

- History and Historic Photographic Technologies

Historical aerial photographs From war photography to 'winged' archaeology

Gianluca Cantoro

Presentation's outline

1. The view from above... where and how everything started
2. War-related importance of aerial photography
3. Why Aerial Photography?
4. Looking for “marks”
5. Some conclusions

1. History of AP
2. War-related importance
3. Why Aerial
4. Marks
5. Conclusions



1

The view from above...
where and how everything started



1. The view from above...

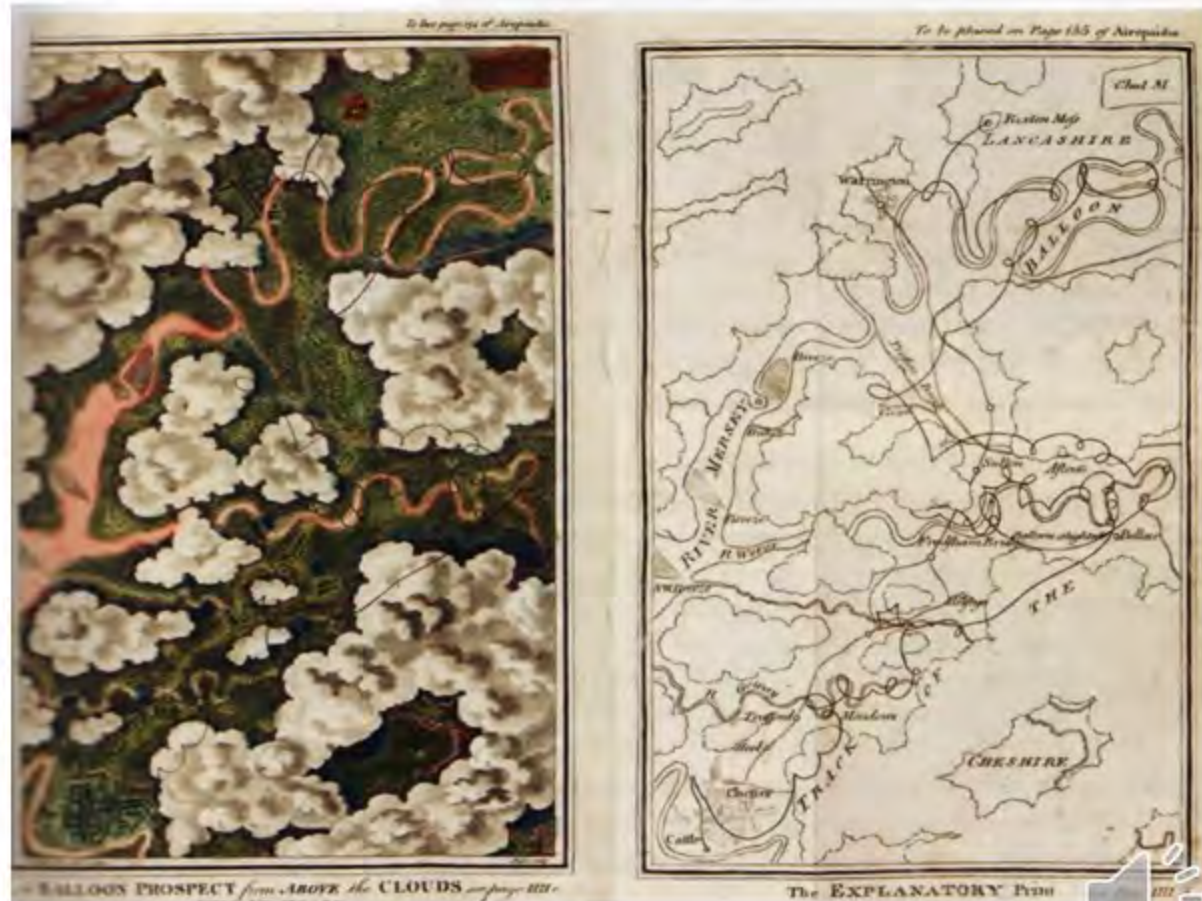
• Baldwin – 1786

“A View from the Balloon at its Greatest Elevation”, city of Chester



1. The view from above...

- **Baldwin – 1786**
“A View from the Balloon at its Greatest Elevation”, city of Chester
- Sketch from above and flight-track



1. The view from above...

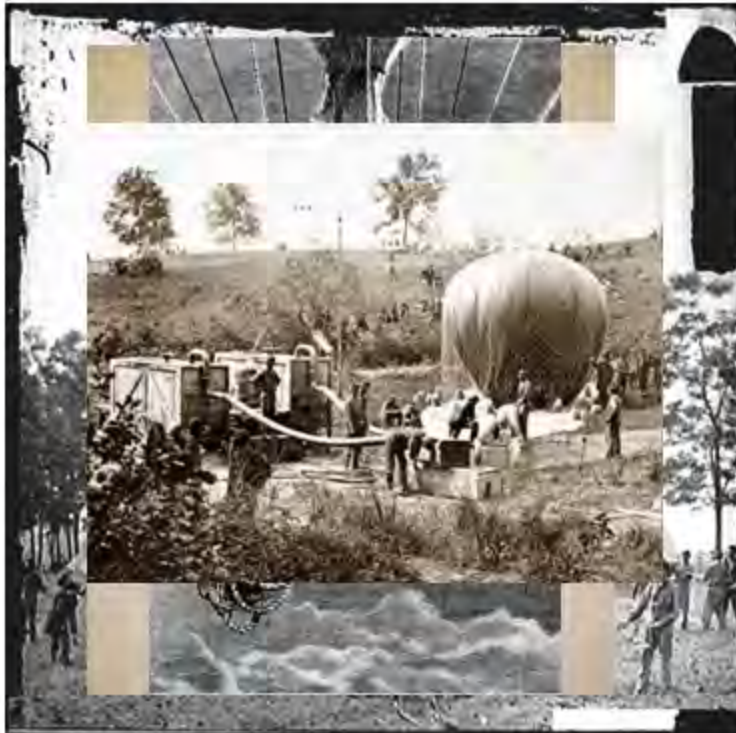
Baldwin – 1786



Google – today



1. The view from above...



- **Arago – 1839**
Daguerrotype – new mapping
- **Nadar – 1858**
“What (he) had really done was to change the level of art to the level of science and utility, from the artistic drawing to work tool”
- **Kings/Black – 1860**
Boston – earliest picture
- **Glaisher – 1862**
London from 20,000 feet
- **Lowe/Lincoln – 1863**
Spy balloons in the American Civil War

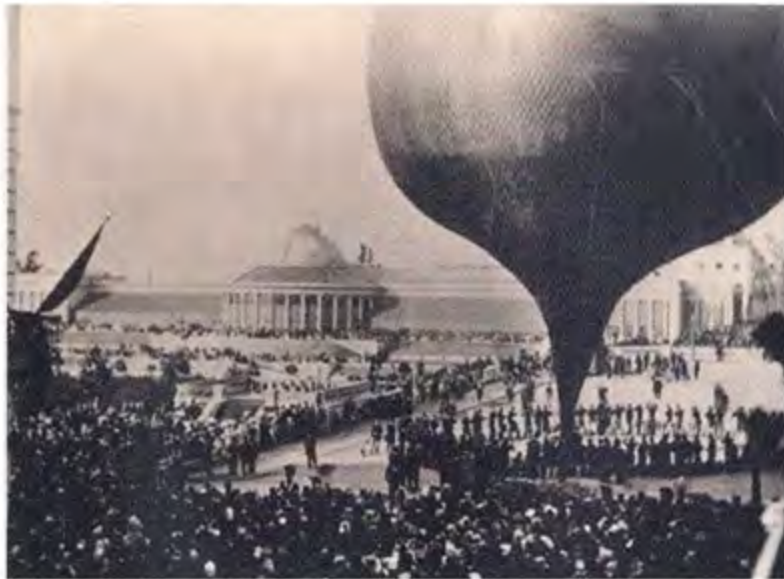
1. The view from above...



Gaspard-Félix Tournachon
(6/4/1820 – 21/3/1910)



1. The view from above...



One of Nadar's events

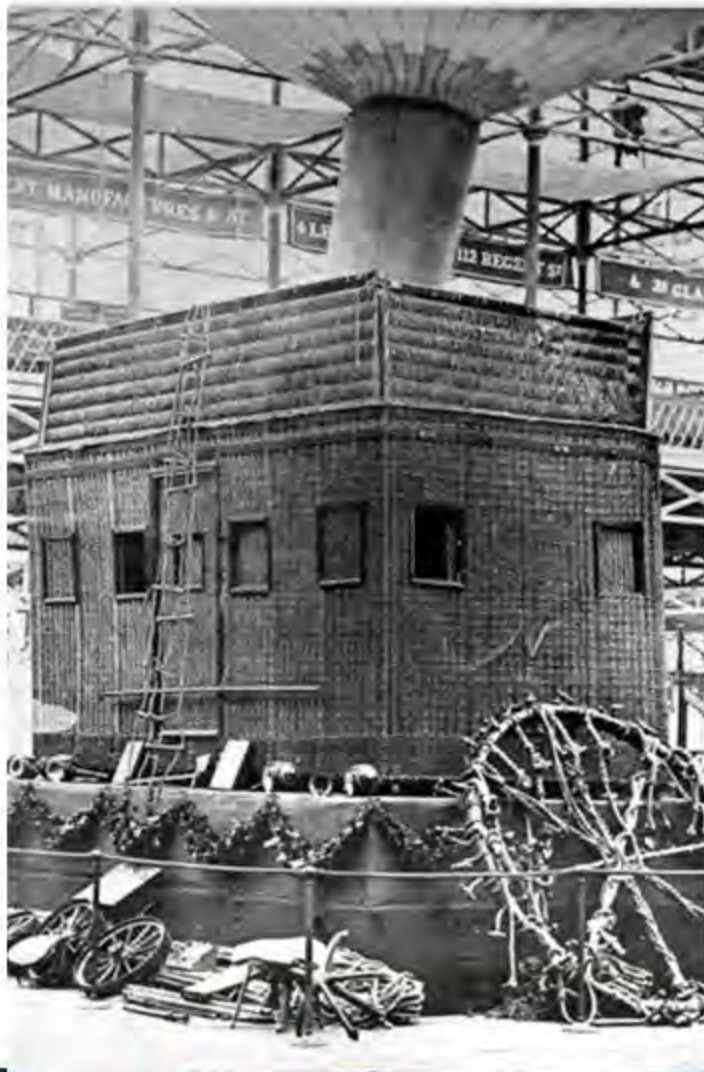


Crowd control barriers or "Nadar barriers"

1. The view from above...



1. The view from above...



"Le Géant"

1. The view from above...



1. The view from above...



Black and Kings

The first aerial picture taken in the US; this view of Boston was photographed by **J.W. Black and S.A. Kings** from a captive balloon in 1860/1, two years after Nadar's pioneer venture over Paris.

1. The view from above...



- **Nadar – 1875**
Camera shake and steam gliders
- **Lilienthal -1884**
Glyder
- **Eddy, Batut, Archibald – 1880s**
Kites
- **Jennings – 1909**
 - The chief difficulties arise from the tendency to over-exposure;
 - vibration of the camera caused by wind or movement;
 - atmospheric disturbances not always perceived by the eye but plainly apparent in the negative
 - camera shake may be limited by the rigidity of the camera and of its parts.



1. The view from above...

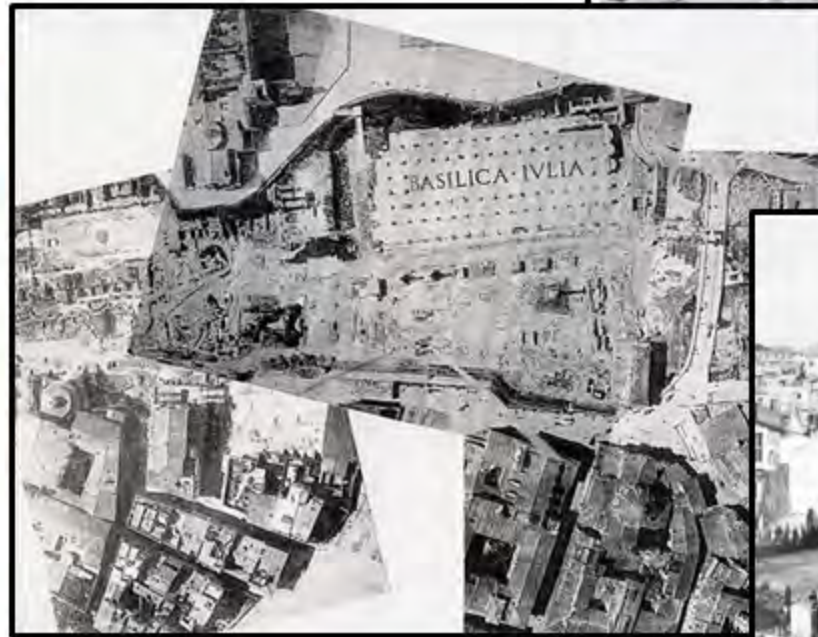


- **Stolze – 1874**
Persepolis survey;
- **Boni – 1899**
‘I have been on the “Military Engineers” balloon thrice, 400 mt above the Palatine Hill and the Forum Romanum, I have taken a dozen exposures and sketched the plans of monuments and views [...] The Coliseum, and Constantine’s Basilica looked like wooden models!’;
- **McKenzie – 1900**
Stonehenge 1;
- **Boni- Vaglieri – 1900-1912**
Ostia and Pompeii;
- **Capper – 1907**
Stonehenge 2.

1. The view from above...



G. Boni (1859 – 1925)
Photos as **document**



1. The view from above...



**Observing the Enemy from a Military Balloon
During the Second Boer War (1899-1902)**

1. The view from above...



- **1903**
Samuel Franklin Cody and his man-lifting kite

1. The view from above...



- **1909-12**
The Wrights and Farman planes



1. The view from above...



- **Wellcome - 1911**
 - The trolley kite had thus freed archaeologists of their greatest constraint: **the immobility of hot-air balloons**. Conversely, it provided the exploratory potential for small-scale surveys, anticipating the role of motor vectors.
- Thus, Wellcome' kites could take two types of pictures:
 1. **verticals**, to obtain plans, as had already been the case with Boni and Vaglieri;
 2. **obliques**, to gain an overall view of the landscape.

1. The view from above...



Henry Wellcome with Sultans of Socota [Jebel Moya].
Images reference: M0008634.



Aerial view of the excavation camp at Seqadi/Sagadi, Sudan.
Images reference: M0008631.



Aerial photograph taken with the 'kite camera', at Seqadi, Jebel Moya, 1913.
Images reference: M0013048EB.

1. The view from above...



Remote operation of the kite camera.

Images reference: L0021185.

1. The view from above...



German Army photograph of rocket squad with Maul's equipment (A)
and pigeons with cameras (B)

1. The view from above...



Major G.W.G Allen (1891-1940) in front of his Puss Moth monoplane in which he undertook solo flights while aiming his hand-held camera at archaeological targets

1. The view from above...



Antoine de Saint-Exupéry (1900-1944) in front of his airplane
[author of *The Little Prince*]

1. The view from above...



WW2 Aerial Reconnaissance

Man instructed on how to use the camera on airplane



1. The view from above...



- (A) An extendible ladder [Guy 1932, plate IV],
- (B) The Holmes boom [Poulter and Kerlake 1997, fig. 6]
- (C) The photo-turret [Nylén 1964, fig. 1]

1. The view from above...



1. The view from above...



1. The view from above...



1. History of AP
2. **War-related importance**
3. Why Aerial
4. Murks
5. Conclusions

2

War-related importance of aerial photography

2. War-related importance of aerial photography



2. War-related importance of aerial photography



2. War-related importance of aerial photography



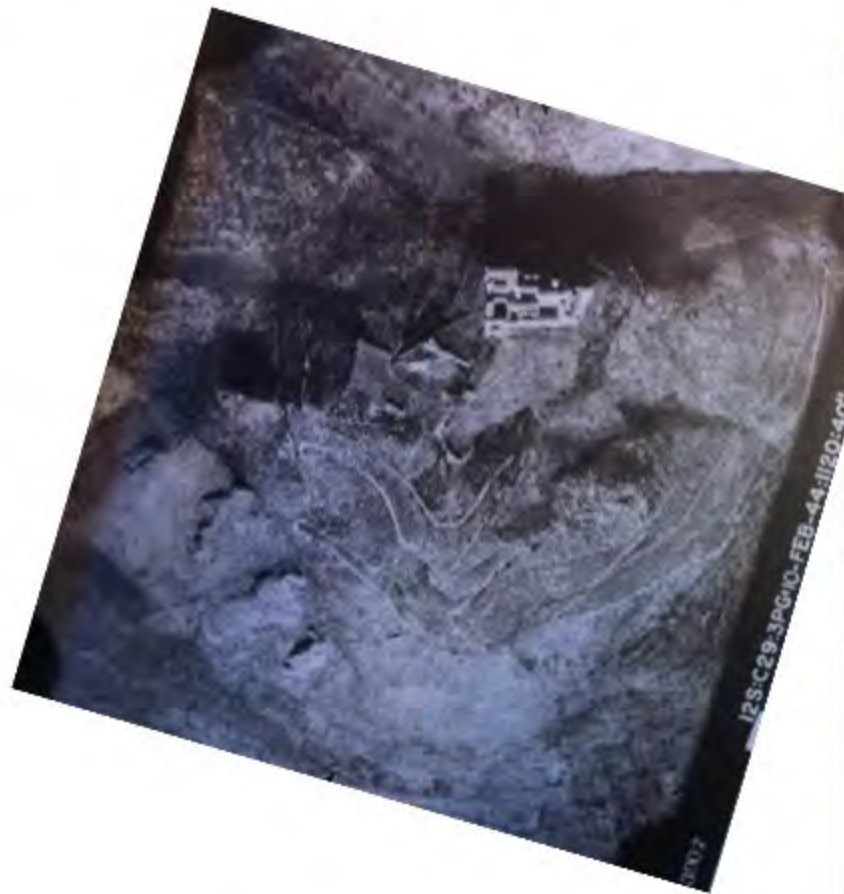
2. War-related importance of aerial photography



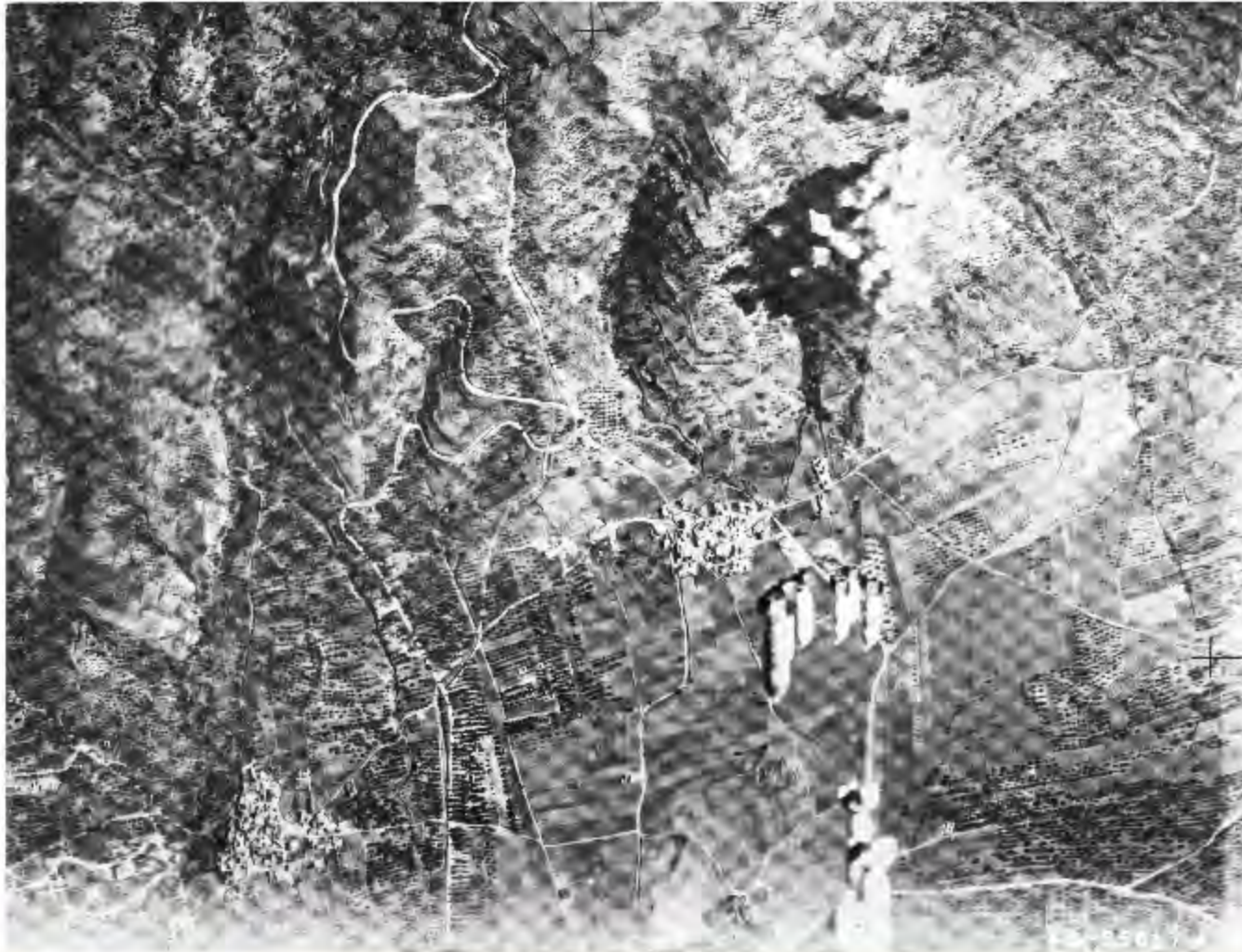
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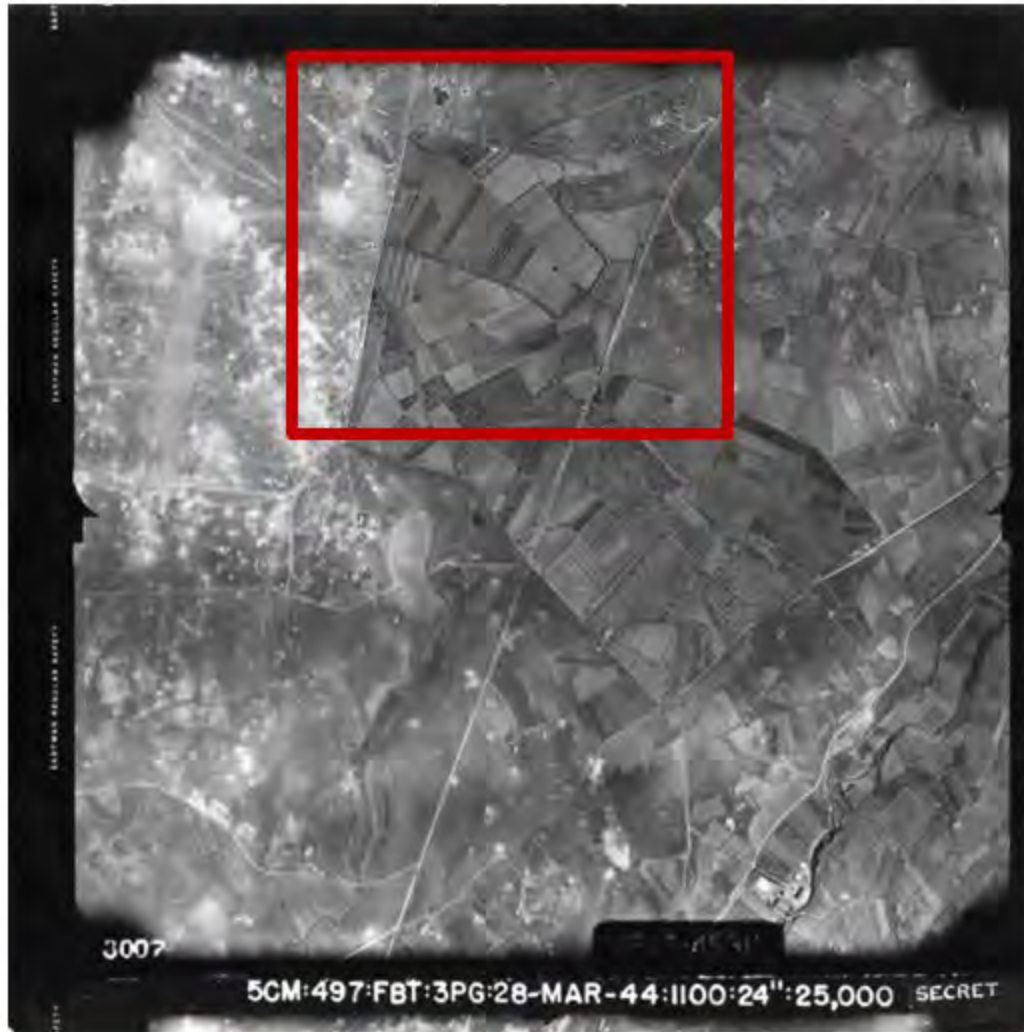
French airplane bombing a German munition-factory in Lorraine (1918)

2. War-related importance of aerial photography



Historical aerial photograph of
South-Eastern Crete (Greece)
[Greek Geographic Military Service]

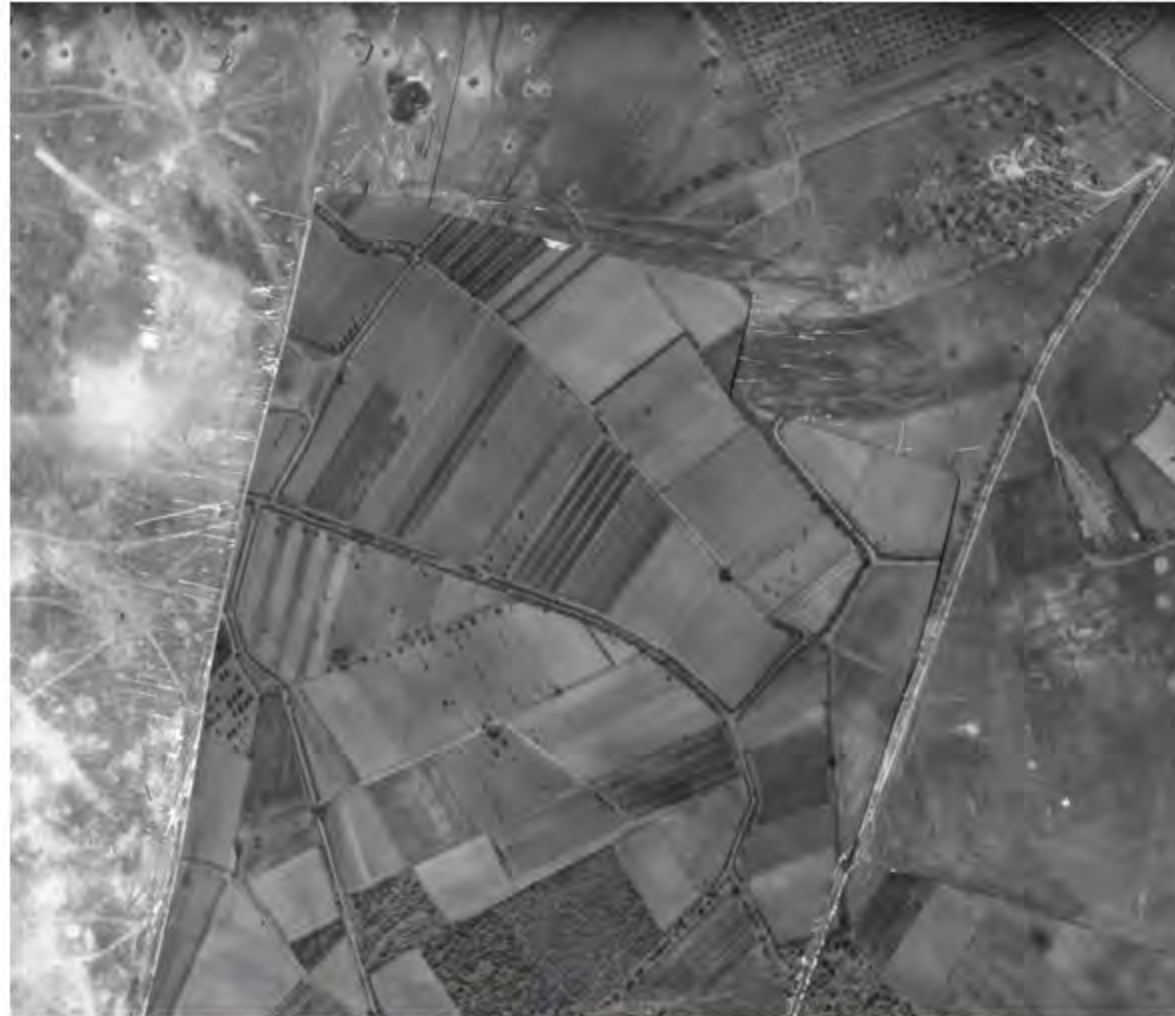
2. War-related importance of aerial photography



RAF photograph of
March 28th, 1944
near Viterbo (central Italy)



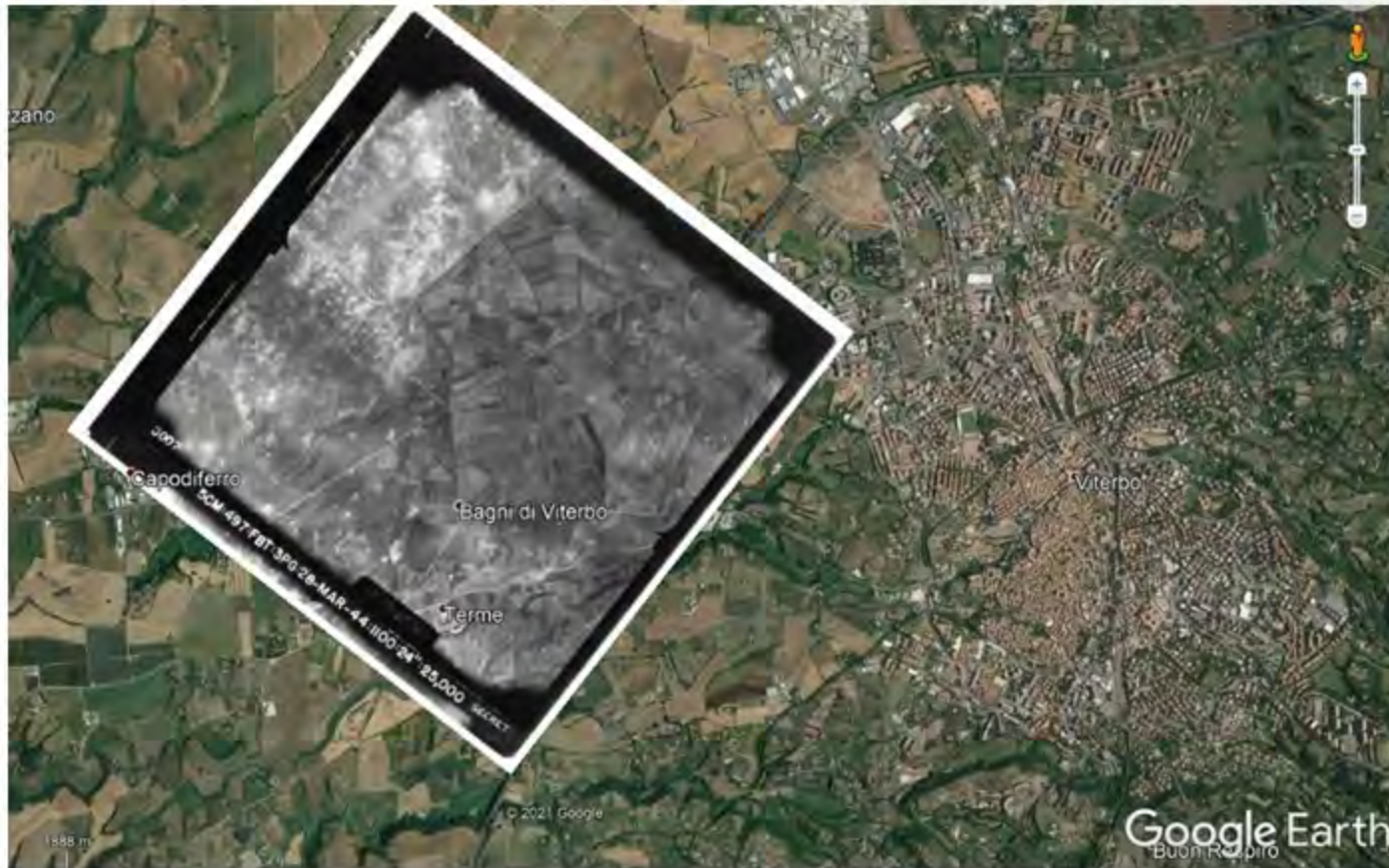
2. War-related importance of aerial photography



RAF photograph of
March 28th, 1944
near Viterbo (central Italy)



2. War-related importance of aerial photography



RAF photograph over
Google Earth

2. War-related importance of aerial photography



RAF photograph over
Google Earth

2. War-related importance of aerial photography



RAF photograph over
Google Earth

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RAF photograph over
Google Earth



2. War-related importance of aerial photography



RAF photograph over
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2. War-related importance of aerial photography



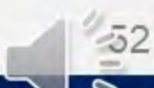
Volkel Air base (NL) in 2014



2. War-related importance of aerial photography



Volkel Air base (NL) today



2. War-related importance of aerial photography



<https://densitydesign.github.io/teaching-dd15/course-results/es02/group05/question02/>

2. War-related importance of aerial photography



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<https://densitydesign.github.io/teaching-dd15/course-results/es02/group05/question02/>

1. History of AP
2. War-related importance
3. **Why Aerial**
4. Marks
5. Conclusions

3

Why **Aerial** Photography?

3. Why Aerial Photography?



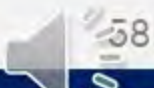
Ph. J. Bradford (1949)



3. Why Aerial Photography?



Photographs taken by Poidebard's team to show that a Roman road, clearly visible from the air (left), became progressively less discernible as one approached the ground.



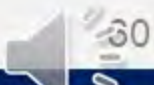
3. Why Aerial Photography?



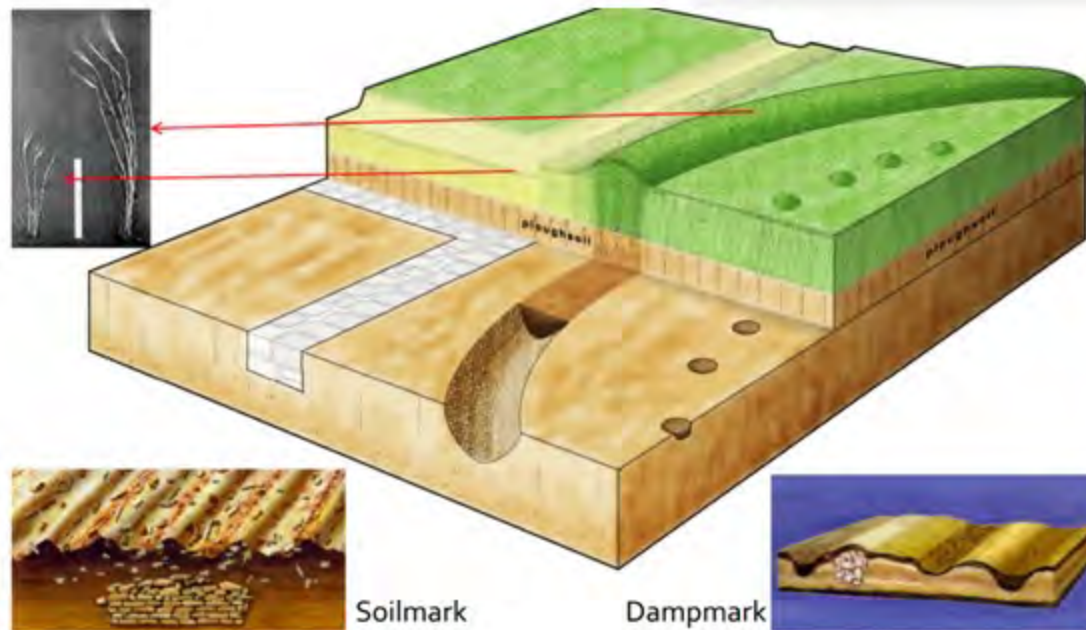
3. Why Aerial Photography?



Neolithic compound from Apulia, Italy



3. Why Aerial Photography?

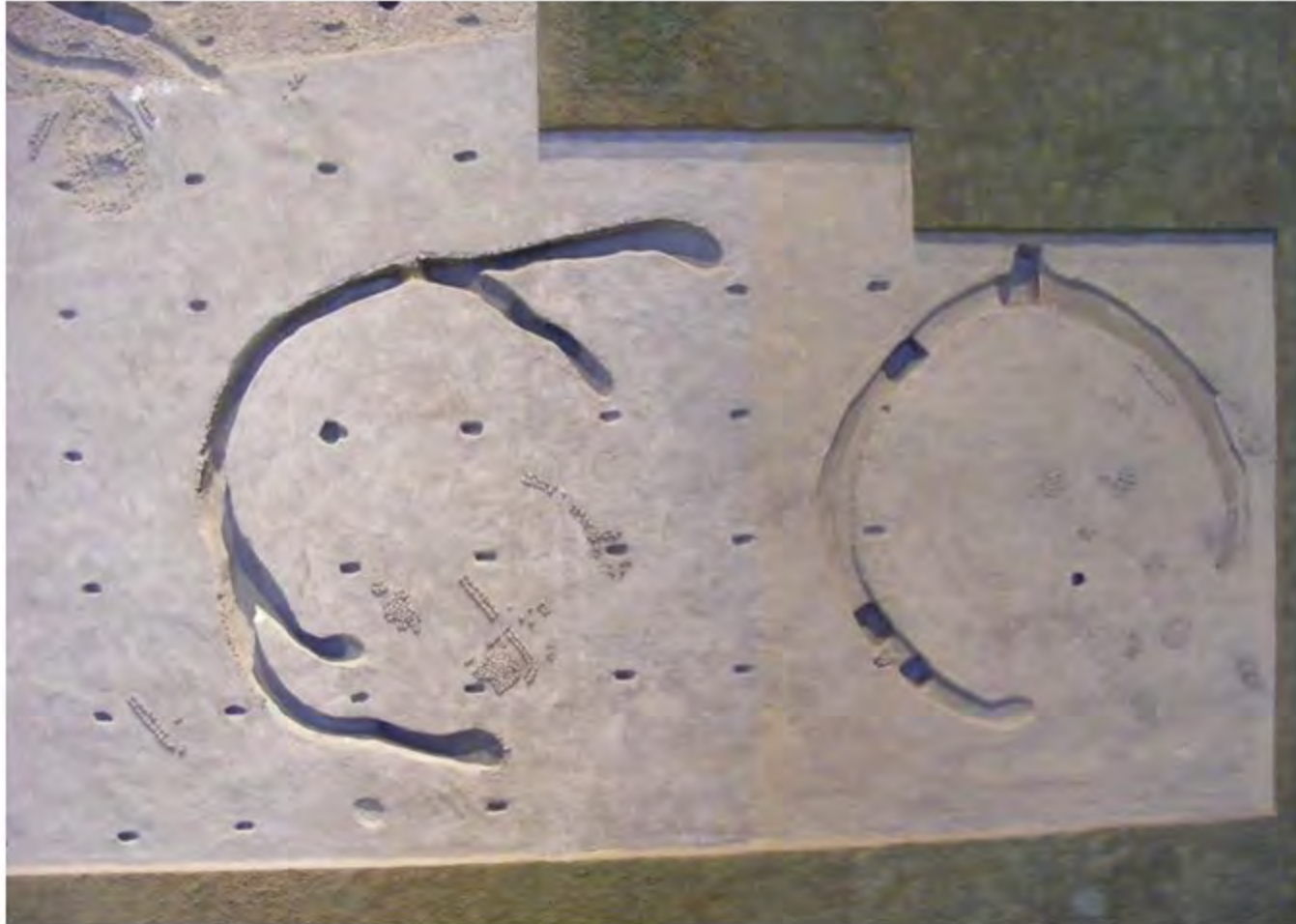


3. Why Aerial Photography?



The **origin of crop-marks** demonstrated by a cut through Burcot pit near Dorchester. Over the triangular ditch in the centre the vegetation shows up higher and thicker than on the undistributed soil

3. Why Aerial Photography?



Neolithic compound from Apulia, Italy



3. Why Aerial Photography?



Verberie (Oése). Moaison gauloise. Photo : R. Agache



3. Why Aerial Photography?



Verberie (Oése). Moaison gauloise. Photo : R. Agache

3. Why Aerial Photography?



Pecs hillfort (13/11/2010) - Hungary

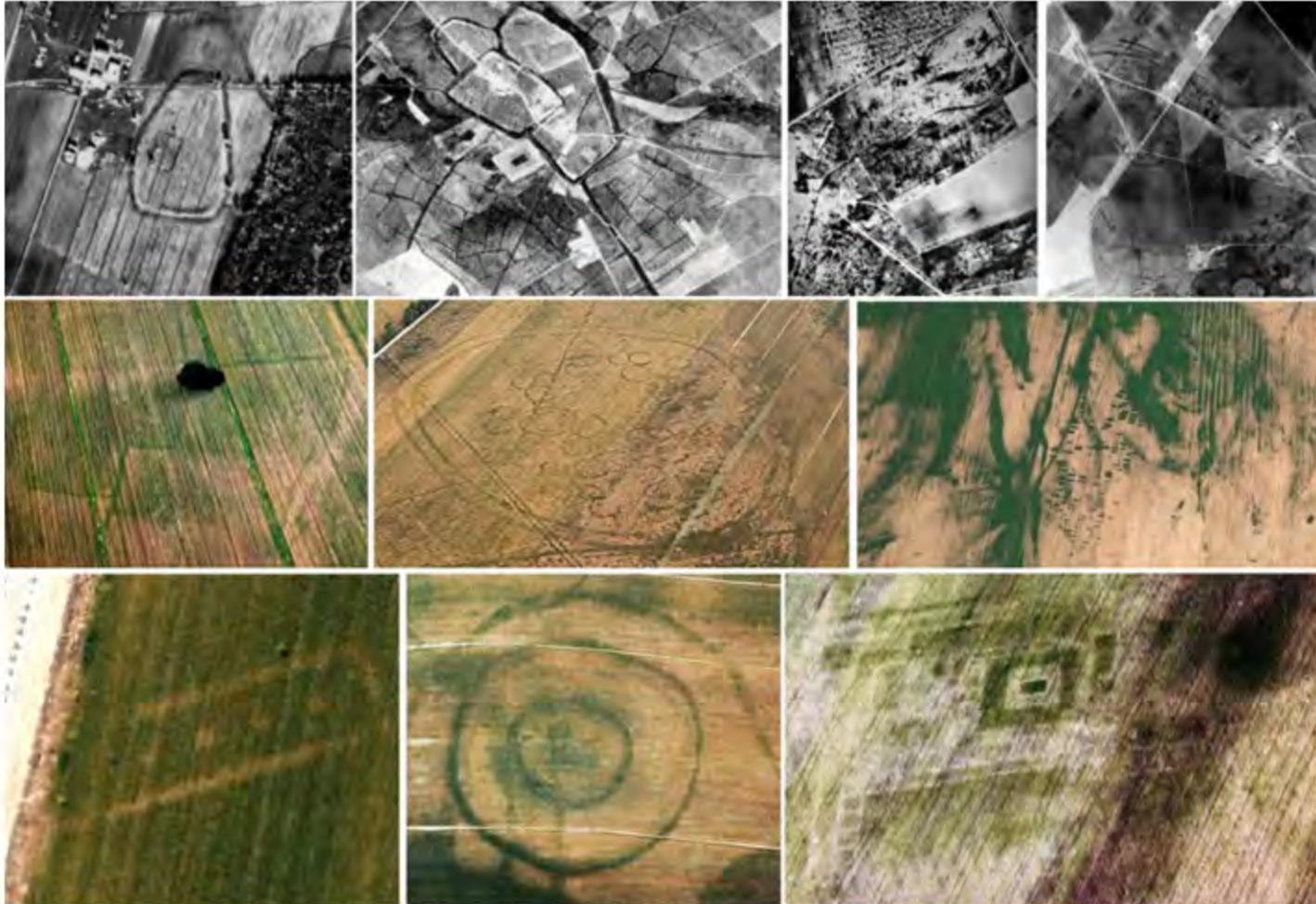


1. History of AP
2. War-related importance
3. Why Aerial
4. **Marks**
5. Conclusions

4

Looking for “marks”

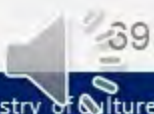
4. Looking for “marks”



4. Looking for “marks”



vegetation marks
March-April



4. Looking for “marks”



crop marks
May - June



4. Looking for “marks”



Soil Marks
July-September



4. Looking for “marks”



Germination Marks
October-December



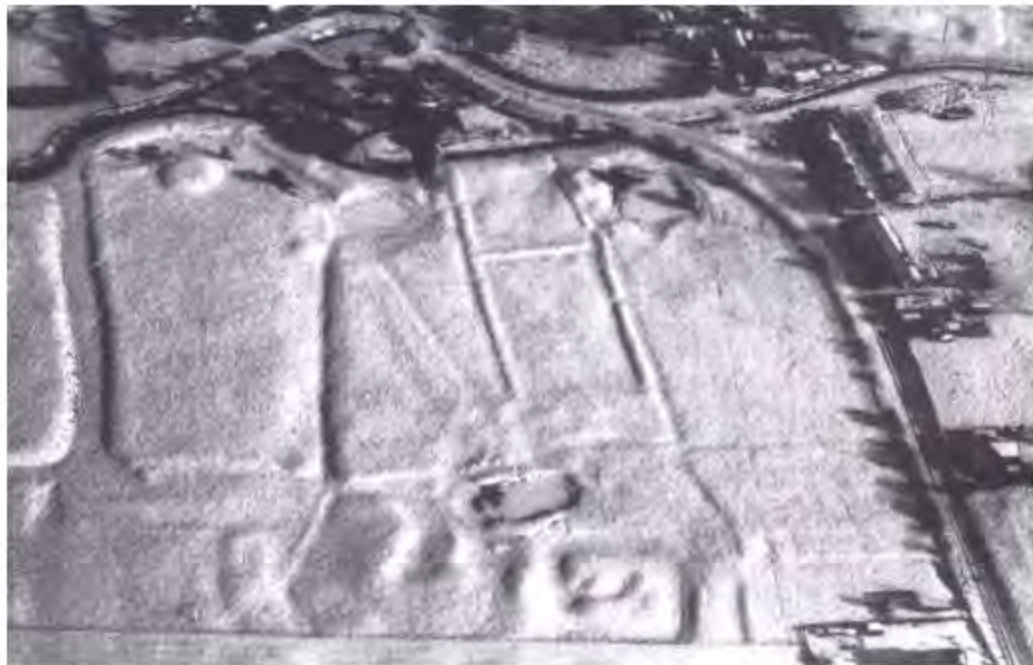
4. Looking for “marks”



Ice Marks
July-September



4. Looking for “marks”



Snow Marks
October-December

4. Looking for “marks”



Shadow Marks

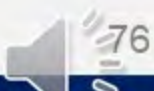
Winter or dawn, dusk



4. Looking for “marks”



“False friends“



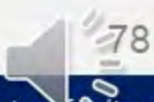
4. Looking for “marks”



4. Looking for “marks”



Apulia, Italy



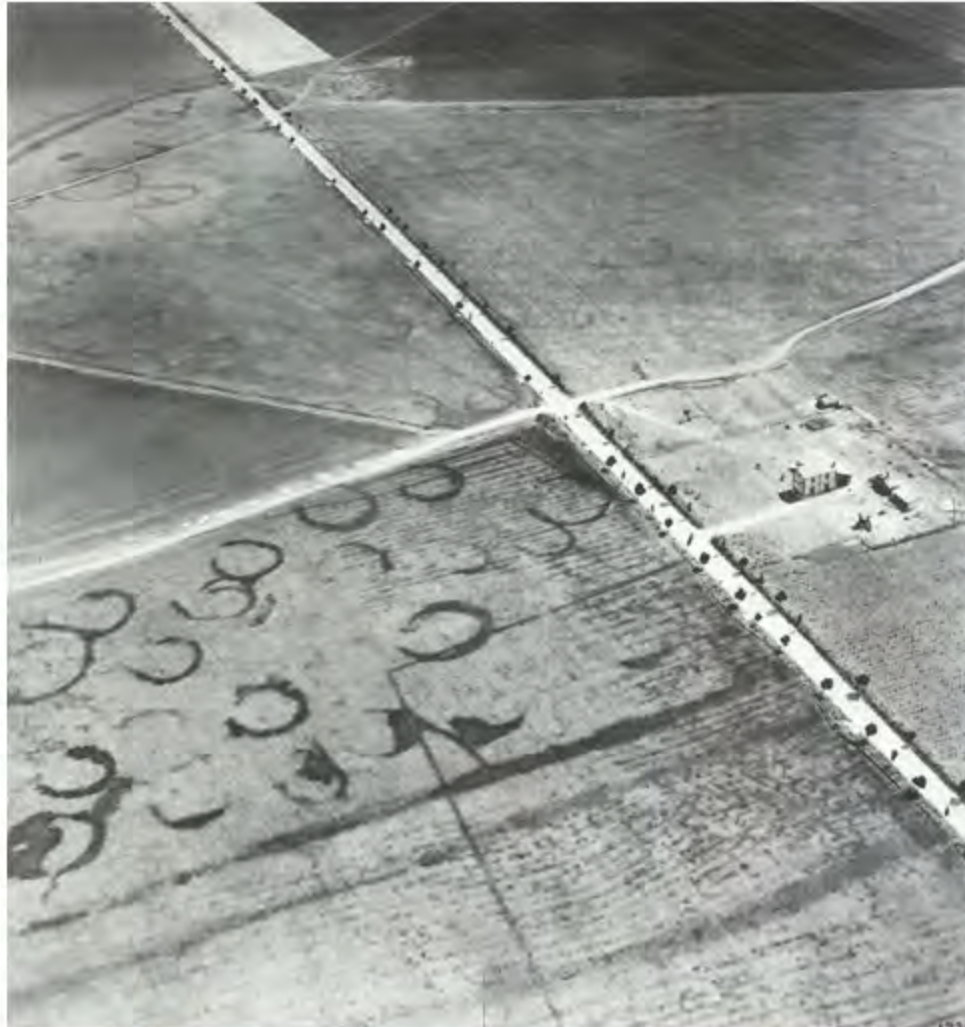
4. Looking for “marks”



Passo di Corvo (Apulia, Italy) Ph. J. Bradford (1945)



4. Looking for “marks”



Passo di Corvo (Apulia, Italy) Ph. J. Bradford (1945)



30

4. Looking for “marks”



Passo di Corvo (Apulia, Italy)
Photos:
DISCUM (2003) and
J. Bradford (1945)

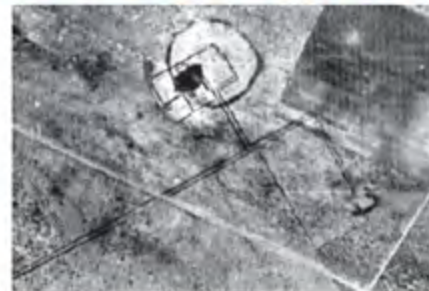


4. Looking for “marks”



Posta Villano (Lucera,
Apulia, Italy)

Photos:
DISCUM (2005) and
J. Bradford (1945)



4. Looking for “marks”



Roman villa of Ditchley (Watts Wells),
Oxfordshire
November, June (1934, G.W.G Allen)
and May (2009, Google Earth)

4. Looking for “marks”



Crowmarsh (North Stoke), Oxfordshire
Bronze Age barrows with a narrow 'cursus' of two parallel
lines running between

4. Looking for “marks”



Crowmarsh (North Stoke), Oxfordshire
(Lat 51.568654, Long -1.119232)



31/Dec/2005



2/Jun/2009

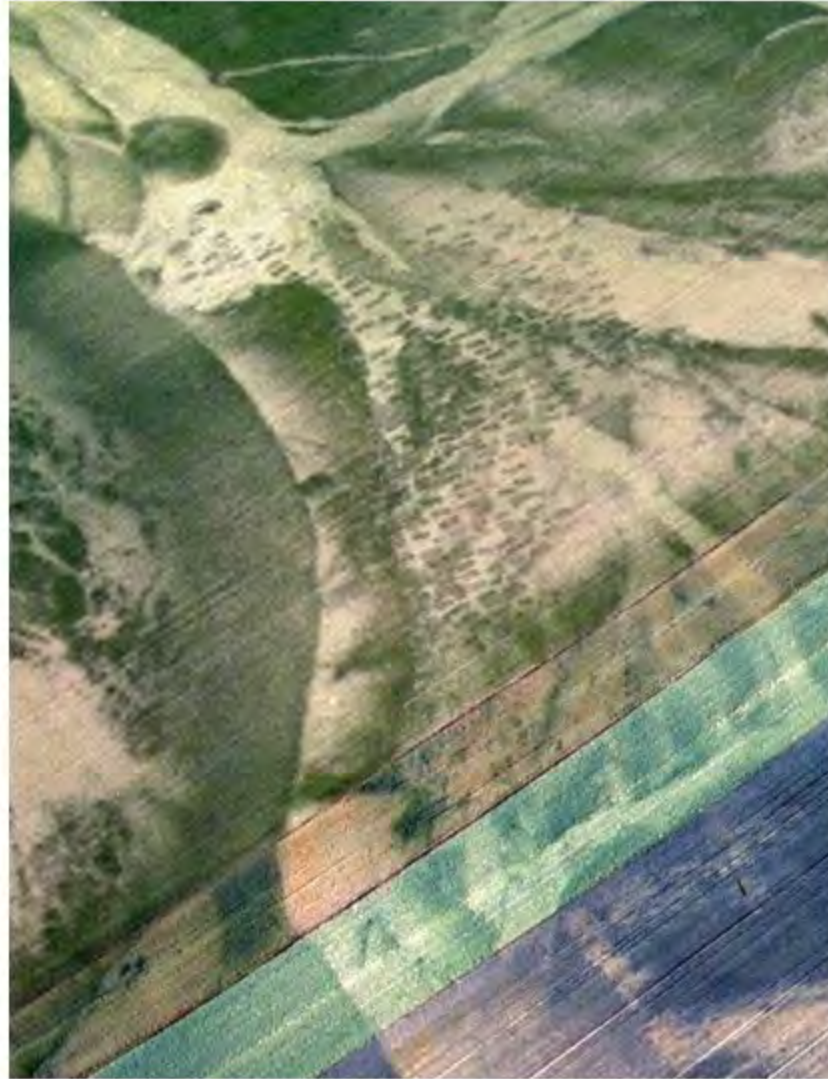


31/Dec/2010

4. Looking for “marks”

Frohsdorf, Austria.

- A VIII century cemetery (impossible or hard to identify with field walking survey)



4. Looking for “marks”



Negative cropmarks
showing Roman
buildings in
Carnuntum, Austria.

4. Looking for “marks”



4. Looking for “marks”



Kocaeli, Turkey.



4. Looking for “marks”

Roger Agache, a leading French aerial archaeologist and prehistorian who has made stunning discoveries in the **Somme** Valley region since 1960, boards a plane of the aero-club of Abbeville

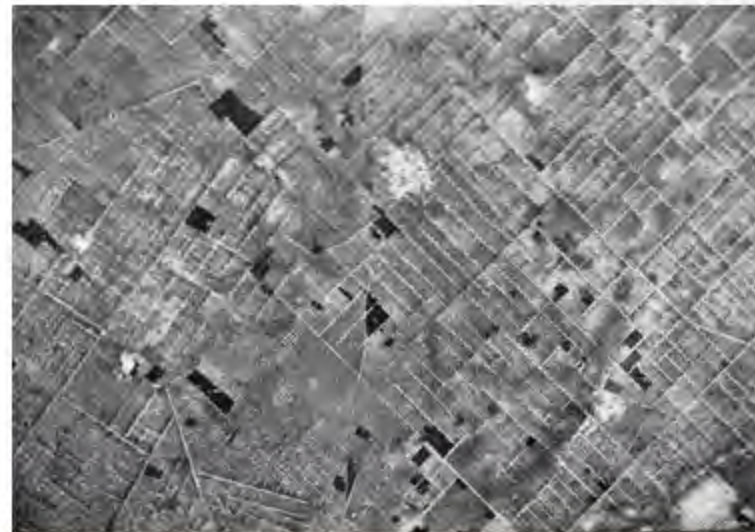


The re-appearance of this huge Gallo-Roman 'villa' more than 300m long was aided by **hoar-frost** in winter. Agache spotted it at Warfusee-Abacourt (Somme)



4. Looking for “marks”

Antoine Poidebard (1878-1955), Jesuit, scholar, aviator, who blew away desert sands and pierced the dust storms to bring to light hundreds of miles of Roman frontier in the Near East



A small portion of the extensive checkerboard of a Roman field division (centuriation) in **Tunisia**, charted on vertical air survey photographs over the El Djem-Chebba region.



4. Looking for “marks”



The oblique photograph shows, in a field planted with rye, two of nine Roman temporary training camp. **Irwin Scollar** discovery in 1962 near Xanten, Germany.



02

5. Some quick conclusions



Some conclusions

- Discipline evolution linked to technological progress
- View from above = wider context
- Multiple applications for a single tool
- Limitations vs affordability
- CH monitoring (if nothing else)
- Historical photo archive \neq museum!

- Historical aerial photographs as unique documents

- History and Historic Photographic Technologies

*From war photography
to 'winged' archaeology*

Thank you!

***For any other
question or comment***

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