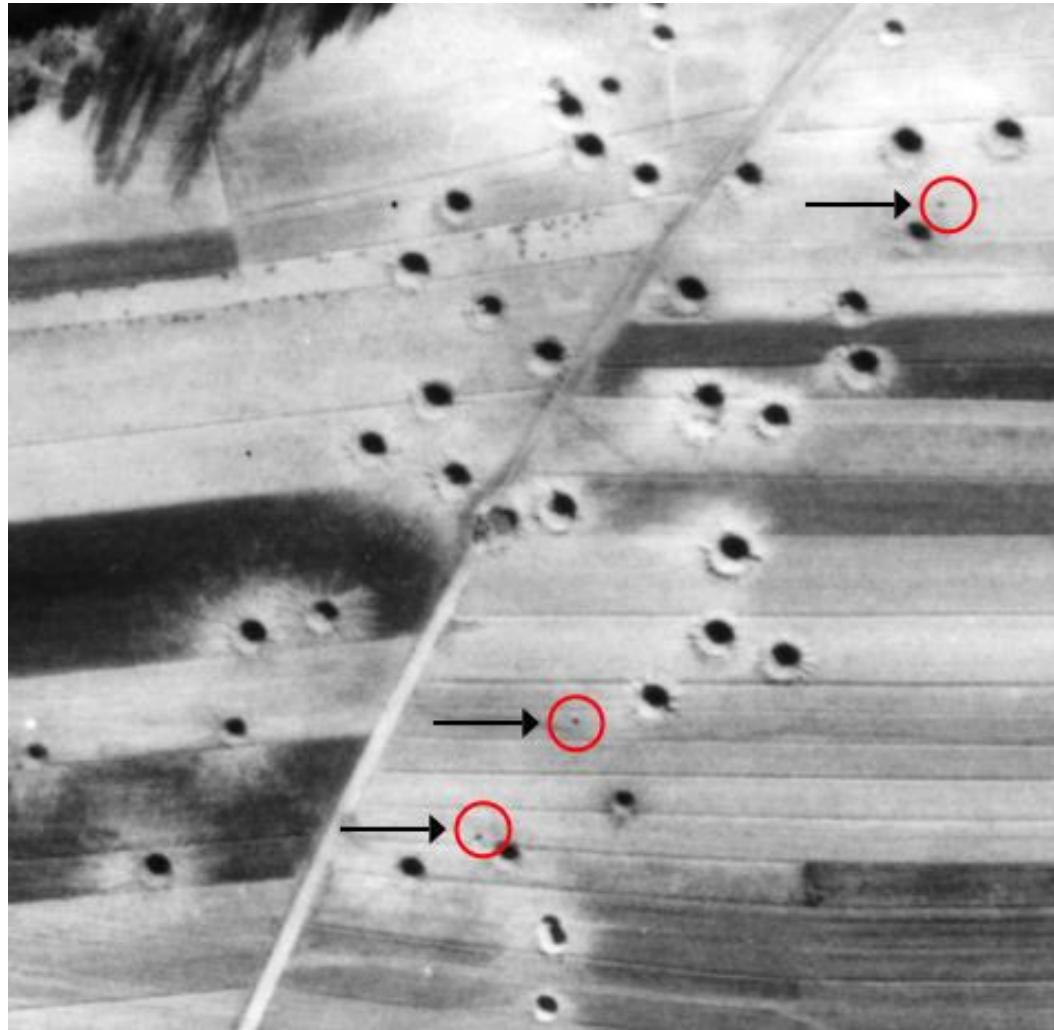
# Digitisation - Photogrammetric-Standard Imaging



- There is a clear need for next-generation photogrammetric imaging systems, given the volume of historical aerial imagery that remains in analogue format, the need for quality and the otherwise labour-intensive and costly nature of manual digitisation.
- The ability to automatically digitise aerial films without fiducial marks, and next-generation stitching and cropping software, are key research and development issues.

A Leica DSW700 photogrammetric imaging system (Source: NCAP).

# Income Generation



- NCAP operational and development costs are wholly covered by commercial enterprise.
- The level of commercial income has grown progressively over the last 15 years from circa \$20k to \$1.5m per annum.
- To date, the bulk of income has derived from Explosive Ordnance Disposal (EOD) sector in Germany, Austria and the Netherlands.

Suspected unexploded ordnance (Source: NCAP).

# Income Generation



- As ~10% of the bombs dropped in the Second World War failed to explode, many of them are still present underground or underwater and pose a significant risk to life and safety.

Second World War bomb discovered in the Netherlands, through the stereo interpretation of NCAP imagery  
Source: NCAP)

# Income Generation: Diversification



- As NCAP receives no public funding - and given its reliance on income from the EOD sector - new (increasingly value-added) products and services are available for:
  - Property boundary disputes;
  - Climate change research;
  - Area-wide datasets;
  - Broadcast media projects;
  - Consumer market.

Actor Ewan McGregor views NCAP imagery in stereo with Wing Commander Michael Mockford (Ret'd) during an April 2018 BBC documentary on the 100th anniversary of the RAF (Source: NCAP).

# Online Dissemination

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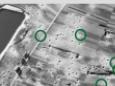
**Welcome to NCAP**  
The National Collection of Aerial Photography is one of the largest collections of aerial imagery in the world, containing tens of millions of images featuring historic events and places around the world.  
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D-Day - SWORD Beach

- The current NCAP website provides access to 350,000 aerial images and plotting for over 5 million not-yet-digitsed aerial photographs.
- A stop-gap measure, it was developed using an architecture which has proven un-scaleable and un-sustainable.

# Online Dissemination

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NATIONAL COLLECTION  
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Jaźwiniec; Opole Province; Poland

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60PR/0462/60/16/27000 31 May 1944 1:25,000 5032

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Frame details

Date: 31 May 1944  
Location: Jaźwiniec; Opole Province; Poland  
Coordinates (lat, lon): 50.344983, 18.234089

Archive reference: GB 551 NCAP/3-1-25-32-328  
UNI: NCAP-000-000-362-678

Sortie: 60PR/0462  
Frame: 5032  
Corporate bodies: 60 Squadron (SAAF)

Image type: Vertical  
Scale: 1:6000

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- Despite its inadequacies, the website has facilitated business growth and remains one of the few places online that provides access to historical aerial imagery.

An aerial image on the NCAP website (Source: NCAP).

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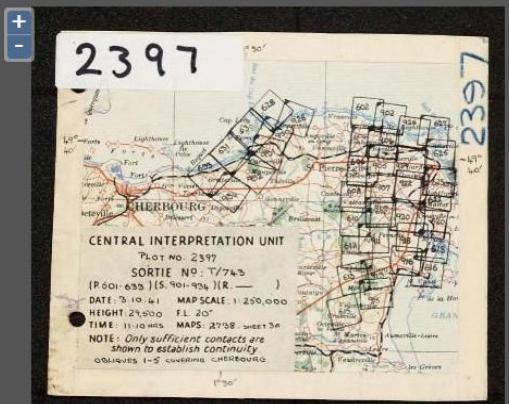
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T/0743

All collections > Allied Central Interpretation Unit (ACIU) > Imagery > Sortie Series T > T/0743





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Finding aid ACIU 02397 

Enter image frame sequence numbers from the finding aid on the left.

- The development of a fully scalable, fit-for-purpose online platform that will facilitate the online dissemination, interpretation and sale of tens of millions of historical aerial images is currently ongoing.

A sortie plot on the NCAP website (Source: NCAP).

# Strategic Projects

The NCAP team are currently focused on three key strategic project, all of which have been approved / funded, namely:

- 1. Staffing** - Expanding the size of the team, and putting in place a team structure that will best facilitate sustainable business growth;
- 2. Systems Improvement** - Upgrading the end-to-end system to maximise access to and sales from the collection, most notably the transfer of all data to a UK Government-sponsored cloud service, and the development of a fit-for-purpose cloud-hosted platform;
- 3. Accommodation** - Relocating to fit-for-purpose accommodation that meets the technical needs of the business, which will enable the expansion of digitisation work undertaken, whilst simultaneously enhancing the care of the collection.

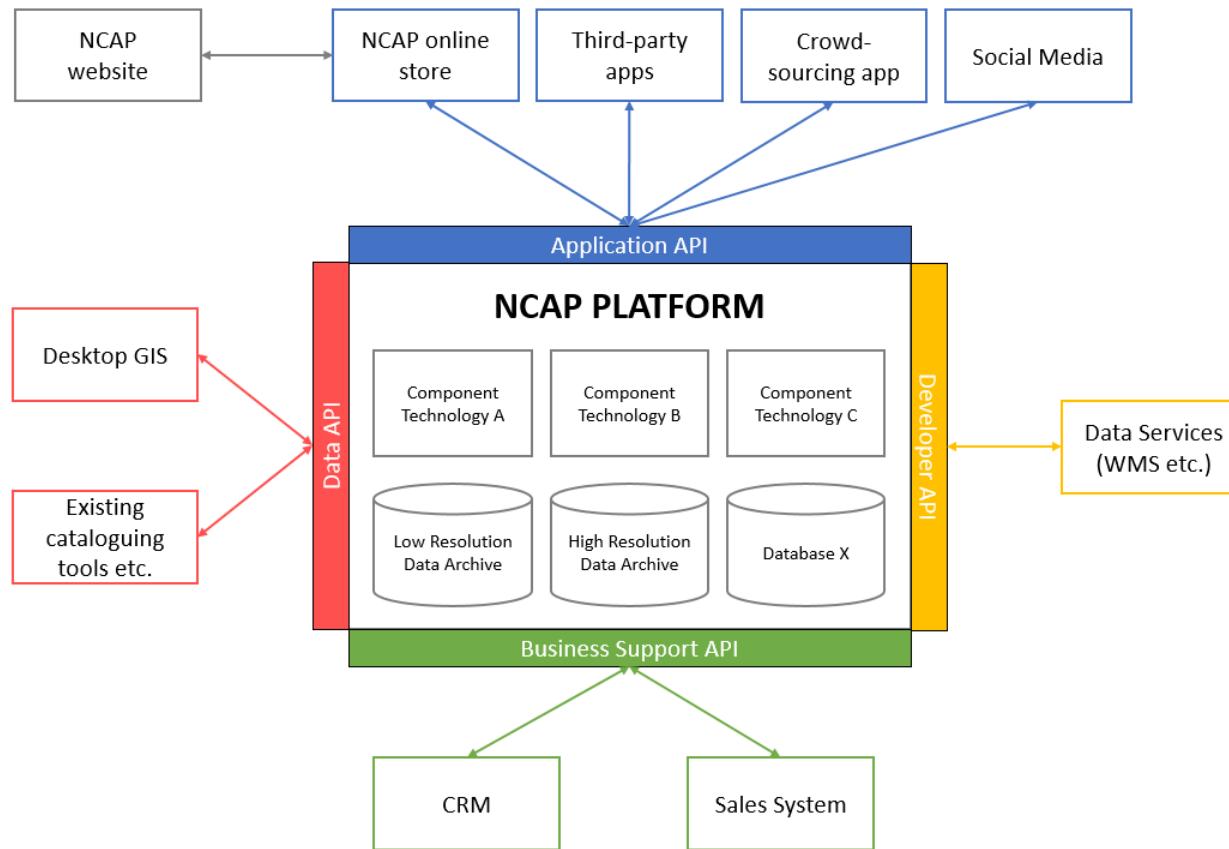
# Strategic Projects: Staffing



- The NCAP team has grown from one person (me) to a team of eighteen.
- In 2018, following sustained business growth the team was re-structured into new sub-teams: Business Development & Sales / Digitisation / Cataloguing & Interpretation.
- This re-structure has also recognised the need for in-sourcing and outsourcing.

Targets Section (Germany), RAF Station Medmenham, as recorded in the unpublished 'Chalk House with the Tudor Chimneys' ACIU unit history (Source: Medmenham Association).  
))

# Strategic Projects: New Platform



A high level view of the new NCAP platform that will deliver a sustainable and scaleable technology platform  
(Source: NCAP).

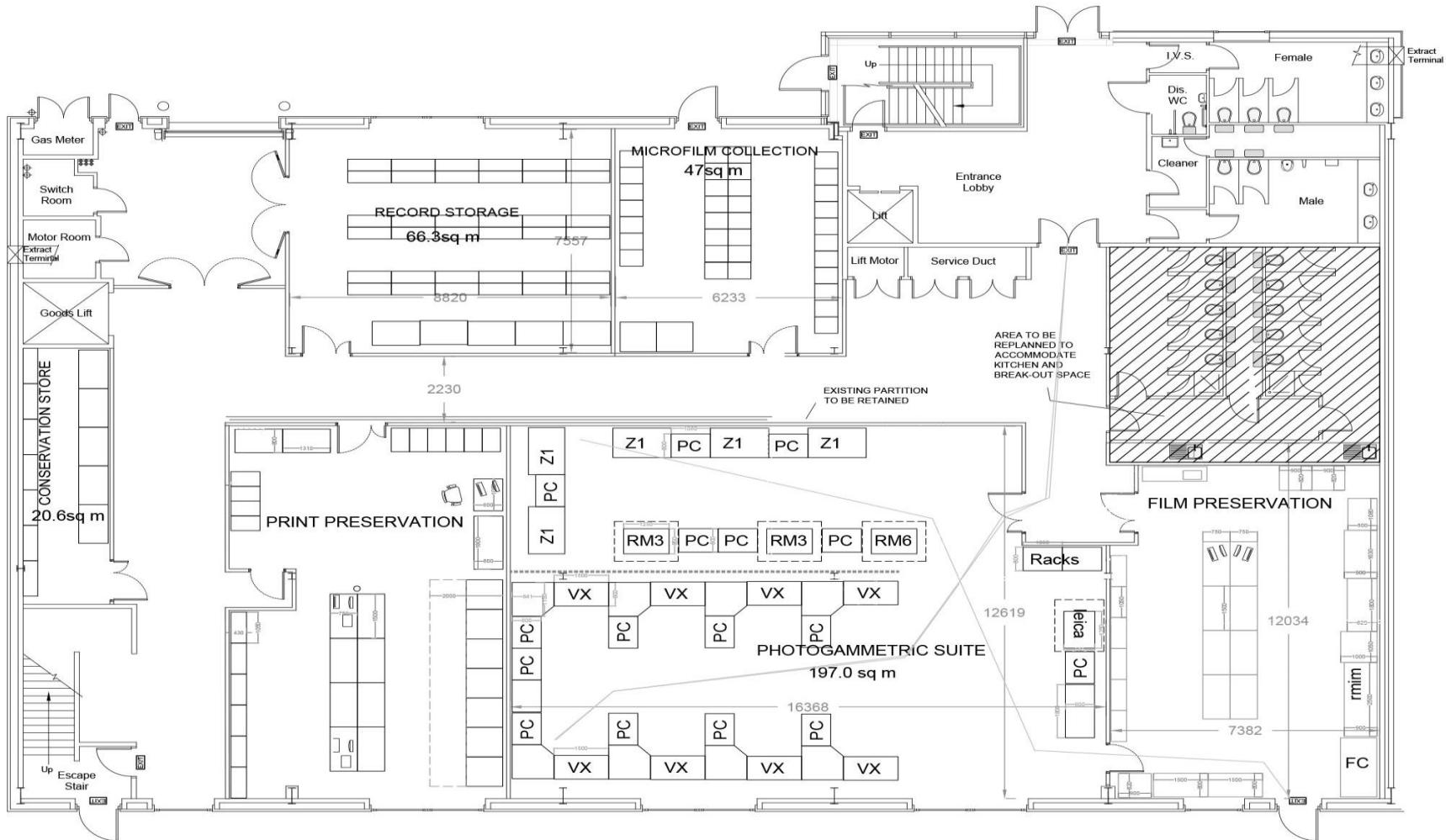
# Strategic Projects: Relocation of NCAP Operations



- Due to the sustained growth of NCAP we are moving to larger fit-for-purpose accommodation in late 2019.
- The modern industrial unit will enable the expansion of conservation and digitisation facilities (and will grow production capacity by 2,500%).

Seven Hills Business Park, Edinburgh, Scotland.

# Strategic Projects: Relocation of NCAP Operations



NCAP Operations, Proposed Floor Plan, Level 1 (Source: NCAP).

# Strategic Projects: Relocation of NCAP Operations

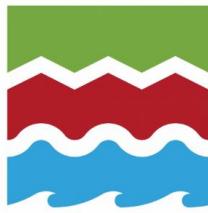


NCAP Operations, Proposed Floor Plan, Level 2 (Source: NCAP).

# Partnerships



NATIONAL  
ARCHIVES



Historic  
England



MIGHTY  
EIGHTH  
AIR FORCE MUSEUM



Stockholms  
universitet



Berkeley  
UNIVERSITY OF CALIFORNIA

# Partnerships - NARA



- NCAP has worked in partnership with the US National Archives & Records Administration (NARA) on the imaging of their holdings of Second World War aerial photography since 2016. The digital imagery is being made progressively accessible via the NCAP website.

The National Archives at College Park, Maryland (Source: NARA).

# Partnerships - NARA



- As Allied photographic reconnaissance was jointly coordinated, the progressive dissemination of imagery now held separately by NCAP and NARA, digitally reunites the wartime photographic reconnaissance and intelligence effort.
- For the partnership NCAP and NARA have developed a digitisation unit within the NARA facility in College Park, Maryland.

The digitisation of aerial film for the NCAP / NARA Digitisation Partnership, in the NARA facility in College Park (Source: NCAP)

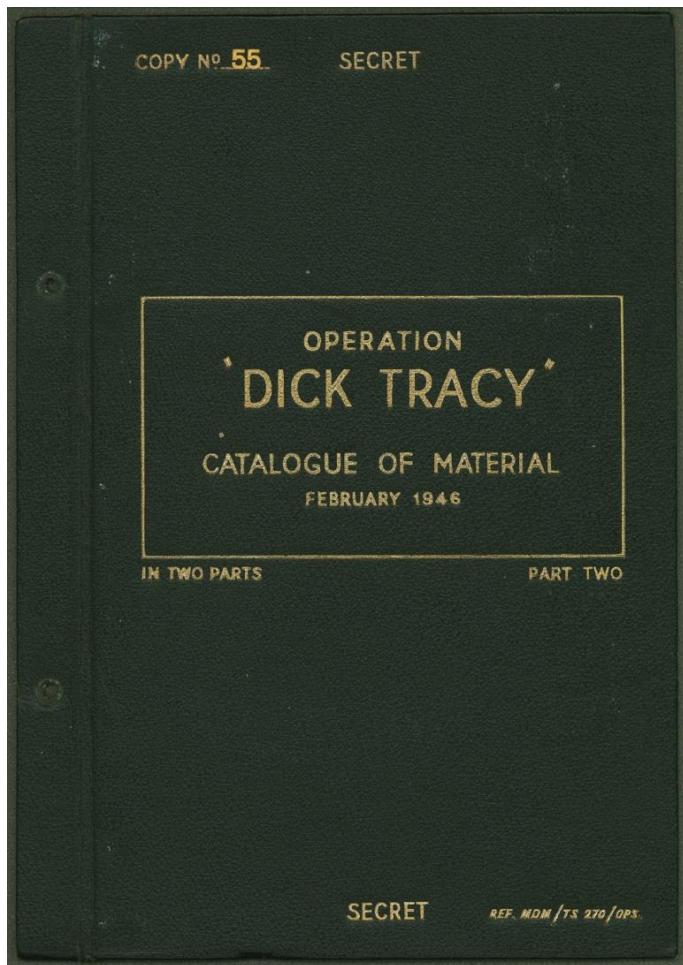
# Partnerships - NARA



- Beyond the manual digitisation of original film, photogrammetric units are used to process already duplicated films.
- Large-format Contex flatbed scanners are also used to digitise 30cm-Square-Format aerial prints created by the German Luftwaffe, which were captured by the US Army at the close of the war.

Facilities for the digitisation of aerial film for the NCAP / NARA Digitisation Partnership, in the NARA facility in College Park (Source: NCAP)

# Partnerships - NARA



An Operaton 'Dick Tracy' catalogue, which records German Luftwaffe aerial photography captured by the US Army (left) and (right) a captured image of a Heinkel He 111 bomber over the East End of London (Source: NARA).

# Partnership Projects: DOS



Riksbankens  
Jubileumsfond



Stockholms  
universitet



Berkeley  
UNIVERSITY OF CALIFORNIA

- Courtesy of multi-million dollar funding from the Bank of Sweden Tercentenary Foundation, NCAP will preserve and digitise the entire DOS collection of 1.6 million contact prints.
- In partnership with the universities of Stockholm, Oxford and Berkeley, the imagery - which records 55 countries of the Commonwealth in their entirety - will be rectified and mosaiced.
- Whilst research and development work is continues, large-scale preservation and digitisation operations will only occur following the relocation to new accommodation (likely Autumn 2019).

# Partnership Projects: DOS



- Given the labour-intensive nature of manually digitising such a large number of contact prints, NCAP has developed a calibration target with Rochester-based Applied Image Inc.
- Using a calibration target alongside each aerial image avoids the need to pre-scan, facilitates the post-processing of imagery, and ensures a uniform output to a measurable standard.
- For this project, circa 100,000 frames will be processed each month for a period of 16 months.

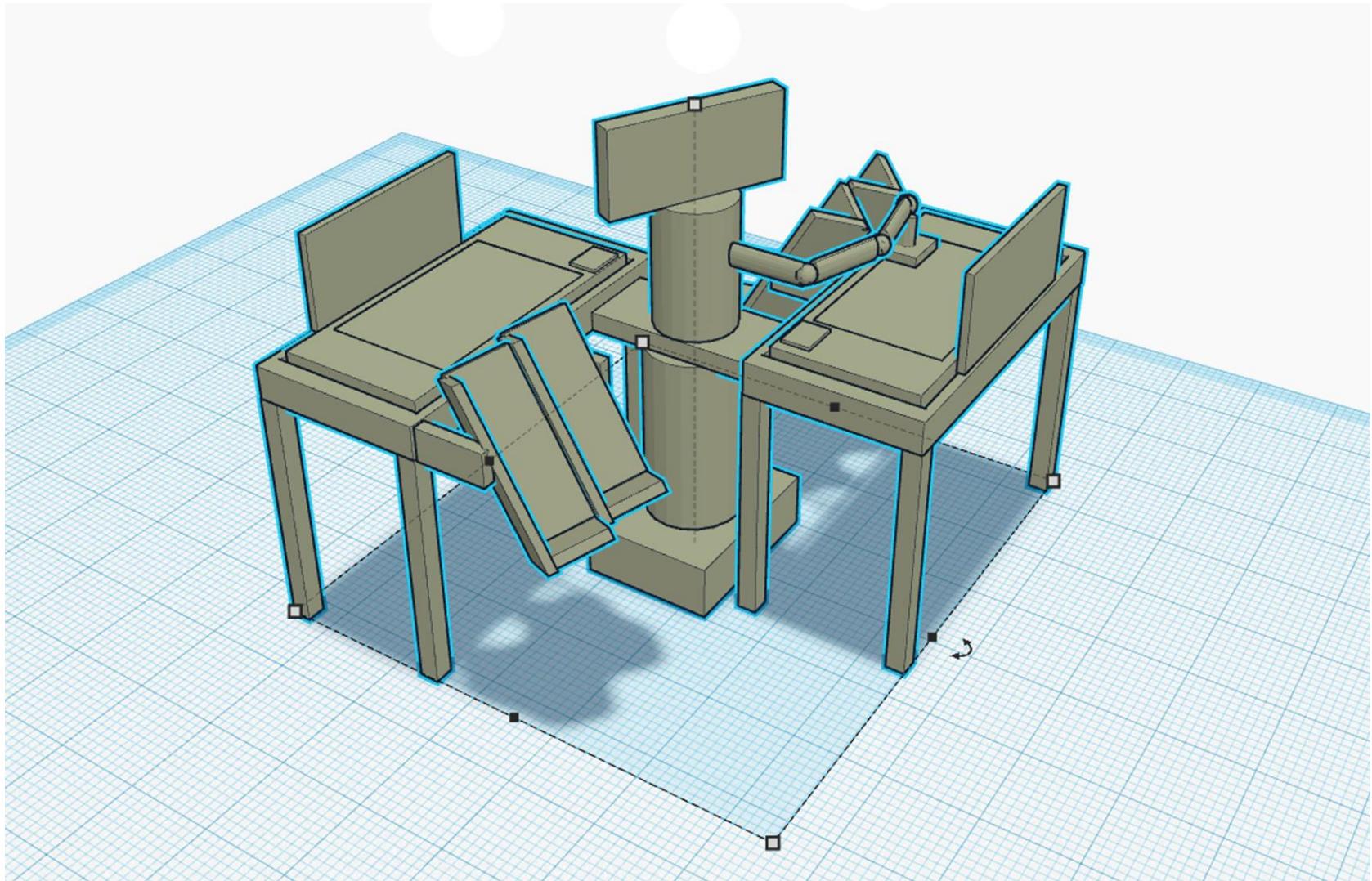
DOS image of Barbados, alongside NCAP Calibration Target (Source: NCAP).

# Partnership Projects: DOS



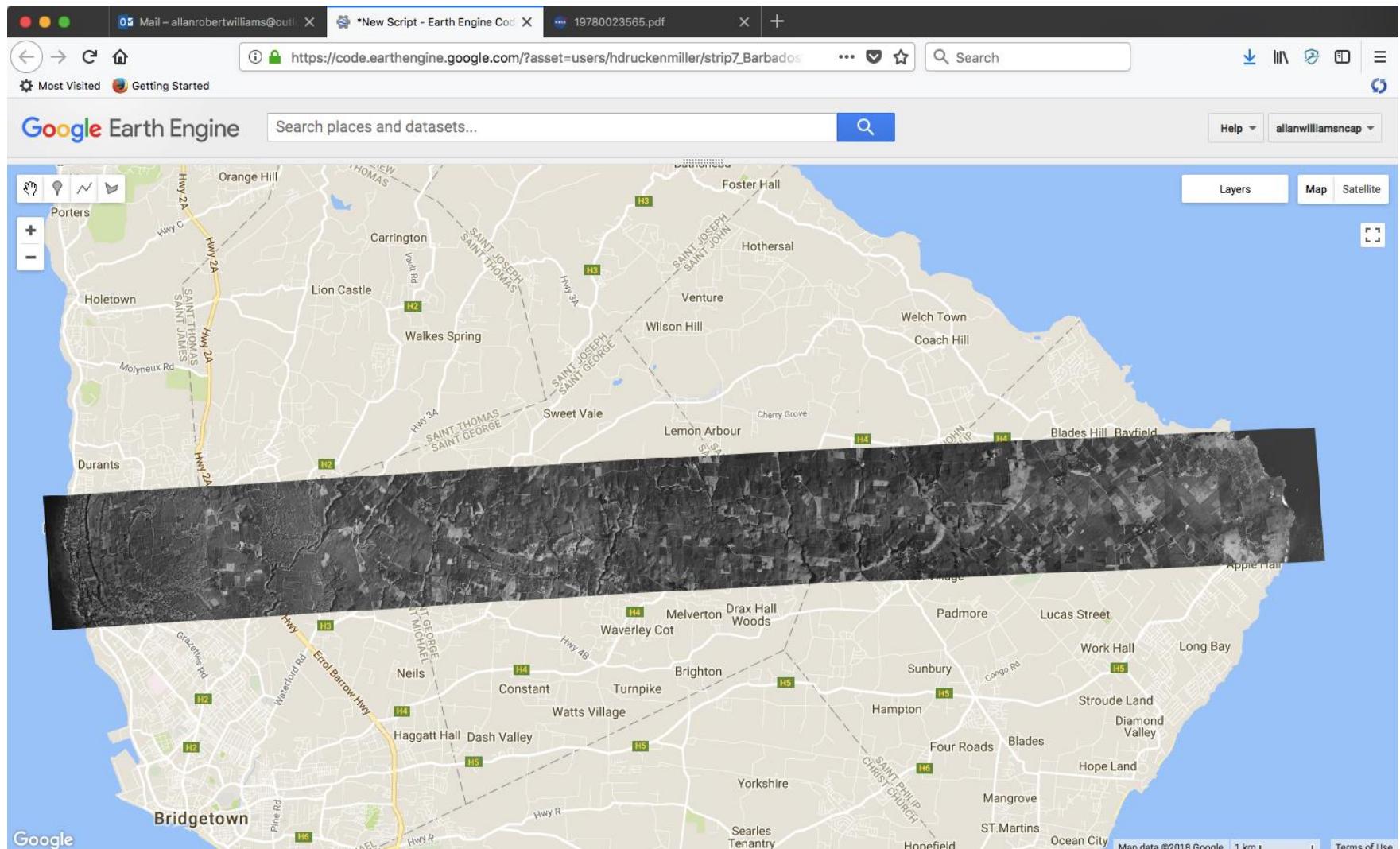
Initial Cobotics Trial: Rethink Robotics Sawyer Cobot.

# Partnership Projects: DOS



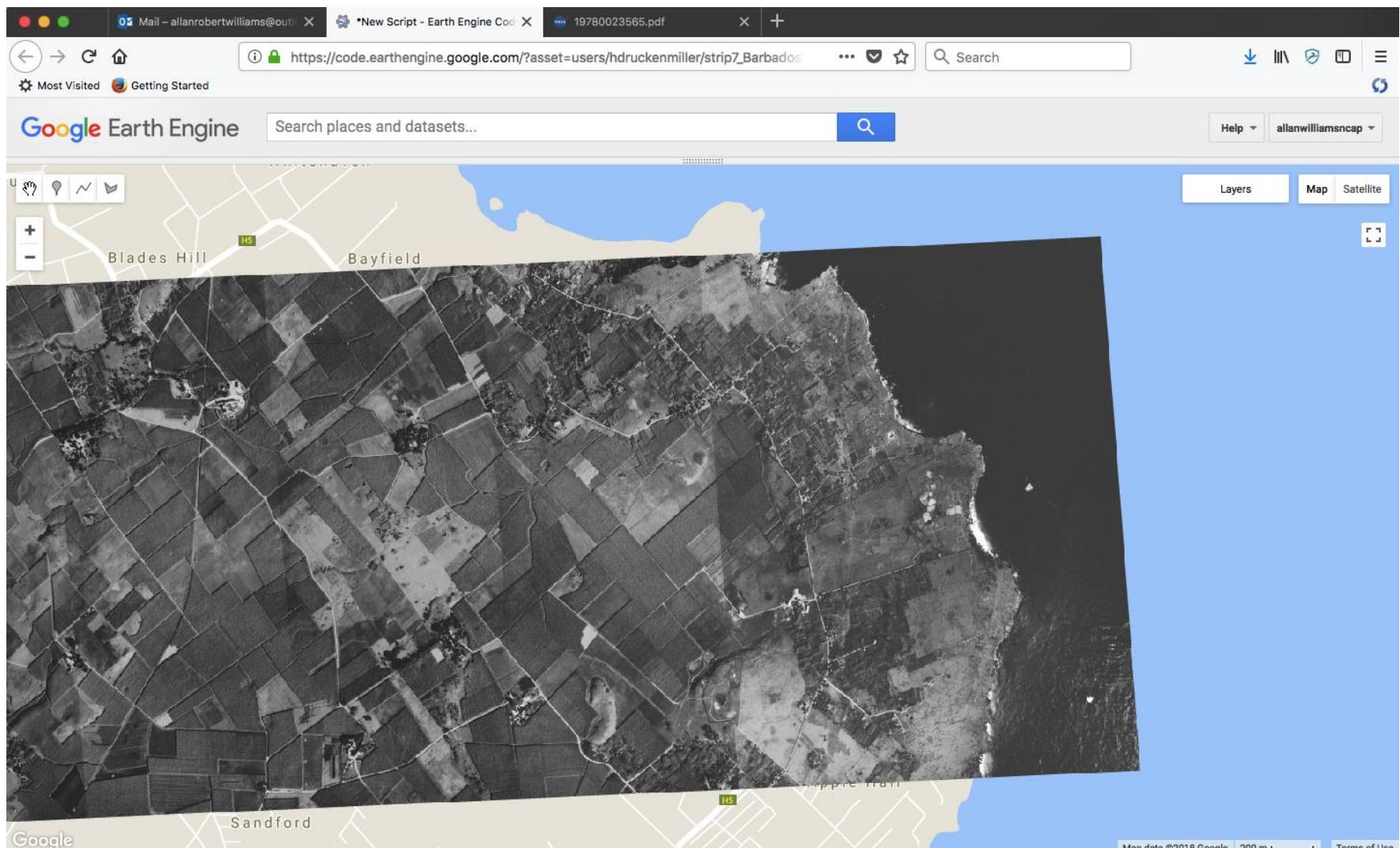
Prototype NCAP Cobot Scanning Unit. Six of these will be deployed on the (Source: NCAP).

# Partnership Projects: DOS



Rectified mosaic composed of DOS imagery of Barbados, rendered in Google Earth Engine (Source: DOS Collection, NCAP).

# Partnership Projects: DOS



Rectified mosaic composed of DOS imagery of Barbados, rendered in Google Earth Engine (Source: DOS Collection, NCAP).

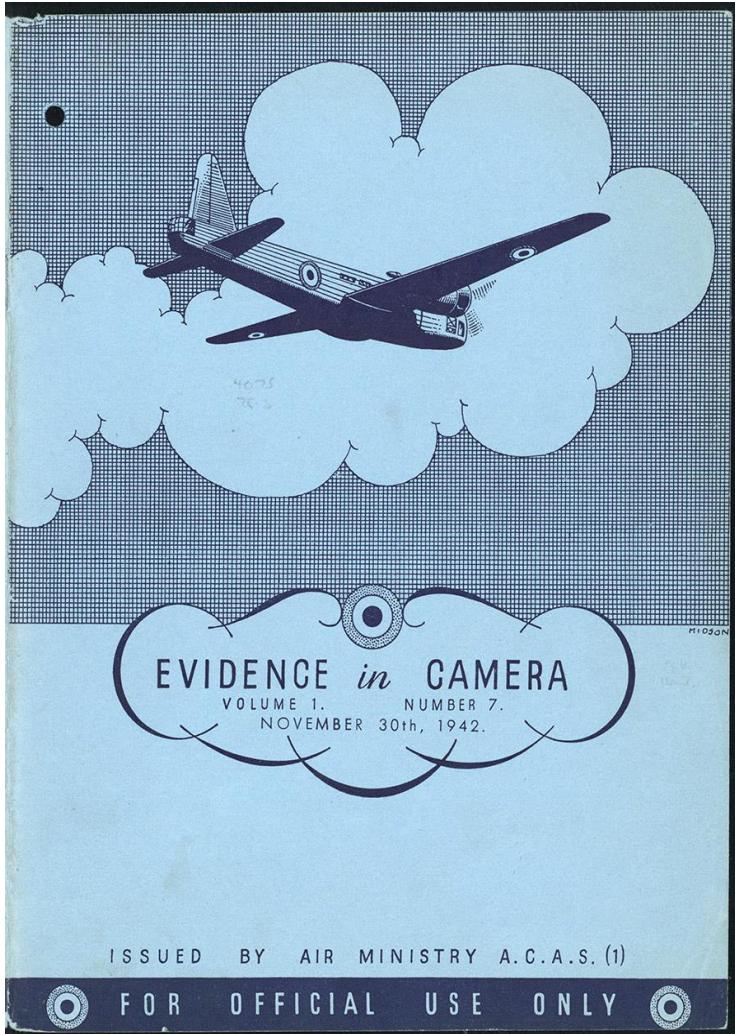
# Partnerships: Medmenham Association



- NCAP works in partnership with the Medmenham Association, a charitable trust dedicated to the history of photographic intelligence. The Association holds a unique collection of records about Second World War and Cold War Imagery Intelligence.

Second World War photographic interpreter, Constance Babington-Smith (Source: Medmenham Association).

# Partnerships: Medmenham Association



- The Medmenham Association holds the personal papers of Second World War veterans (notably those who served at RAF Medmenham), and Cold War Photographic Interpreters/Imagery Analysts.
- Following the development of the next-generation NCAP platform these records will become accessible online, in a dedicated section that will progressively document the history of Photographic Intelligence.

Evidence in Camera, the in-house magazine at RAF Medmenham, which comprehensively records the air war (Source: Medmenham Association).

# France: Second World War Cover



Source: ACIU Print Library - Historical Record (April 1941 - September 1945) - TNA AIR 34/81.

# Paris, France.



016

P. 106G.3169. 2.OCT.44. F/14"// 544. SQDN

La Tour Eiffel, Paris, France.

Source: Medmenham Collection, Sortie 106G/3169, Frame 0016.

# Paris, France.



La Tour Eiffel, Paris, France.

Source: Medmenham Collection, Sortie 106G/3169, Frame 0016.

# Paris, France.



0023 106G.3058.25 SEP.44 F/14"//544 SQDN.

l'Arc de Triomphe, Paris, France.  
Source: Medmenham Collection, Sortie 106G/3058, Frame 0023.

# Paris, France.



0094

106G 311428 SEPT44 F114" 11540 SQDN

Notre Dame Cathedral, Paris, France.

Source: Medmenham Collection, Sortie 106G/3114, Frame 0094.

# Paris, France.



Château de Vincennes, Paris, France.

Source: NCAP, ACIU Collection, Sortie 106W/0141, Frame 4036, 27 April 1944).

# Any Questions?



Institut géographique national / Hopital d'Instruction des Armées BEGIN.  
Source: NCAP, ACIU Collection, Sortie 106W/0141, Frame 4036, 27 April 1944).