

# A Report on Aerial Photography and Pigeons

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# Origins of Aerial Photography

- 1839 – Photography invented
- 1851 – Wet plate process allows shorter exposure times
- 1858 – First balloon photograph by Nadar



# Turn of the Century Camera Lifting Vehicles

- Balloons
  - Used for reconnaissance before photography
- Model rockets
- Kites
- Pigeons

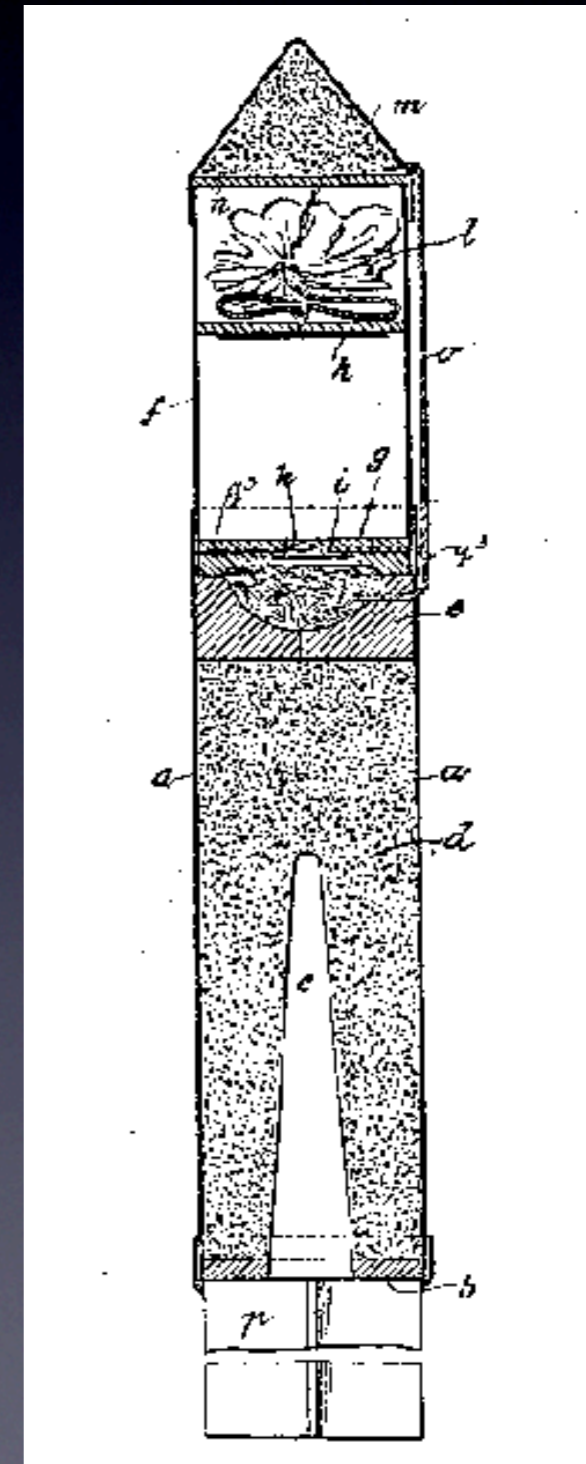
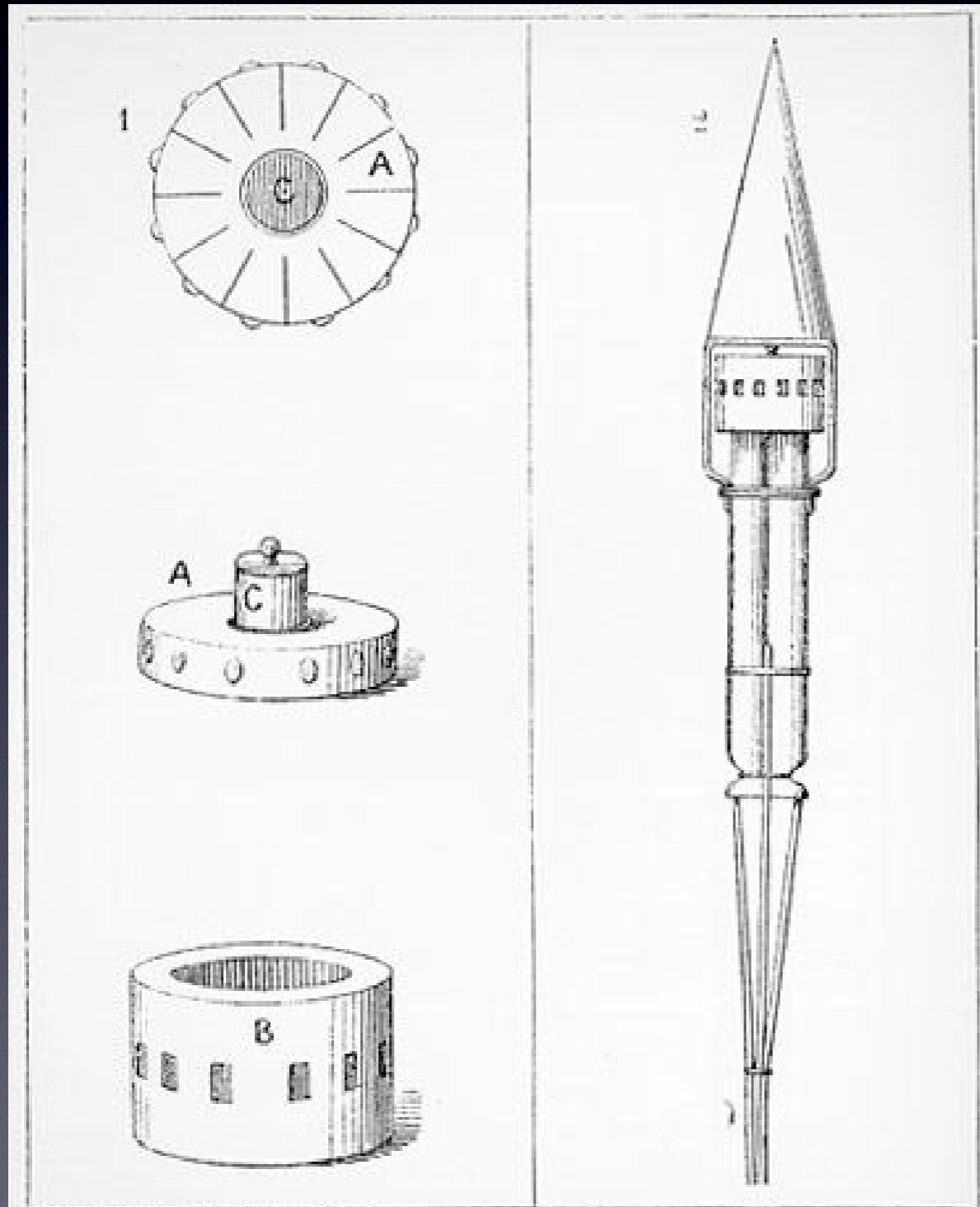
# View of Boston from Balloon Queen of the Air, 1860



# Nadar on a Balloon



# Rocket Designs by Amedee Denisse & Alfred Nobel



# View of Swedish Village by Alfred Nobel's Rocket, 1897

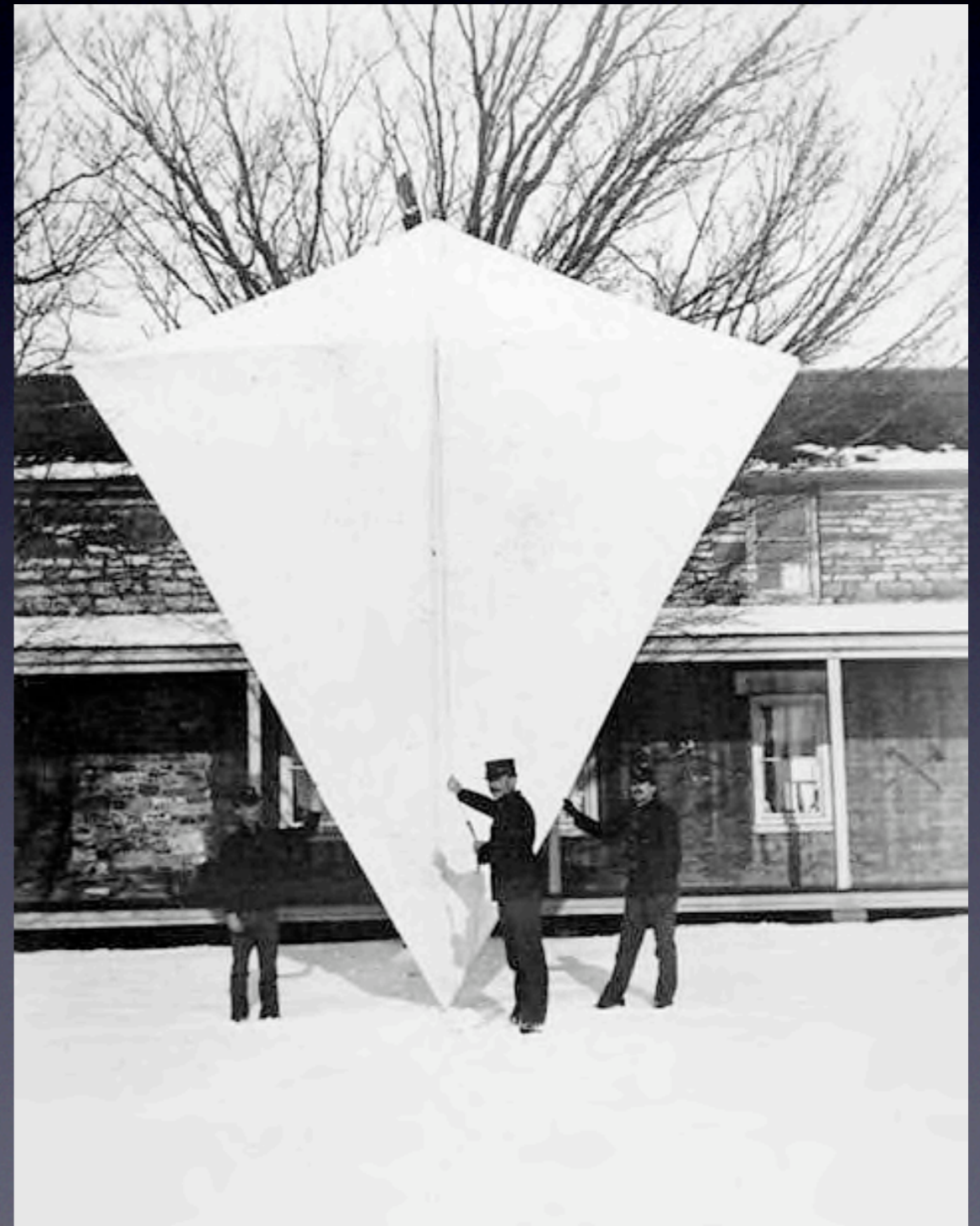
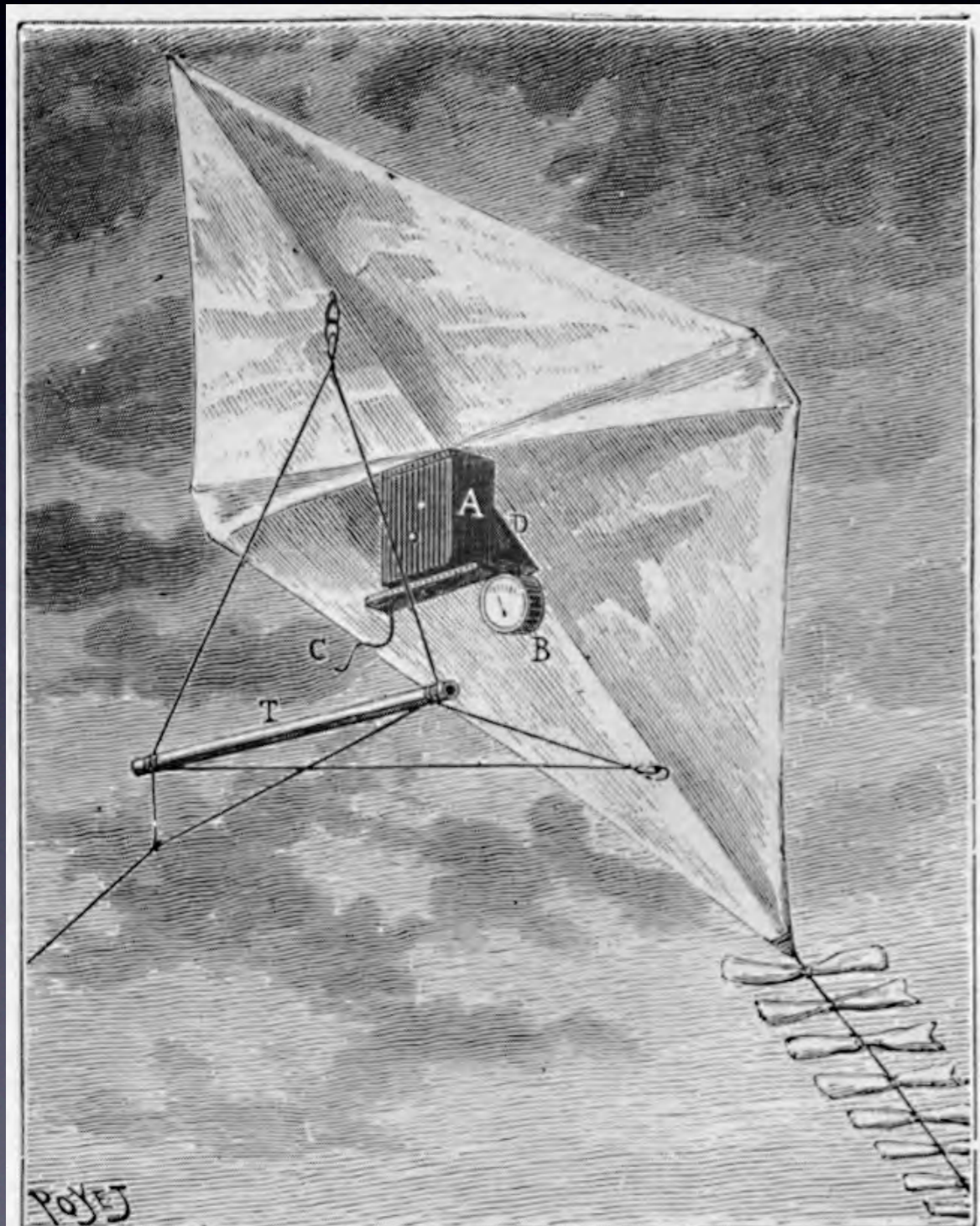


# View of German Landscape by Alfred Maul's Rocket, 1904





# Kite Cameras by Arthur Batut & Lt. Hugh Wise



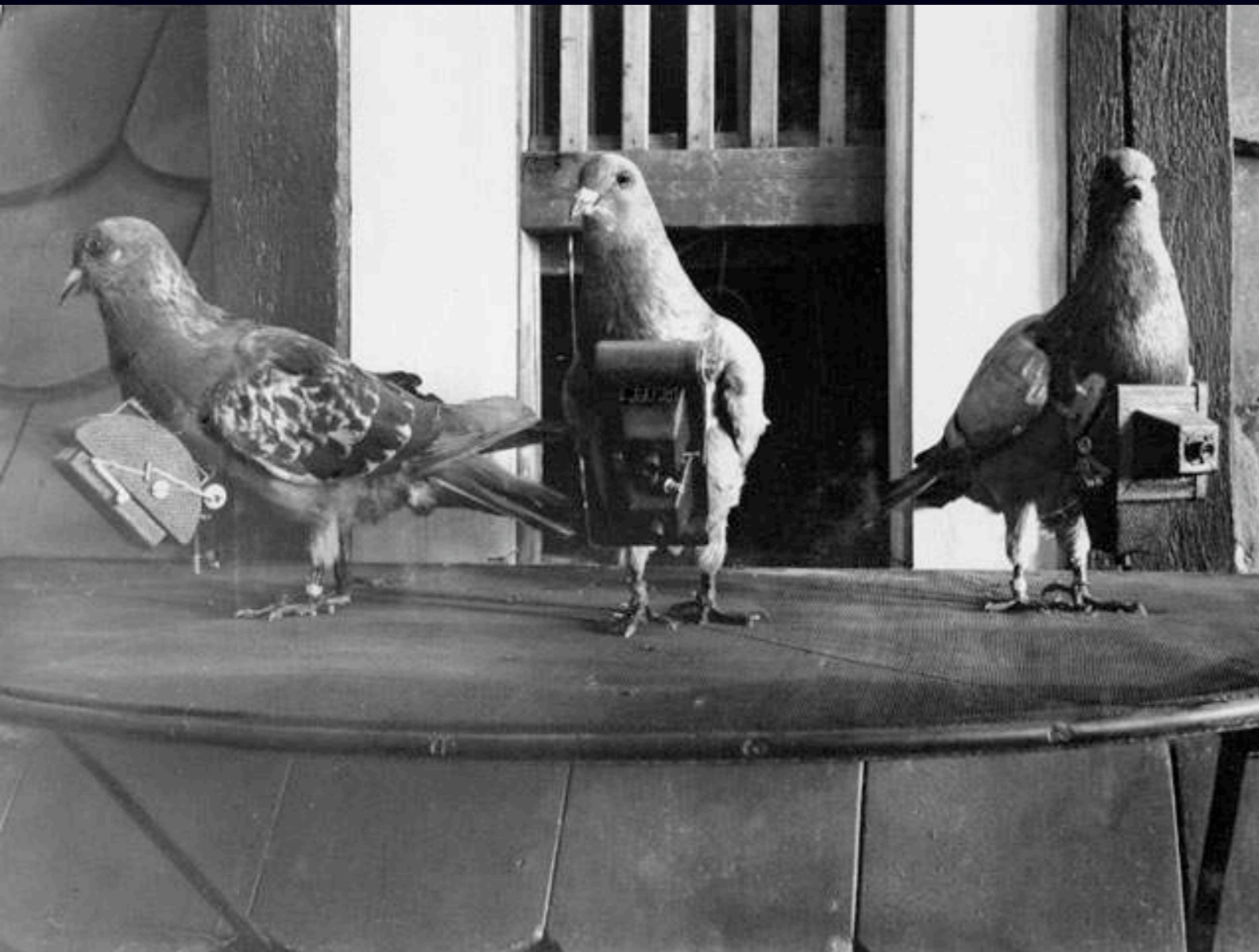
# View of San Francisco from a Kite, 1906



PROPERTY  
OF E. J. LOUGHEE CO.  
SAN FRANCISCO

PHOTOGRAPH OF  
SAN FRANCISCO IN 1906  
FROM LIGHTHOUSE CAPTIVE AIRSHIP  
200 FEET ABOVE SAN FRANCISCO BAY  
OVERLOOKING WATER FRONT.  
EUREKA, CALIF. MARCH 1906.

# Pigeon Camera Patented by Julius Neubronner, 1903

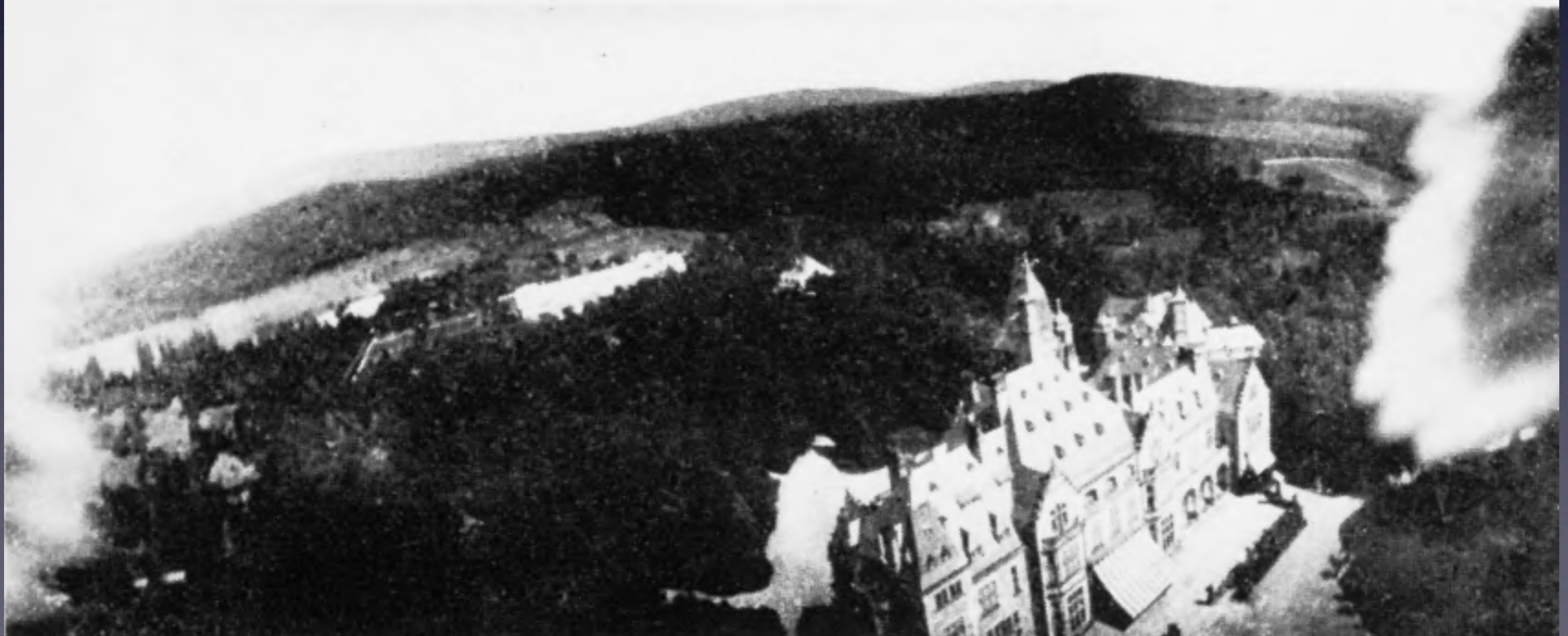


# Picture by Neubronner's Pigeons, Kronberg, 1908

*Brieftaubenphotographie*

*(Aufnahme nach hinten)*

*3fache lineare Vergrößerung.*



# Reasons to Take Aerial Photographs

- Military intelligence
- Land exploitation
  - Geology, agriculture
- Property concerns
  - Map making, urban planning, real estate
- Art



# Division of Vision

- Photography breaks vision
  - Capture
  - Interpretation
- Separated by time & space
- Can be performed by different agents

# Division of Vision, cont.

- Many photographic practices profit from division, e.g.
  - Art
  - Unattended surveillance cameras
  - Aerial photography
- Separation of capture & interpretation becomes norm, e.g. vacation memories
  - Interpretation unbounded, can always continue, e.g. Rodney King video

# My Experiments

- I raised pigeons
  - What can they do besides be admired & fed?
- Inspired by historical pigeon photos
  - Is it a lost art?
  - Can today's technology match 100 year old cameras
- What do pigeons see?



# The Pigeon

- Homer
  - Given to me by pigeon mentor Johnny D
  - Trained to carry weights for several miles



# My First Attempt

- APS Camera
  - Smaller than 35mm
  - Cheap, around \$10
  - Automatic film advance
- Velcro Harness
  - Cross back, around wings



# Result

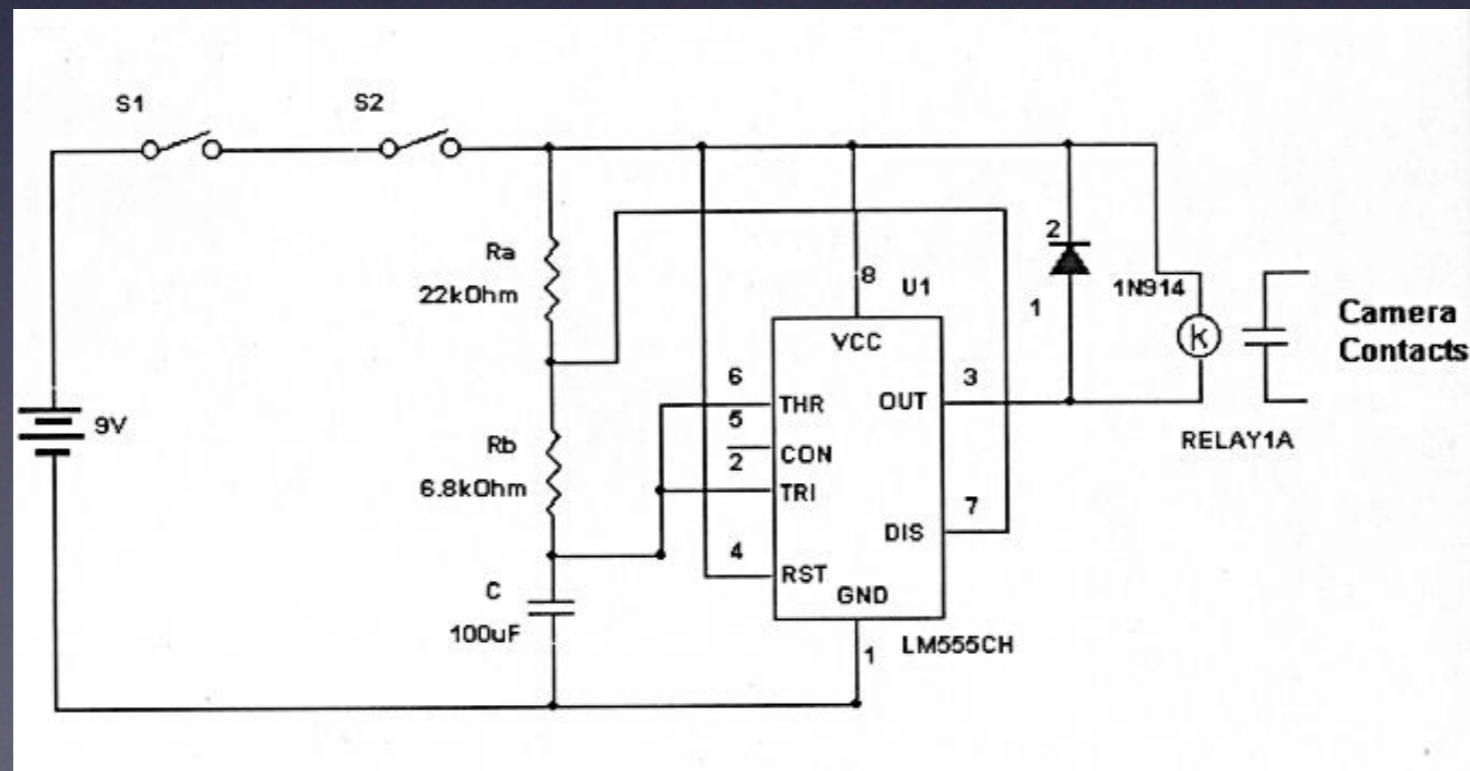
- Utter failure
- Awkward harness
- Camera too heavy
- Pigeons couldn't leave ground

# Next Attempt

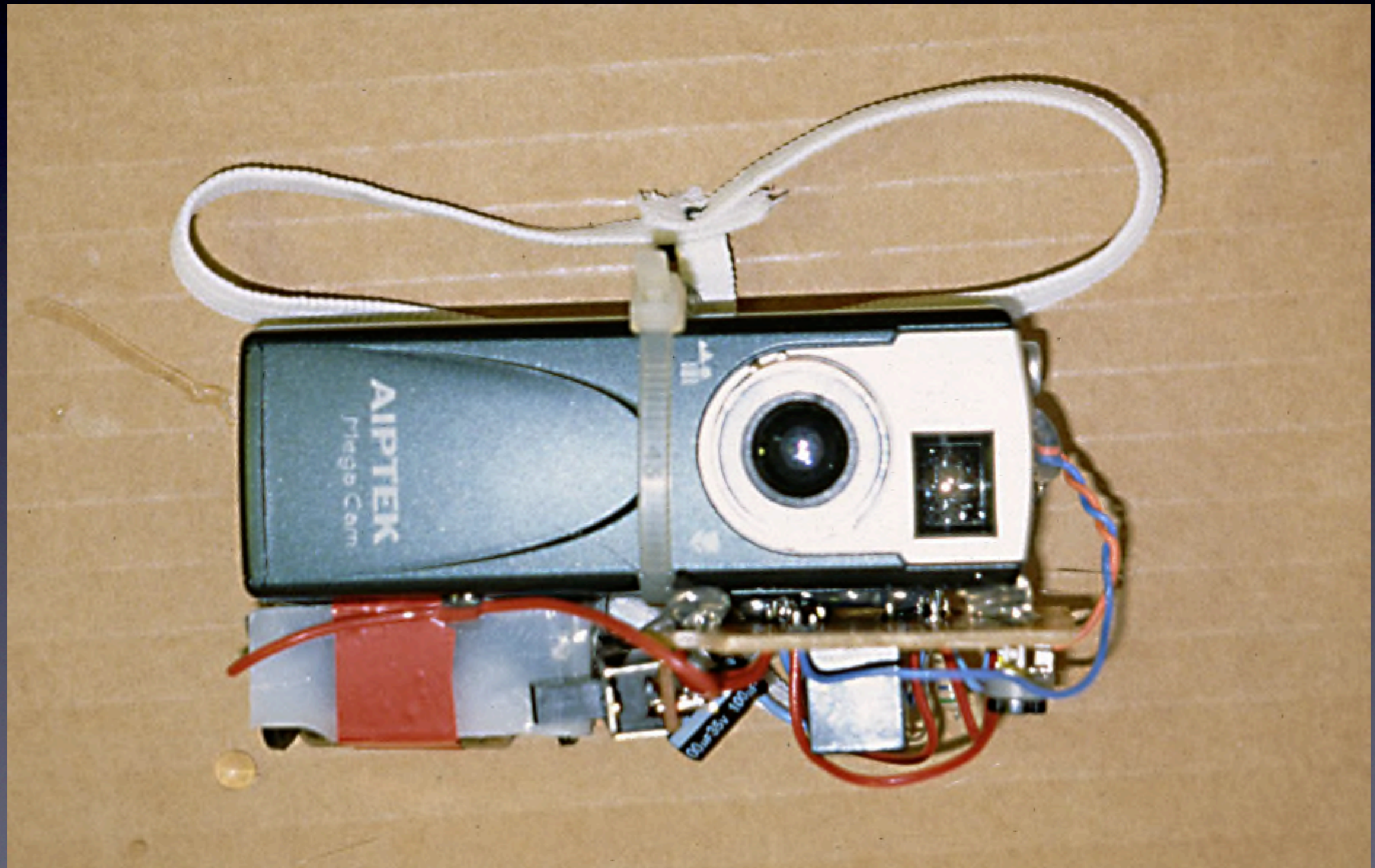
- Use small digital camera
- Timing circuit to take photos every 10 seconds
- Elastic harness

# Timing Circuit

- 555 timing circuit, from High Performance Rocketry Magazine
- Modified with trimmer to allow variable photograph interval



# The Camera with Harness, Timer Circuit & Battery



# The Experiment

- Two pigeons released
  - 1.5 miles from home
  - One carrying camera
- Companion pigeon returns in an hour
- I give up hope after a day

# The Miracle

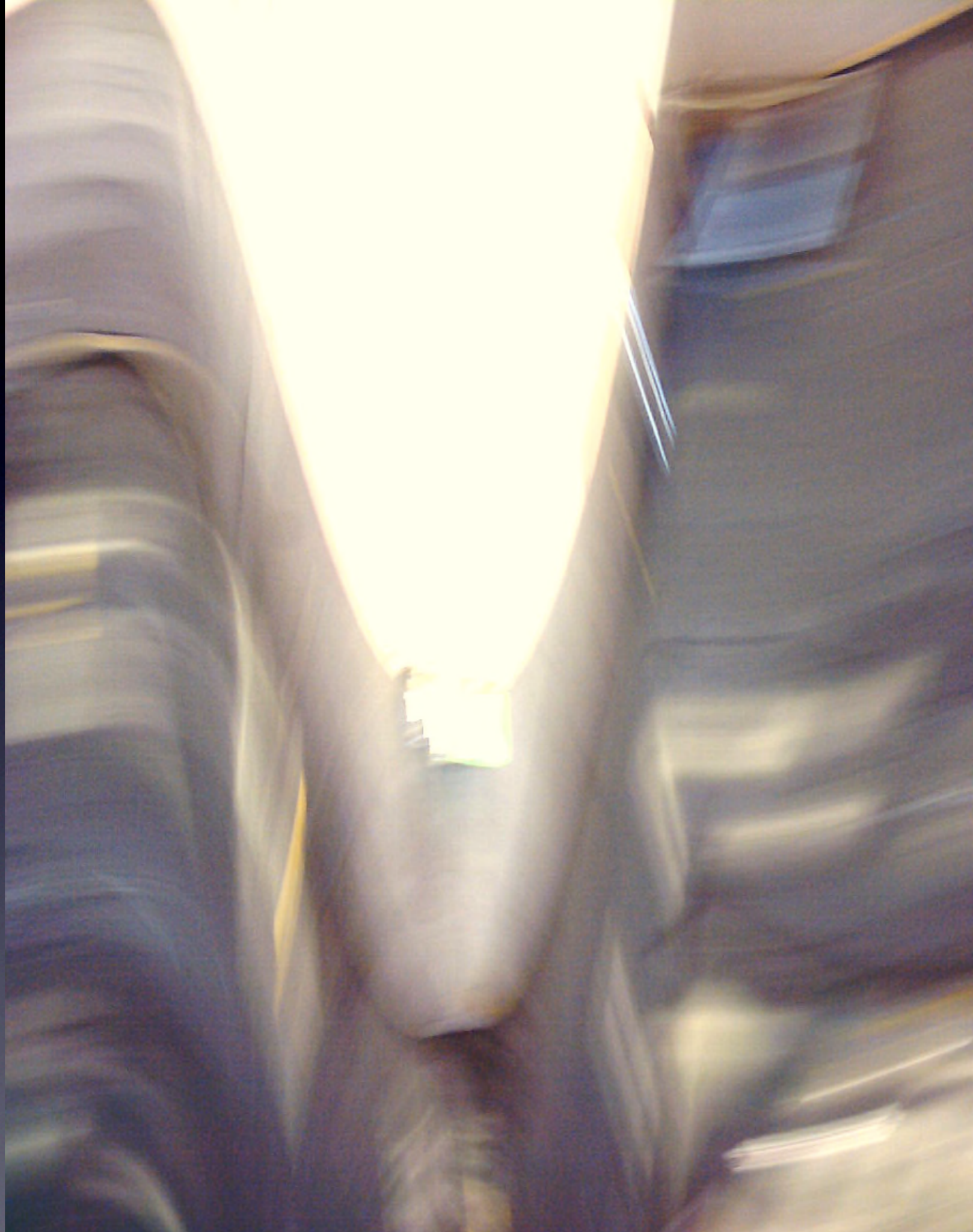
- Lost pigeon returns 3 days later
  - Camera is beaten, but still works
  - Pigeon is hungry but OK



# Photographs from the Journey

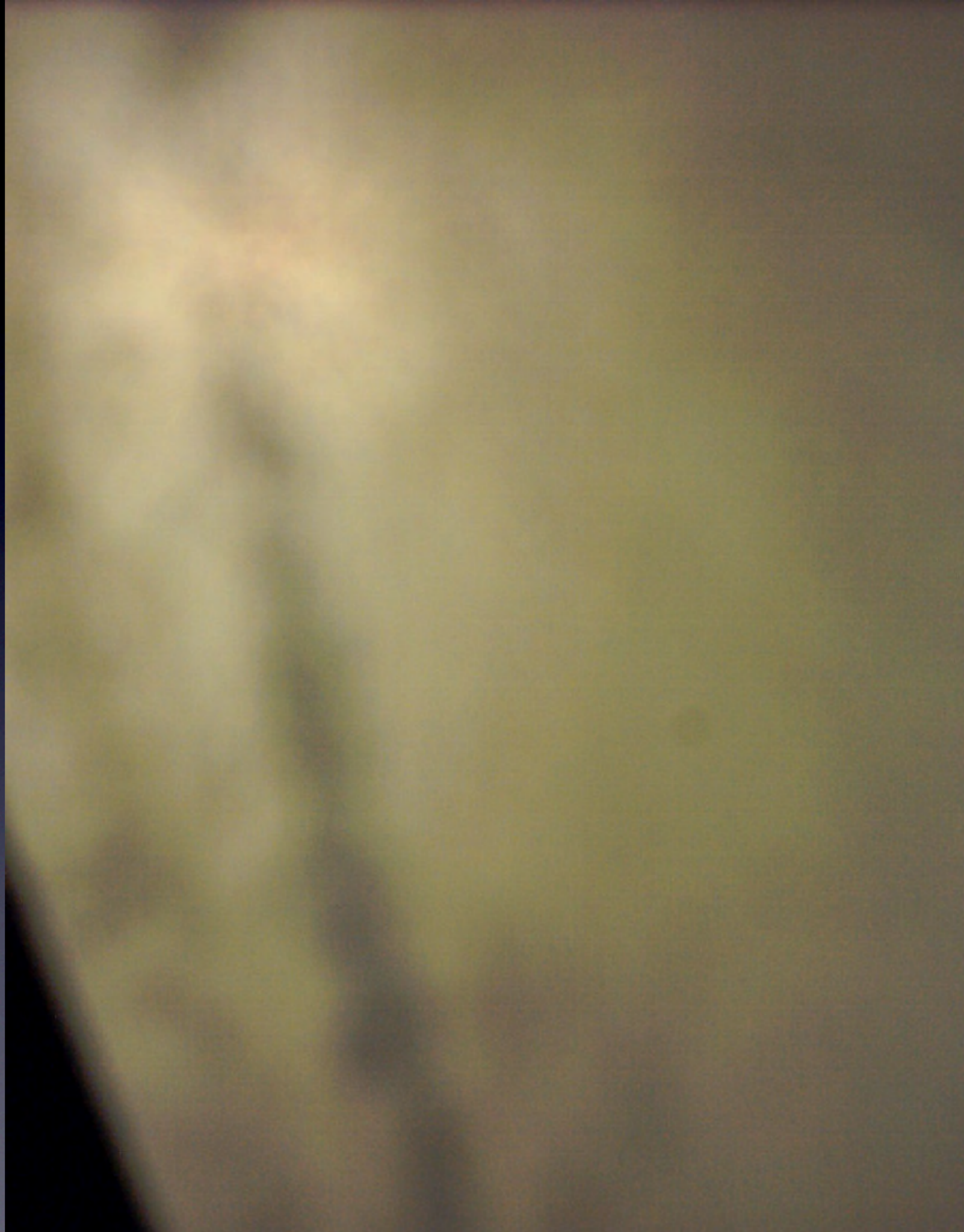




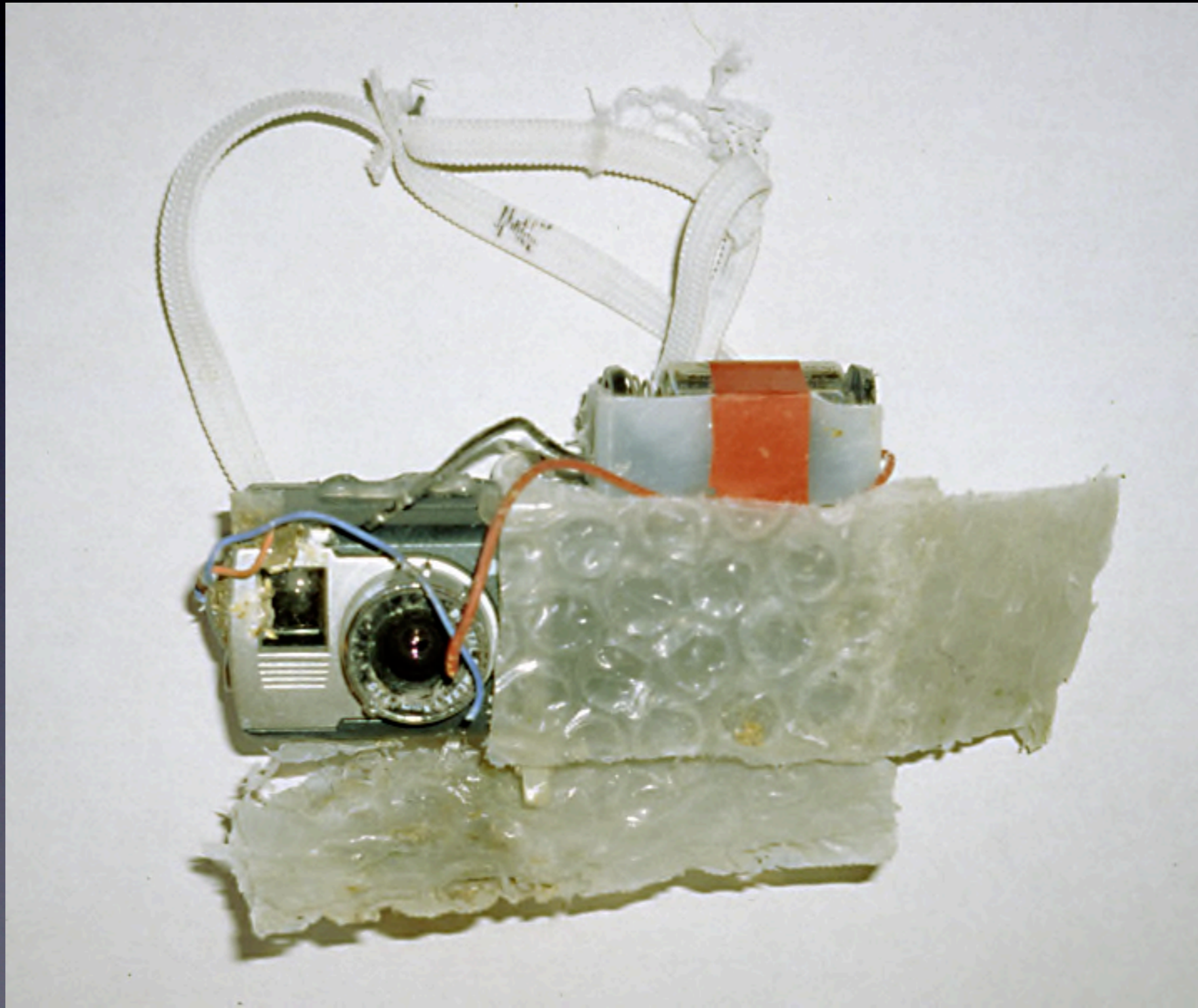








# Camera Upon Return





# Next Steps

- New camera needed
  - Even lighter, hopefully less than 2 oz.
  - Lighter batteries
  - Faster shutter speed
- More pigeon training
- Shorter trips
- Wireless video