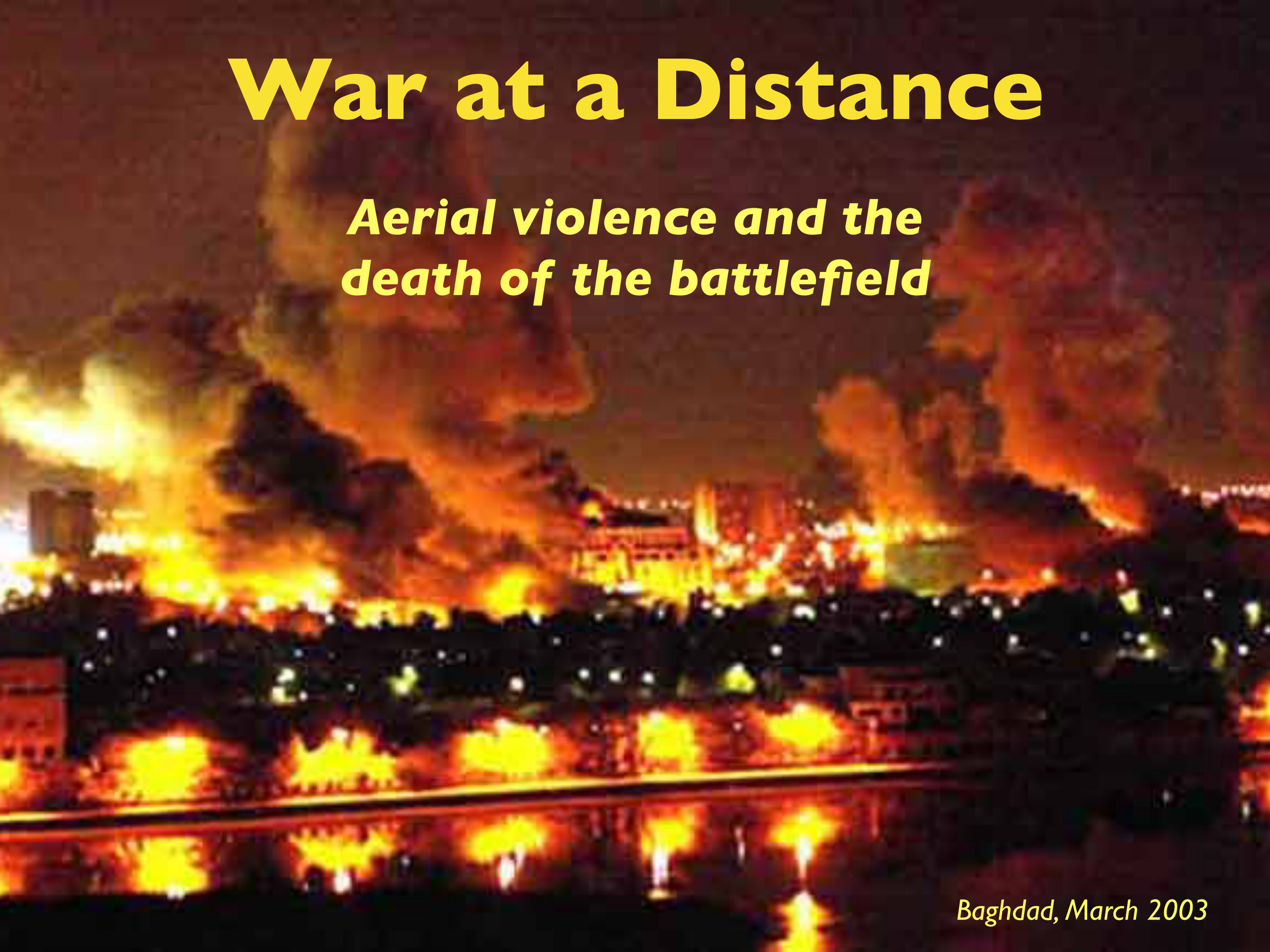
War at a Distance

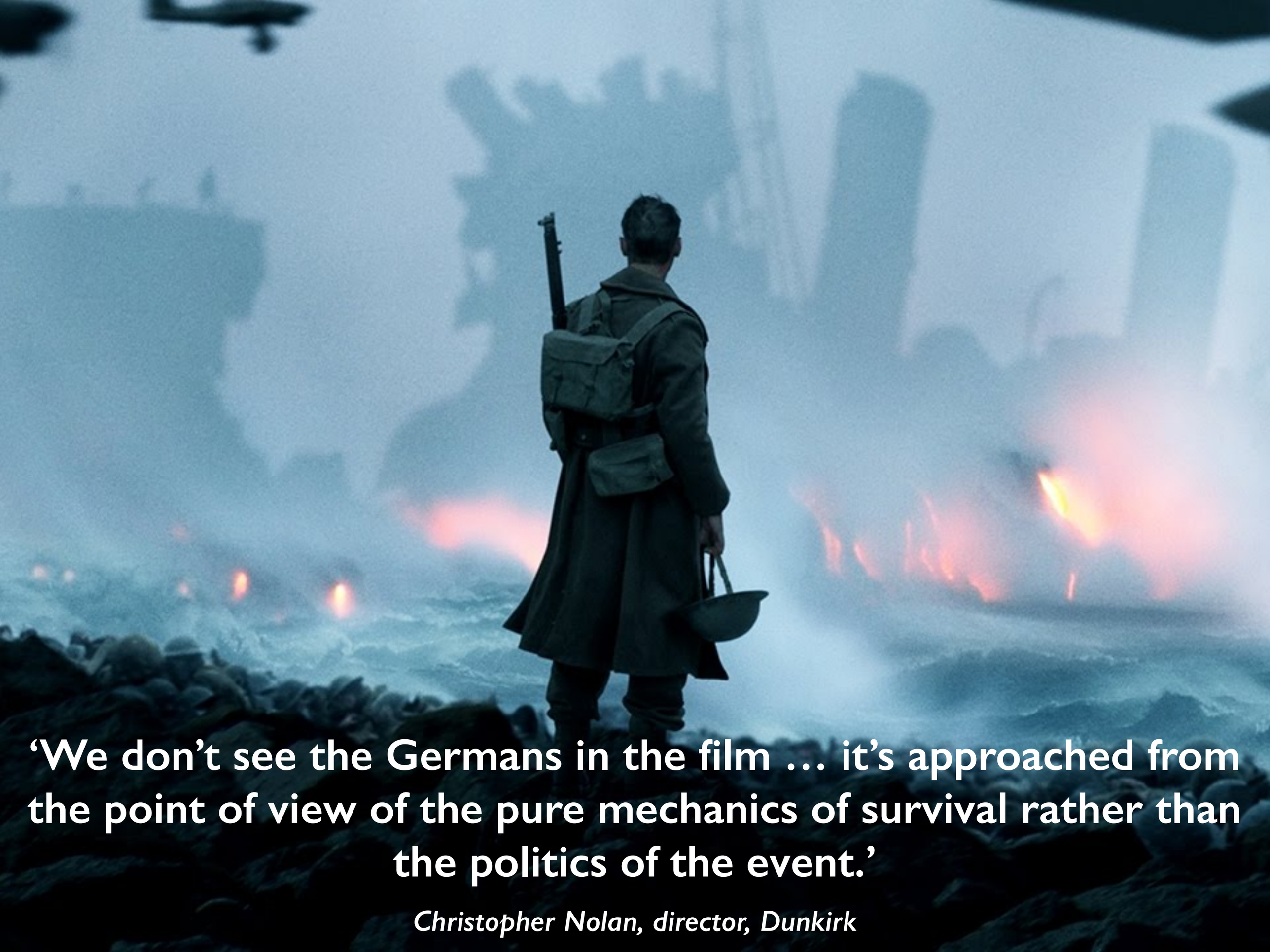
Aerial violence and the death of the battlefield



Baghdad, March 2003

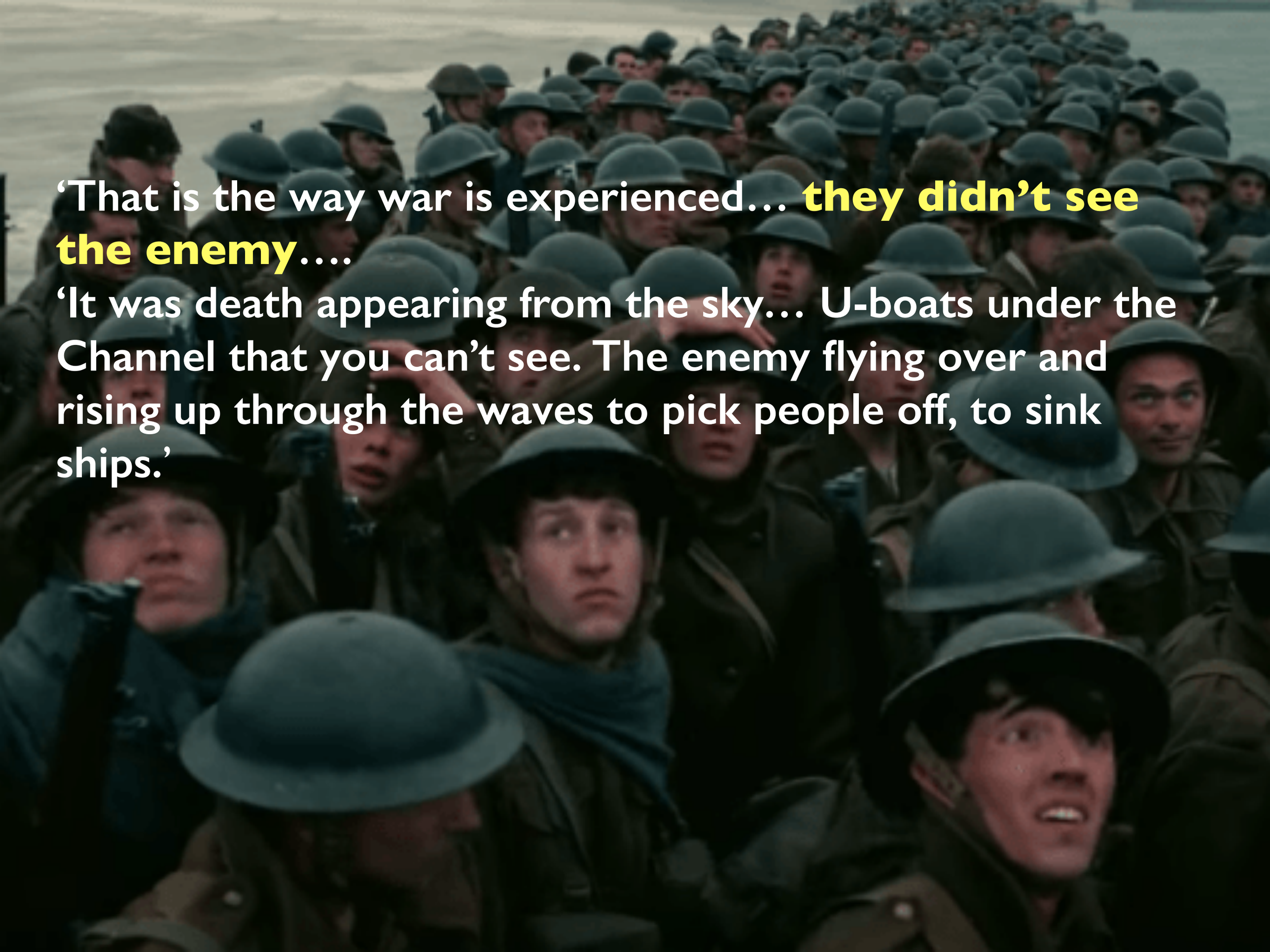
Nijmegen 22 February 1944

I: Eyes on the Target



‘We don’t see the Germans in the film … it’s approached from the point of view of the pure mechanics of survival rather than the politics of the event.’

Christopher Nolan, director, Dunkirk



‘That is the way war is experienced… **they didn’t see the enemy**….
‘It was death appearing from the sky… U-boats under the Channel that you can’t see. The enemy flying over and rising up through the waves to pick people off, to sink ships.’

What happens when the attackers are thousands of feet up or thousands of miles away and cannot directly see their targets?

Visual and sensing technologies provide new, disembodied ways of 'seeing'…

But what happens when, by virtue of those same technologies, the body reappears in the cross-hairs?

Surely, common sense tells us that persons wage war, not the instruments they deploy. But what happens if the instruments acquire their own agency, such that persons become extensions of those instruments?... persons use technological instruments, but instruments surely also use persons (position them, endow them with perspective, and establish the trajectory of their action).

FRAMES OF WAR

When Is Life Grievable?

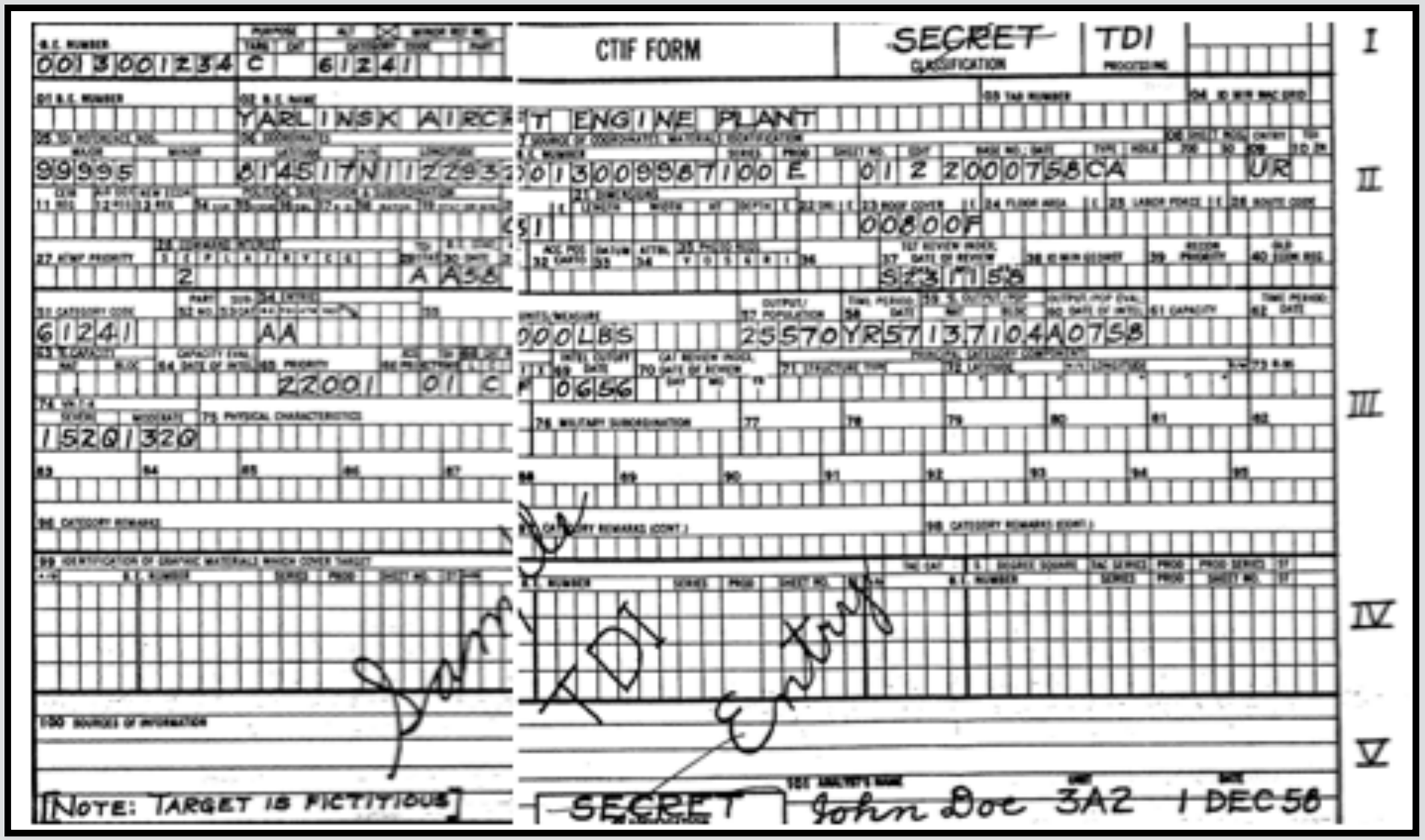
JUDITH BUTLER

I: The production of the target

We do not inhabit a world of targets: targets must be produced.

This involves the visual production of a space within which destruction and death are sanctioned and within which particular identities ('civilian', 'military', 'dual-use', 'enemy') are conferred on the objects and the people within it.

The Bombing Encyclopaedia of the World



Compilation started in January 1946; by the summer almost 6,000 potential targets in the Soviet Union had been entered on punch-cards. By the early 1950s the Encyclopedia had become global: the 1952 edition listed around 10,000 targets in the Soviet Union but now covering 'virtually all of Europe, Africa and the Middle East, and most of Asia'. By 1960 more than 80,000 potential targets had been identified worldwide: ***Lynn Eden, Whole world on fire.***

Target Folder Main Data Page

New Facility | New Unit | New Equipment | Search

General | Rmks | Colloc | DMPIs | Equip | Units | Media | Reports | External | History | Legal

Facility: 0992-00110/DD001 - MOFFETT AFLD

Folder is Published! (Published by PFC Kevin Moffatt on 04 Nov 02.)

Identification

BE #:	**0992-00110**	**OSuffix:**	**DD001**
Name:	MOFFETT AFLD		
MRL:		**MTF:**	
Primary Funct:			
Target Set:			
CatCode:	80051 -		
Secondary CatCodes:	THERE ARE NO ADDITIONAL CATCODES FOR THIS FACILITY		
Significance			
Recce No:			

Location

Country:	COMOROS		
Latitude:	37-05-20.000N	**Longitude:**	122-03-39.000W
DDMM.MMM:	3705.3333N		12203.6500W
MGRS:			
Joint Target List?	☐		
Location:			

Validation Information

Main Data: ☐ **BAI:** ☐ **ATI:** ☐ **TDI:** ☐

Status

CD Rating:	
Strike:	OPEN
Phys Status:	RDY
Funct Status:	OPR

Map & Digital Imagery Reference Data

DPPDB Cell:		**1-500 (TPC):**	
RGB:		**1-250 (JOG):**	
OSP:		**1-50 (TOPO):**	
BTG:		**MAP GEN:**	

Classification of Main Data

Classification:	UNCLASSIFIED
Caveat:	NO CAVEAT

Overall Target Folder Classification

Classification:	UNCLASSIFIED
Caveat:	NO CAVEAT

Political: ☐ **Economic:** ☐ **Military:** ☐ **Social:** ☐ **Infrastructure:** ☐ **Information:** ☐

II: Asymmetric vision

Outside face-to-face combat, the visual fields of the attacker and the attacked are radically different.

And each may have differential capacities to detect the enemy (e.g. searchlights; radar) while concealing their own traces (camouflage; blackouts; mobility) and ultimately even eliminating them altogether ('stealth' technologies)

The illusion of reciprocity

‘…the face of your enemy was staring back at you in high-definition.’

Major Mark McCurley, USAF

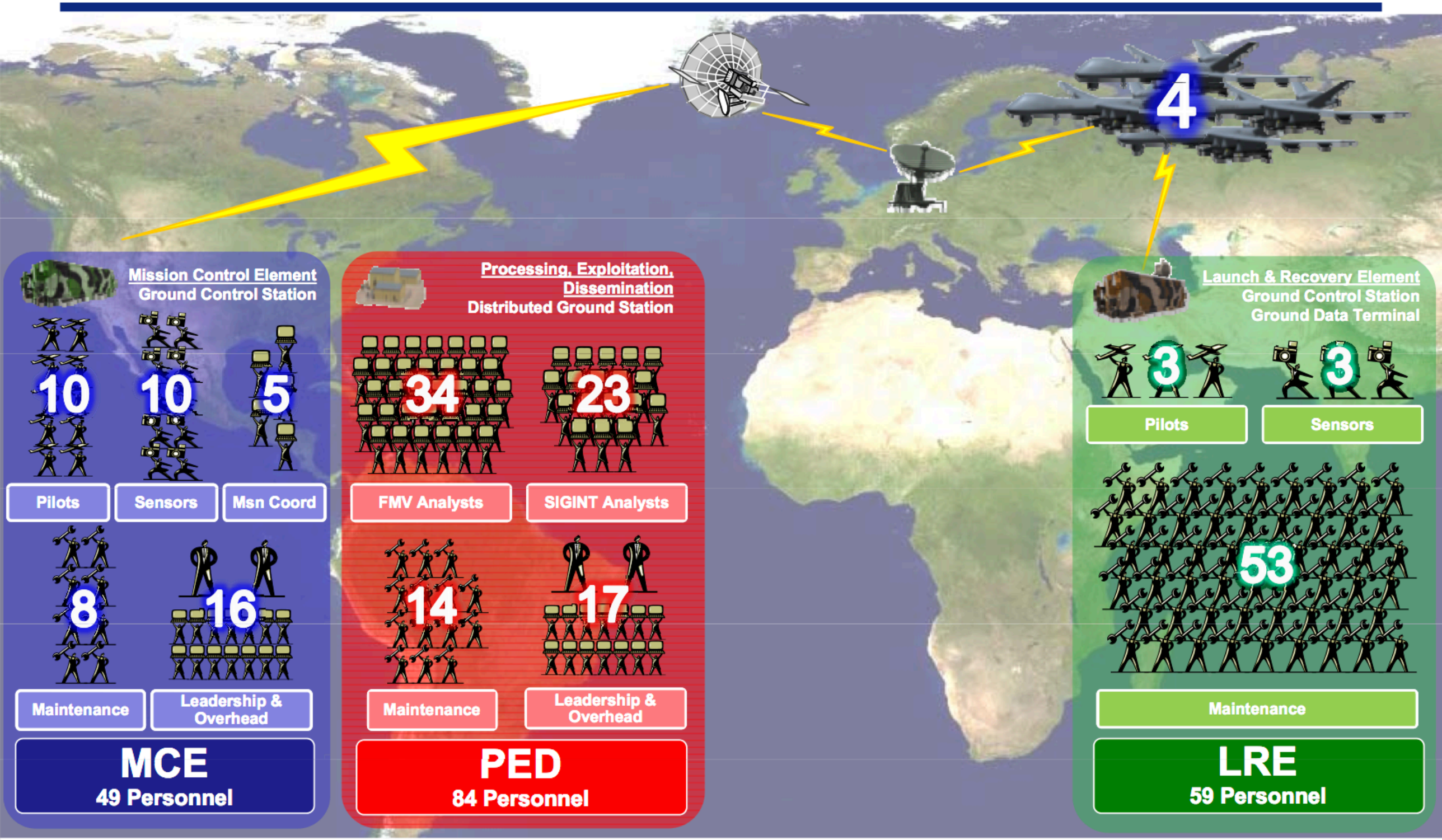
‘Drone Queen’, Homeland/Fox 21 Television Studios
5 October 2014

III: Networks in the kill-chain

The locations of those involved in the execution of an airstrike extend far beyond the killing space.

U.S. AIR FORCE

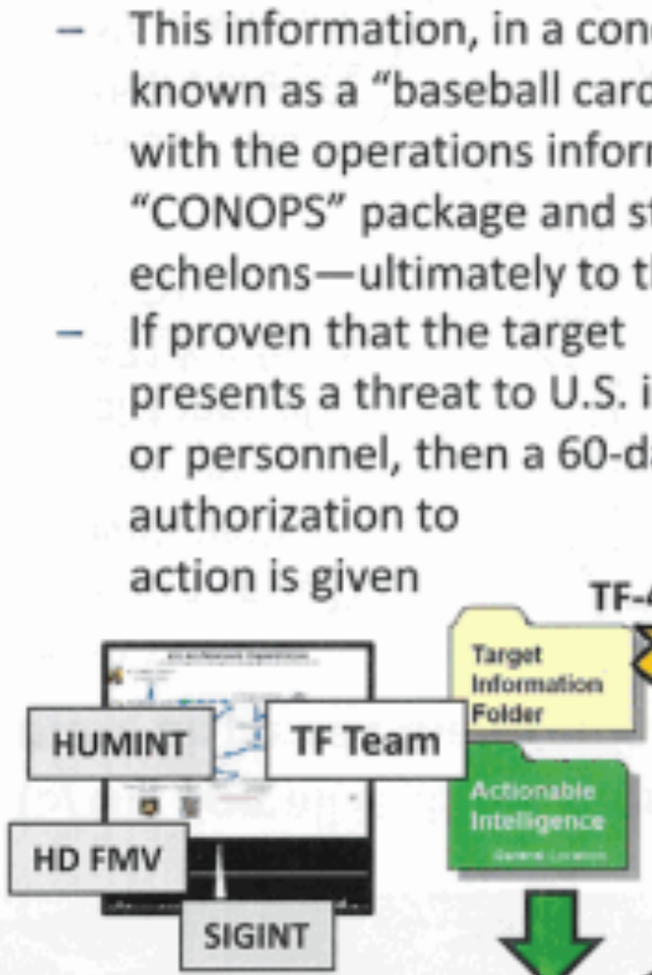
CAP Requirements: Single 24/7/365 MQ-1/9



As of: 11 Sep 2010

Authorization to Use Military Force (AUMF) Operations

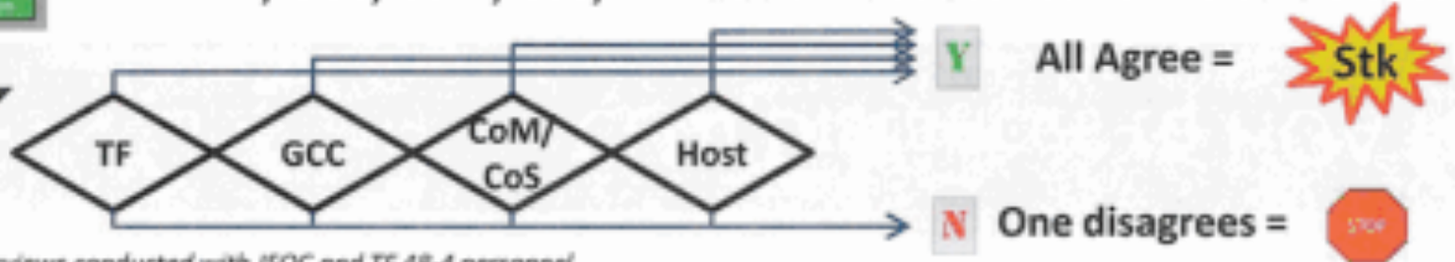
- **(S/NF) Step 1 - "Developing a target" to "Authorization of a target"**
  - TF 48-4 direct action operations are conducted under execution orders for Operation Copper Dune (AP/Yemen) and Operation Jupiter Garret (EA/Somalia)
  - These orders specify delegated authorities, authorized targets and criteria for action
  - TF intelligence personnel, with support from IC partners, builds the case for action
  - This information, in a condensed format known as a "baseball card (BBC)", is packaged with the operations information into a "CONOPS" package and staffed up to higher echelons—ultimately to the President
  - If proven that the target presents a threat to U.S. interest or personnel, then a 60-day authorization to action is given



Current Authorization to Action List	
Jupiter Garret (Somalia)	4
Copper Dune (Yemen)	16

CAO: 30 Jun 2012

- **(S/NF) Step 2 - "Authorizing" to "Actioning"**
  - If POTUS approves the CONOP, operations enter a targeting cycle
  - Actionable intelligence provides potential targeting windows
  - The targeting window suitability is determined by ROE:
    - must be Low CDE , "near certainty" of HVI presence based on two forms of intelligence, no contradictory intelligence
  - TF, GCC, CoM, CoS, HN Gov all must concur or no strike occurs



Source: Multiple interviews conducted with JSOC and TF 48-4 personnel

via The Intercept

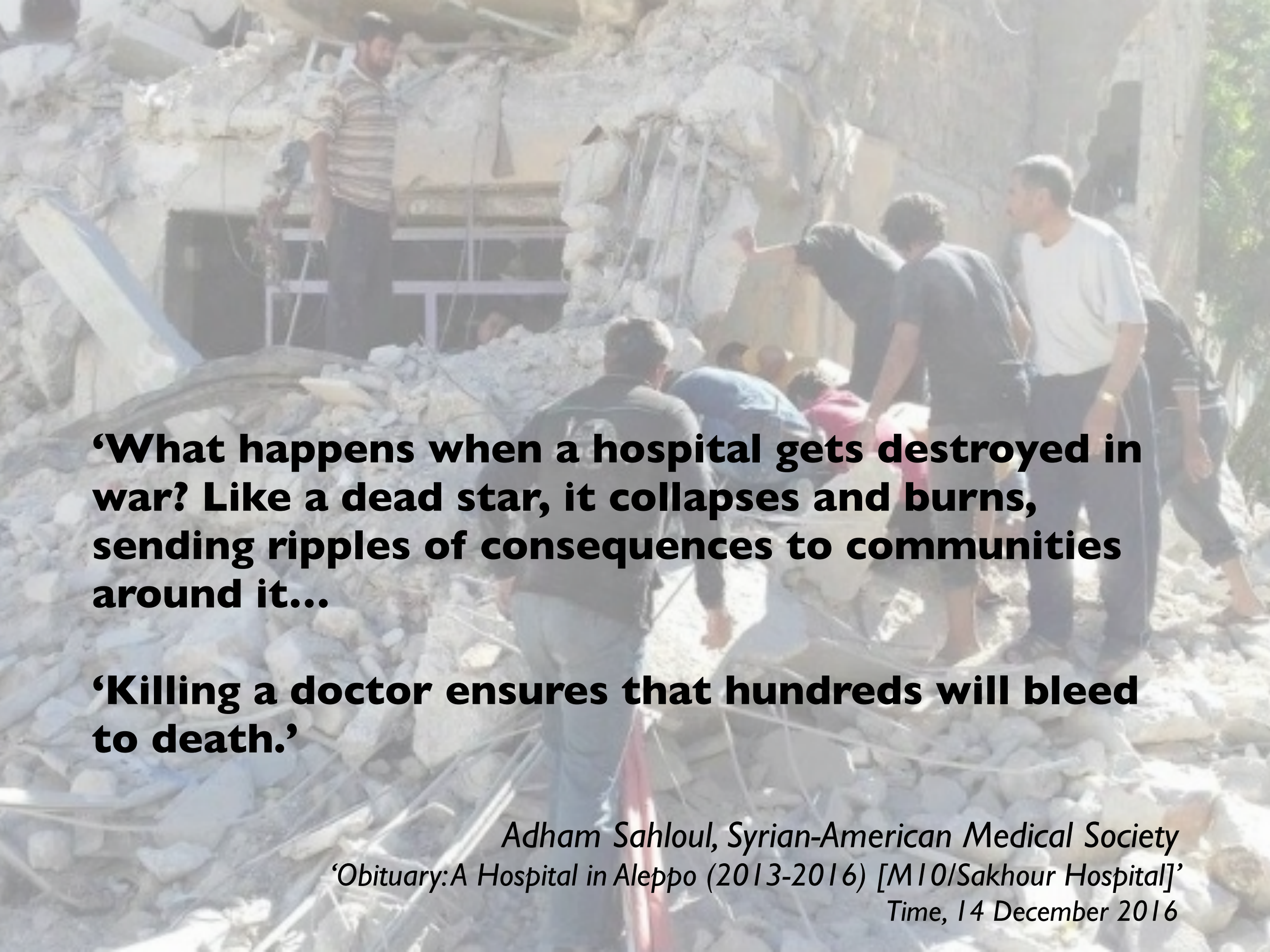
IV: Shockwaves

The cascade of effects usually extends beyond the time and space of the target

'… every target is inscribed in a network or chain of events that inevitably exceeds the opportunity that can be seized or the horizon that can be seen…'

Samuel Weber, Targets of opportunity: on the militarization of thinking (2005)

Gaza Power Station, 29 July 2014

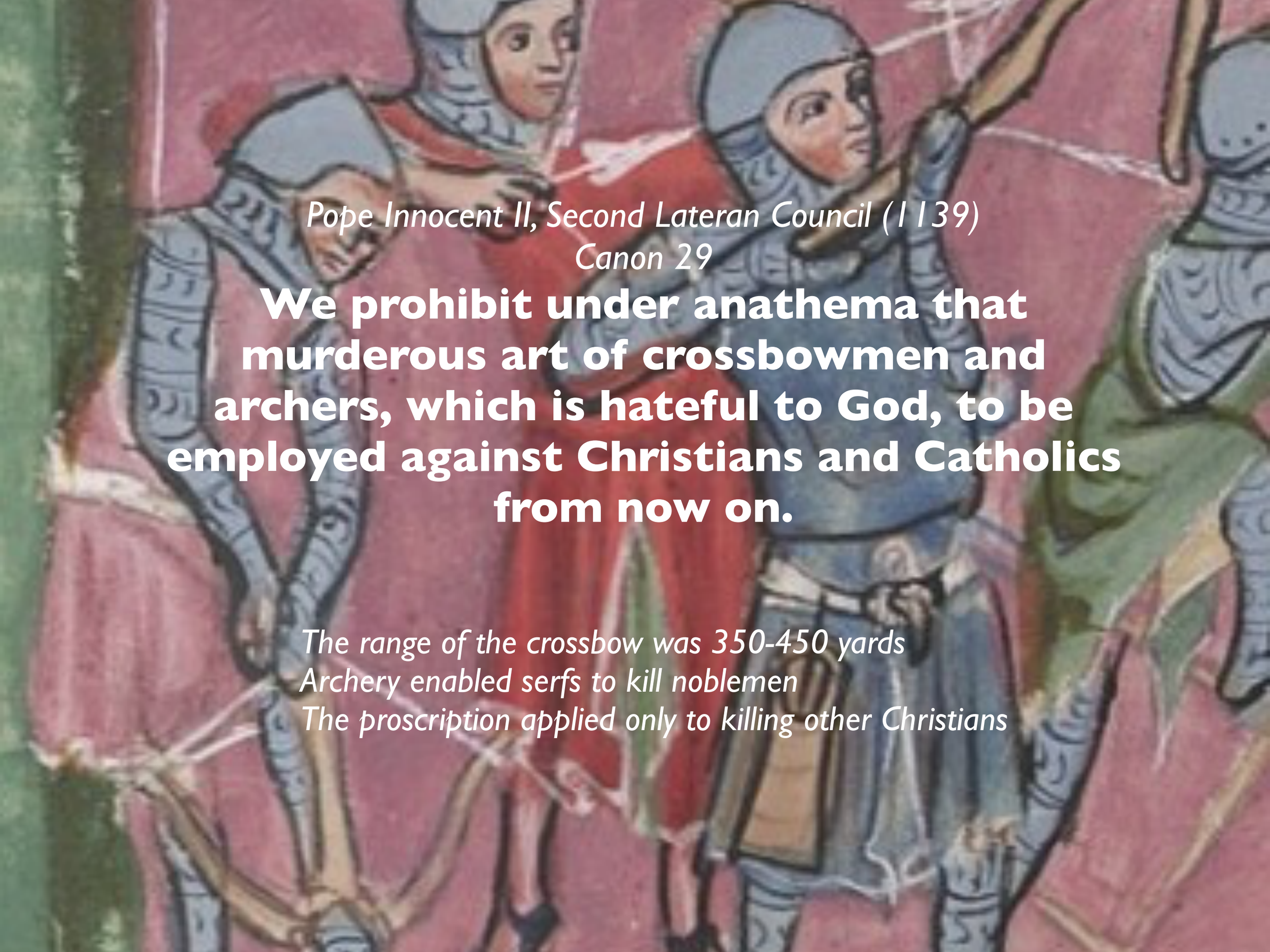


‘What happens when a hospital gets destroyed in war? Like a dead star, it collapses and burns, sending ripples of consequences to communities around it…

‘Killing a doctor ensures that hundreds will bleed to death.’

Adham Sahloul, Syrian-American Medical Society
‘Obituary: A Hospital in Aleppo (2013-2016) [M10/Sakhour Hospital]’
Time, 14 December 2016

2: The deconstruction of the battlefield



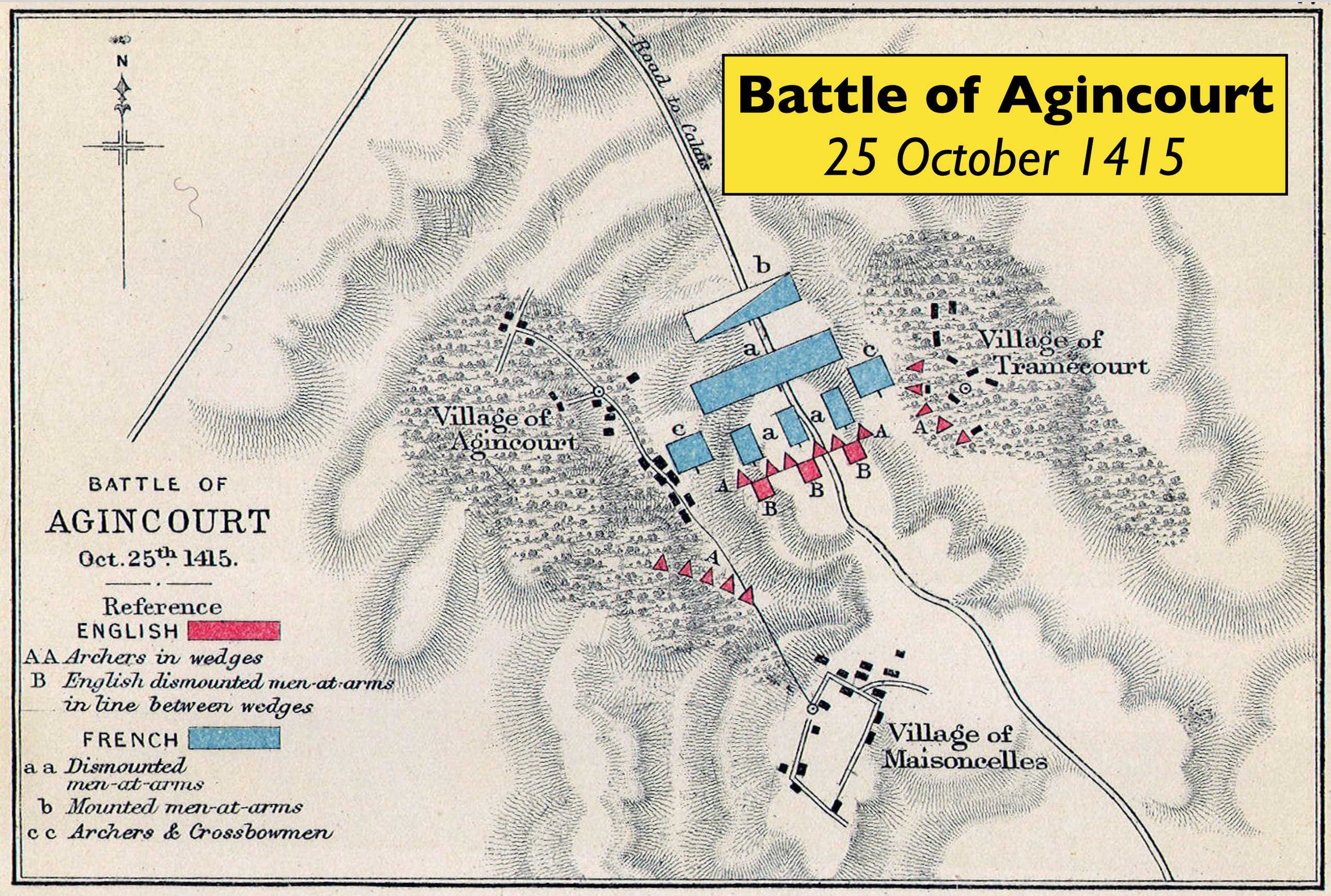
Pope Innocent II, Second Lateran Council (1139)
Canon 29

We prohibit under anathema that murderous art of crossbowmen and archers, which is hateful to God, to be employed against Christians and Catholics from now on.

The range of the crossbow was 350-450 yards
Archery enabled serfs to kill noblemen
The proscription applied only to killing other Christians

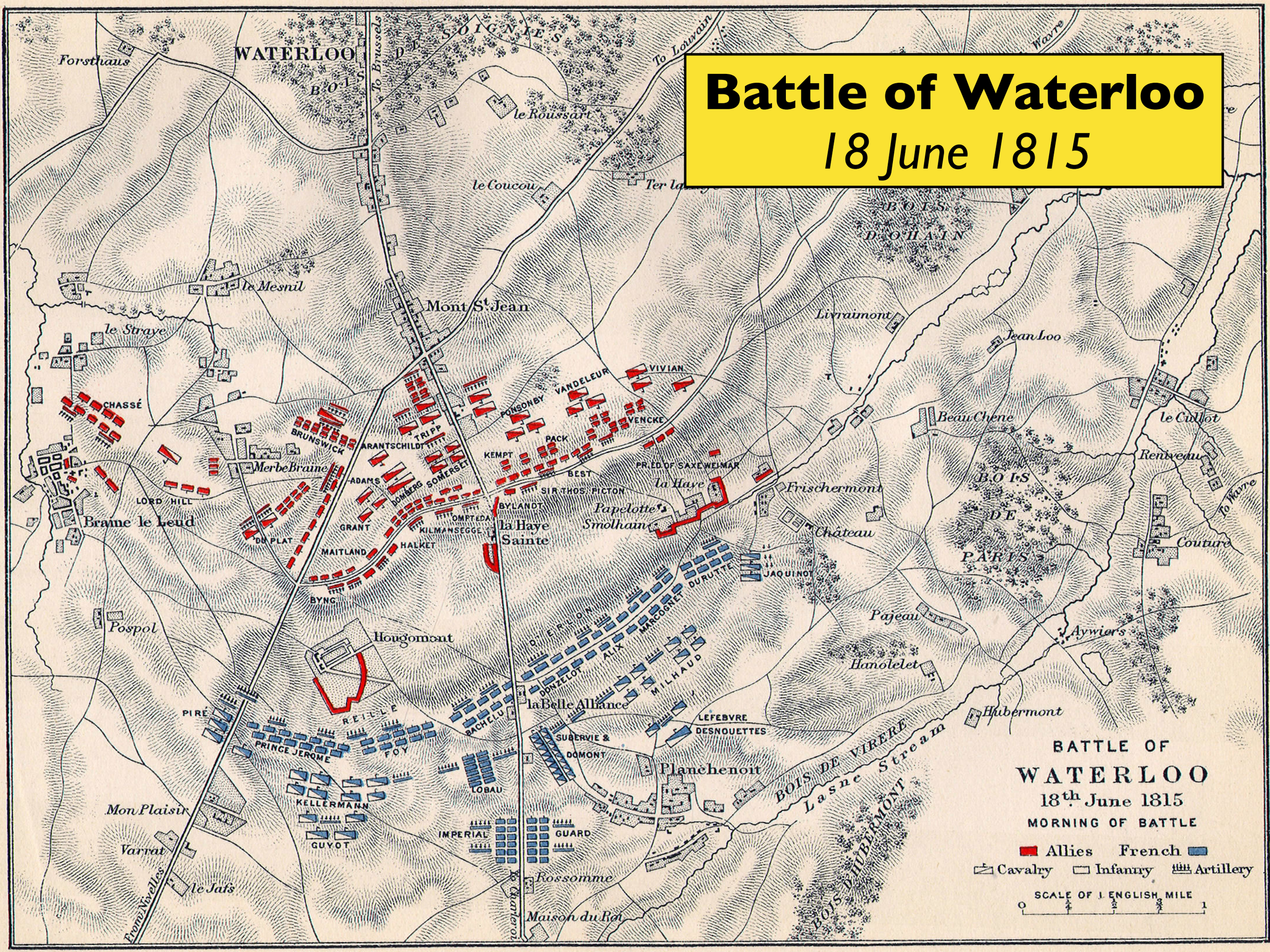
Battle of Agincourt

25 October 1415



Battle of Waterloo

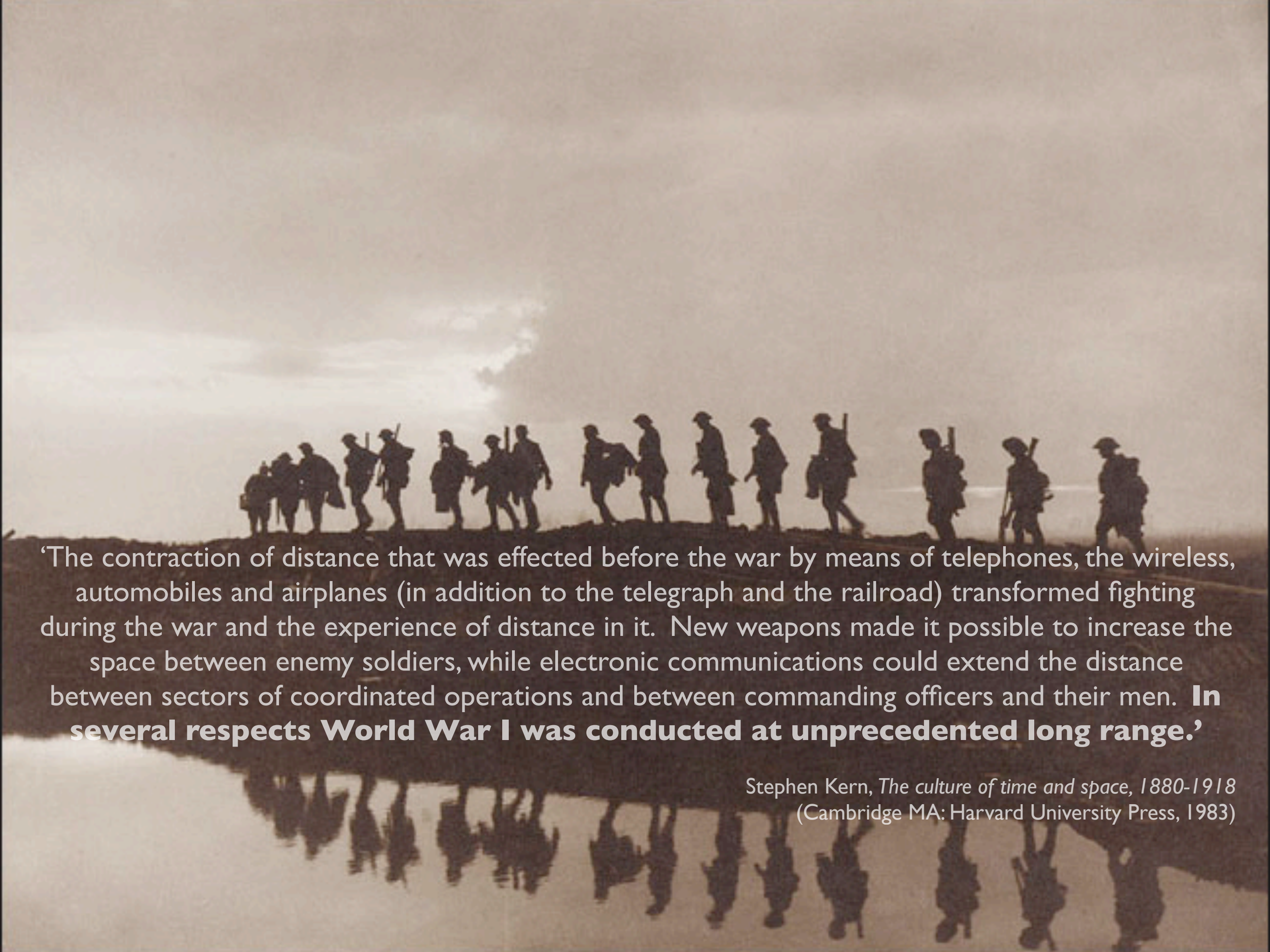
18 June 1815



Battle of the Somme

July 1916

BATTLE OF THE SOMME, 1916
Situation 1 July 1916 and Allied gains up to 19 November 1916
Elevation in Metres
0 100 130 150 Over
0 1 2 3 4 5 Miles
0 1 2 3 4 5 6 7 8 Kilometers
N



‘The contraction of distance that was effected before the war by means of telephones, the wireless, automobiles and airplanes (in addition to the telegraph and the railroad) transformed fighting during the war and the experience of distance in it. New weapons made it possible to increase the space between enemy soldiers, while electronic communications could extend the distance between sectors of coordinated operations and between commanding officers and their men. **In several respects World War I was conducted at unprecedented long range.’**

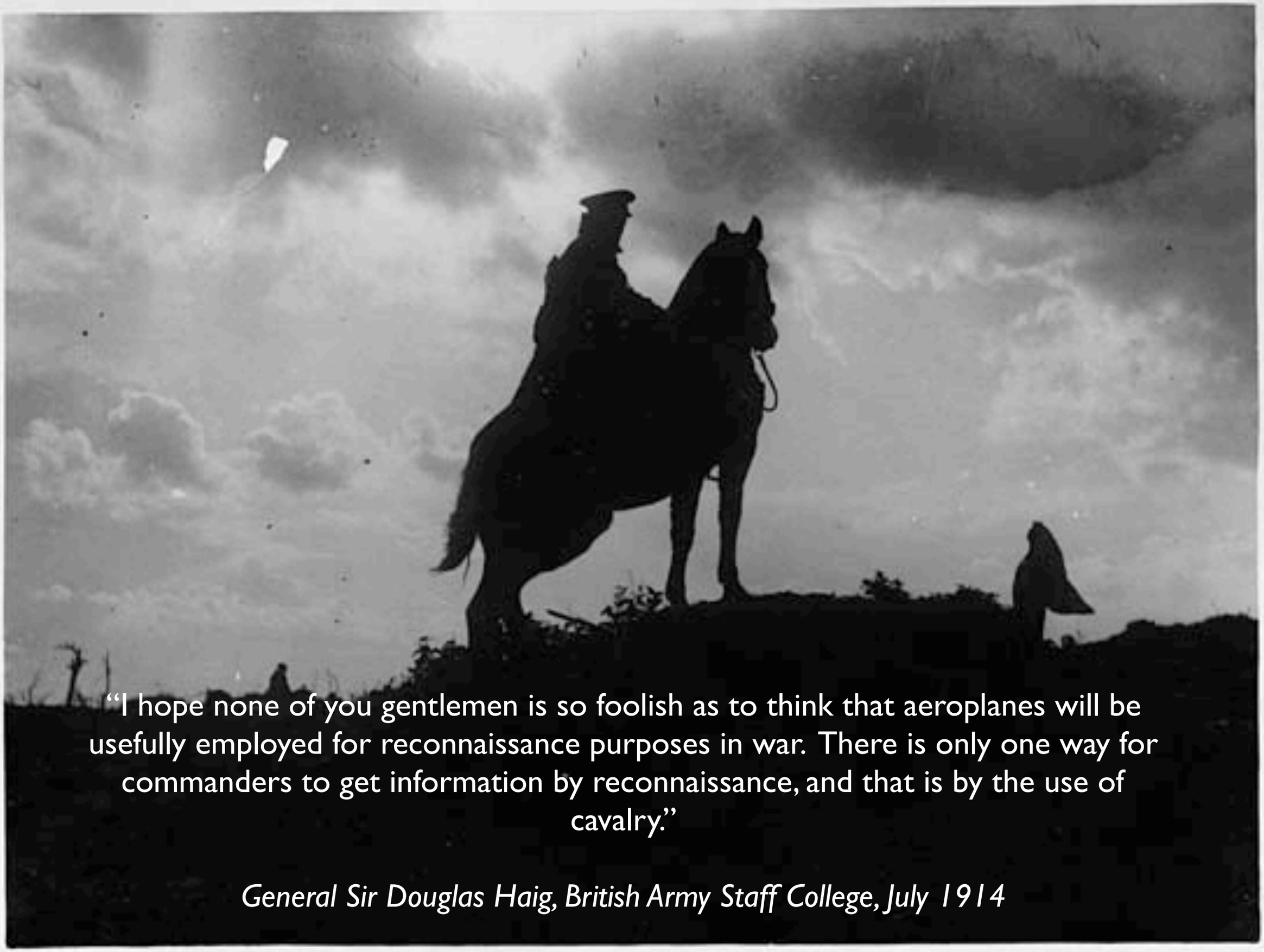
Stephen Kern, *The culture of time and space, 1880-1918*
(Cambridge MA: Harvard University Press, 1983)

‘**The Great War may be regarded as the opening of a radically different era.** It was then for the first time in history that very long-range weapons were used on a massive scale. With artillery guided by radiotelegraphy, and weapons operated from previously unheard-of places (in the air and under the sea), targets were increasingly disappearing from the field of view of the fighter who was deploying them….

‘The technological tools of distance warfare were developed in a conflict distinguished by extreme proximity between the belligerents.’

Éric Germain, ‘Out of sight, out of reach: moral issues in the globalization of the battlefield’, *International Review of the Red Cross* 97 (2015) 1065-1097

Image: Kaiser Wilhelm Geschütz, long-range artillery gun used to shell Paris in 1918 from a distance of 120 kilometres; its multiple strikes killed a total of 250 people



"I hope none of you gentlemen is so foolish as to think that aeroplanes will be usefully employed for reconnaissance purposes in war. There is only one way for commanders to get information by reconnaissance, and that is by the use of cavalry."

General Sir Douglas Haig, British Army Staff College, July 1914

Lt Giulio Gavotti
Ain Zara, Libya, 1 November 1911

‘Today two boxes full of bombs arrived. We are expected to throw them from our planes… **It is very strange that none of us have been told about this, and that we haven't received any instruction from our superiors.** So we are taking the bombs on board with the greatest precaution. It will be very interesting to try them on the Turks.’

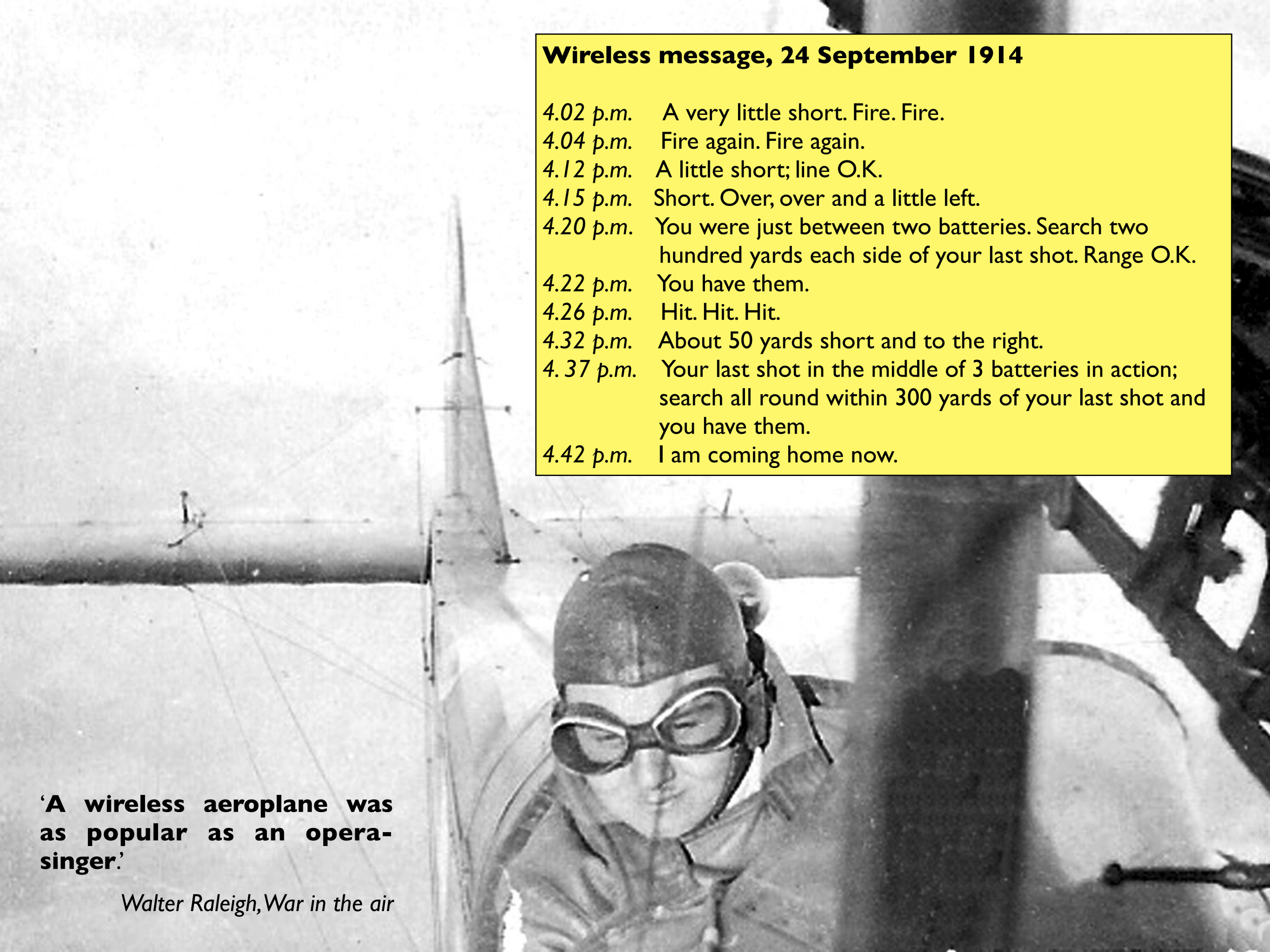
‘In the end we ended up giving little essential importance to such a rudimentary and miniature bombardment, compared to aerial observation, on which the Commanders placed such vital dependence.’

Captain Riccardo Moizo

©2009 -Paolo de Vecchi

‘I have never considered bomb-dropping as the most important function of the airplane, and I have no reason to change this opinion now that we have entered the war… *About all that has been accomplished by either side from bomb-dropping has been to kill a few non-combatants, and that will have no bearing on the result of the war.’*

Orville Wright,
New York Times, 1 July 1917



Wireless message, 24 September 1914

4.02 p.m. A very little short. Fire. Fire.
4.04 p.m. Fire again. Fire again.
4.12 p.m. A little short; line O.K.
4.15 p.m. Short. Over, over and a little left.
4.20 p.m. You were just between two batteries. Search two hundred yards each side of your last shot. Range O.K.
4.22 p.m. You have them.
4.26 p.m. Hit. Hit. Hit.
4.32 p.m. About 50 yards short and to the right.
4. 37 p.m. Your last shot in the middle of 3 batteries in action; search all round within 300 yards of your last shot and you have them.
4.42 p.m. I am coming home now.

'A wireless aeroplane was as popular as an opera-singer.'

Walter Raleigh, War in the air

‘**The affair is not like shooting at anything**. A polished missile is shoved into the gun. A horrid bang – the missile has disappeared, has simply gone. Where it has gone, what it has done, nobody in the hut seems to care. There is a telephone close by, but only numbers and formulae – and perhaps an occasional rebuke – come out of the telephone, in response to which the perspiring men make minute adjustments in the gun or in the next missile.

‘**Of the target I am absolutely ignorant, and so are the perspiring men**.’

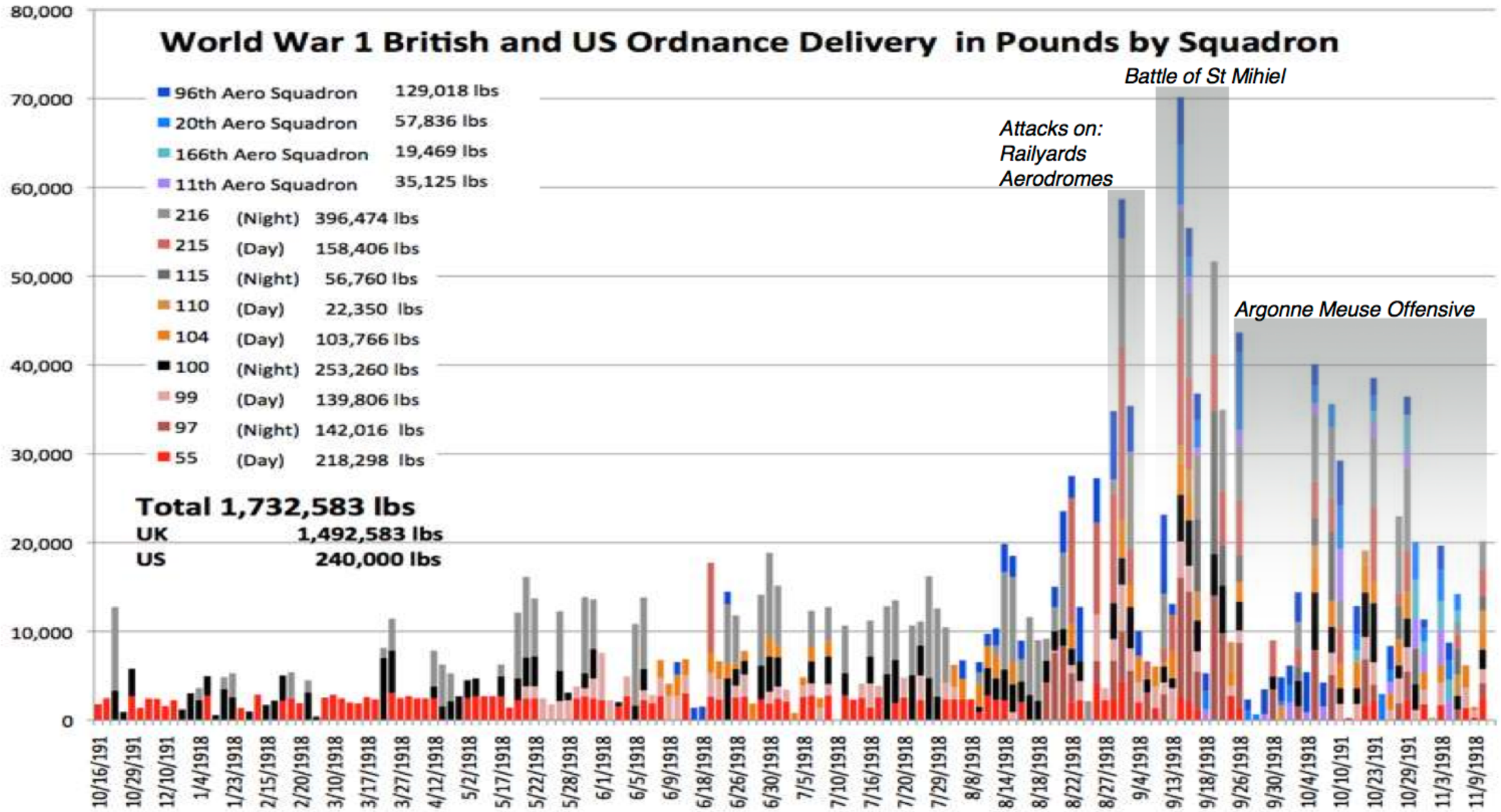
Arnold Bennett, *Over there: war scenes on the Western Front* (1915)

RFC 149th Night Bombing Squadron

Bombs being armed for a single night's operations, St Omer, July 1918

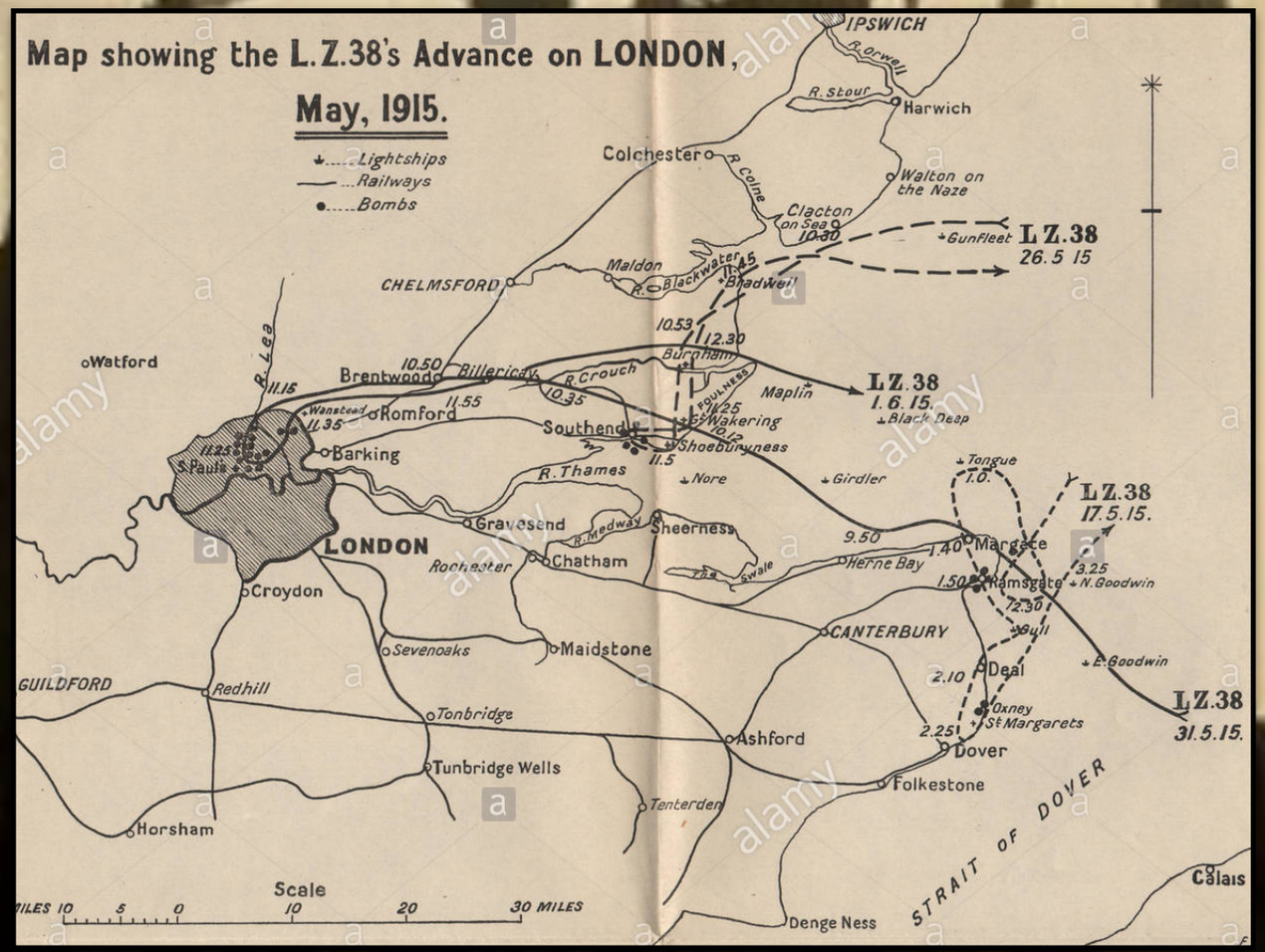
FE-2b night bomber

IWM



Project THOR

First Zeppelin raid on London
31 May 1915



‘Twenty minutes later we were over London. There below us its great expanse lay spread. **I knew it all so well. I had spent several months there five years before. There seemed to have been little effort to dim the city. There were the old familiar landmarks** – St. Paul’s, the Houses of Parliament, and Buckingham Palace, dreaming in the light of the moon which had now risen. I glanced at the clock. It was ten minutes to eleven. The quivering altimeter showed that our height was 10,000 feet. …

‘There was tension as **I leaned out of one of the gondola portholes and surveyed the lacework of lighted streets and squares**. An icy wind lashed my face. I mounted the bombing platform. **My finger hovered on the button that electronically operated the bombing apparatus. Then I pressed it. We waited. Minutes seemed to pass before, above the humming song of the engines, there arose a shattering roar. Was it fancy that there also leaped from far below the faint cries of tortured souls? I pressed again.** A cascade of orange sparks shot upwards, and a billow of incandescent smoke drifted slowly away to reveal a red gash of raging fire on the face of the wounded city. One by one, every thirty seconds, the bombs moaned and burst.’

Major Erich Linarz, commander LZ.38 [31 May 1915: London’s first Zeppelin raid]

A deadly intimacy

The Daily News & Leader

ZEPPELIN RAID OVER OUTER LONDON.

"Many Fires Reported, but These not Absolutely Connected with Airships."

GERMAN AIRSHIPS' FIRST VISIT to LONDON DISTRICTS

Raiders Also Observed on the East Coast.

BRIEF OFFICIAL ANNOUNCEMENT REPORTS MANY FIRES.

GERMANY AND AMERICA

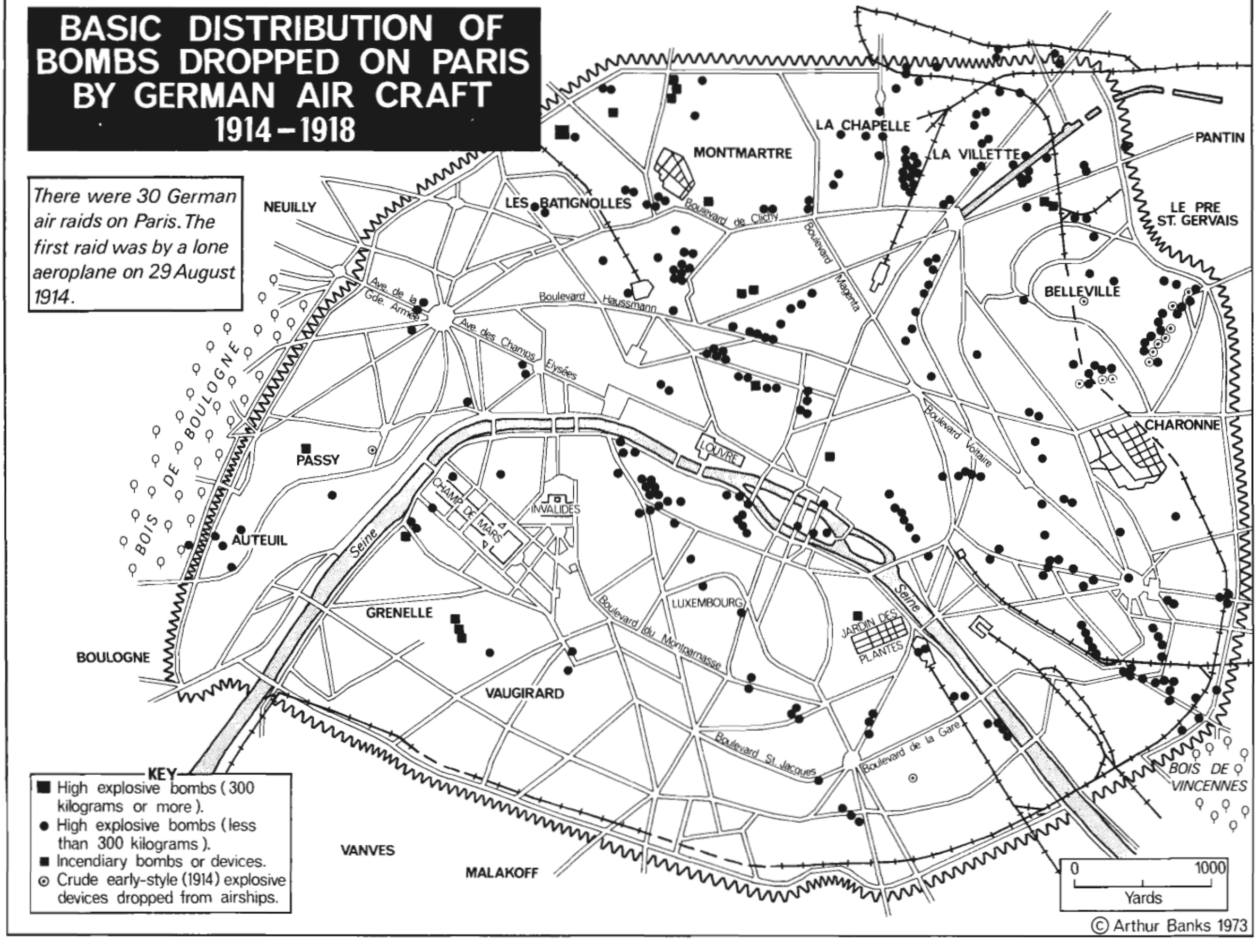
AIR RAID ON AN AUSTRIAN WAR PORT.

During Visit by Italian Dirigible.

Liverpool St., London

BASIC DISTRIBUTION OF BOMBS DROPPED ON PARIS BY GERMAN AIR CRAFT 1914 – 1918

There were 30 German air raids on Paris. The first raid was by a lone aeroplane on 29 August 1914.



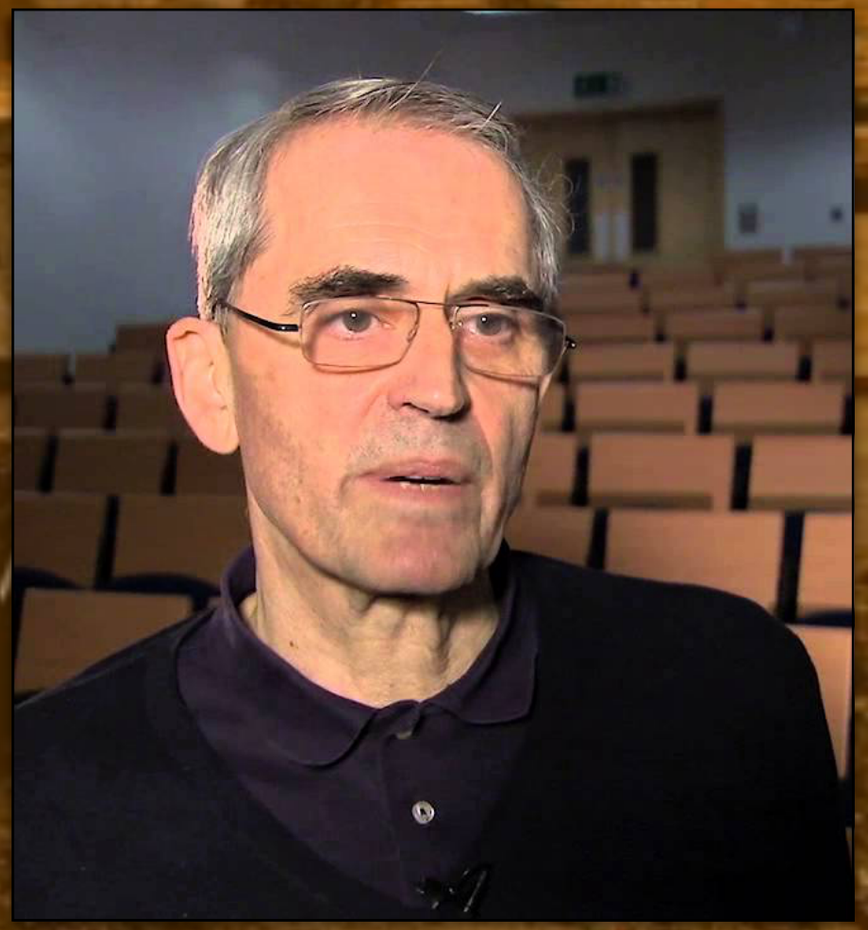
© Arthur Banks 1973

‘By virtue of this new weapon, the repercussions of war are no longer limited by the farthest artillery range of guns, but can be felt directly for hundreds and hundreds of miles… The battlefield will be limited only by the boundaries of the nations at war, and all of their citizens will become combatants, since all of them will be exposed to the aerial offensives of the enemy. **There will be no distinction any longer between soldiers and civilians.’**

Giulio Douhet
Il domino dell’Aria (1921)

‘Despite the laws of war’s best efforts to maintain a certain idea of the battlefield as a constant, those whose aim it is to fundamentally alter the conditions of warfare have repeatedly assailed the notion. **The deconstruction of the battlefield is, in fact, well under way**.’

Frédéric Mégret



’In modern and late-modern war .. **the idea of the battlefield been transformed into one of complex, multiple, overlapping spaces of violence.’**

Martin Shaw

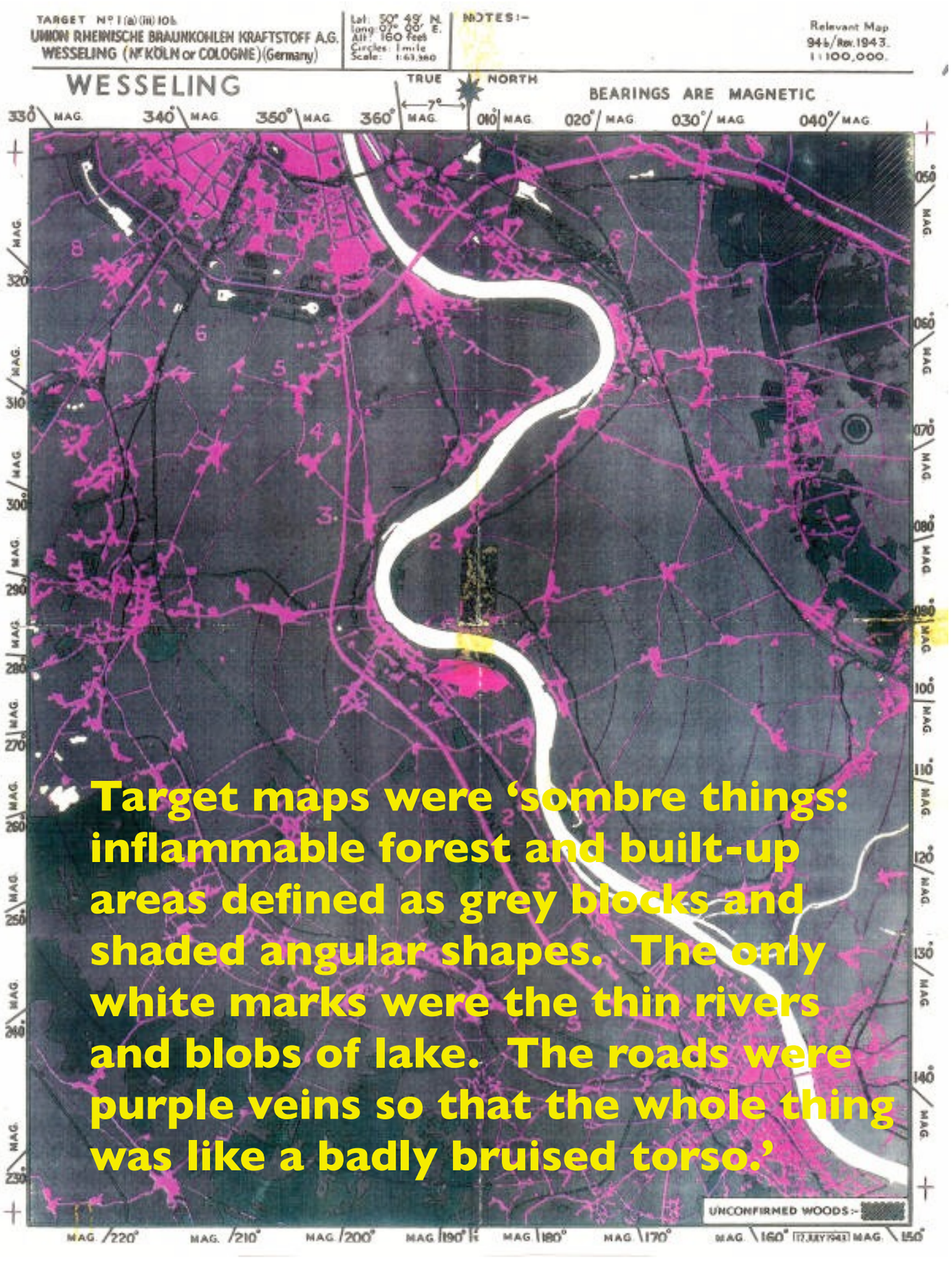
3: The bombed city

Aleppo, Syria

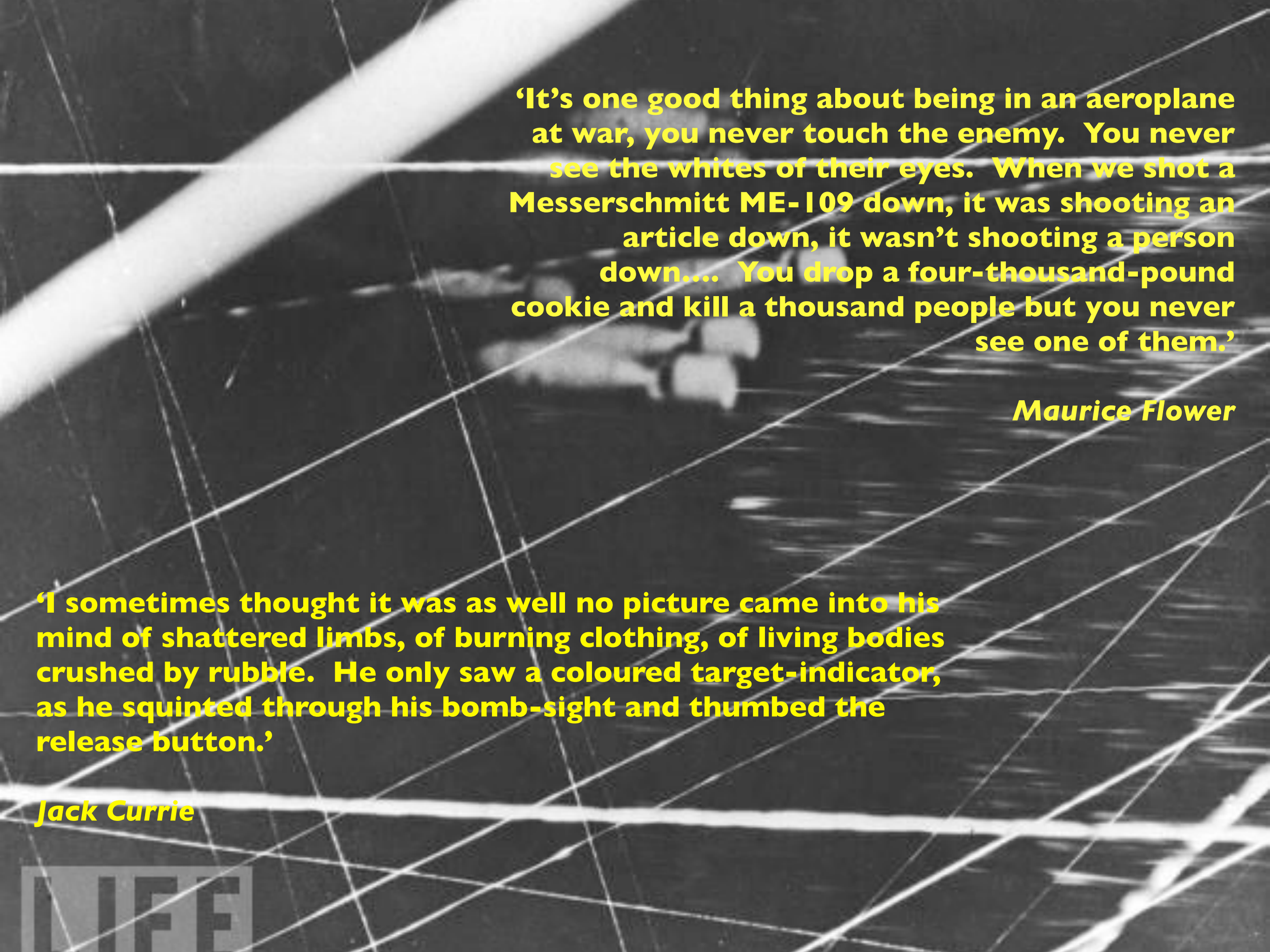
Graham Sutherland,
Devastation 1941: An East End Street

‘The background to this war, corresponding to the Western Front of the last war, is the bombed city.’

Stephen Spender, Air raids (1943)



Target maps were 'sombre things: inflammable forest and built-up areas defined as grey blocks and shaded angular shapes. The only white marks were the thin rivers and blobs of lake. The roads were purple veins so that the whole thing was like a badly bruised torso.'



‘It’s one good thing about being in an aeroplane at war, you never touch the enemy. You never see the whites of their eyes. When we shot a Messerschmitt ME-109 down, it was shooting an article down, it wasn’t shooting a person down.... You drop a four-thousand-pound cookie and kill a thousand people but you never see one of them.’

Maurice Flower

‘I sometimes thought it was as well no picture came into his mind of shattered limbs, of burning clothing, of living bodies crushed by rubble. He only saw a coloured target-indicator, as he squinted through his bomb-sight and thumbed the release button.’

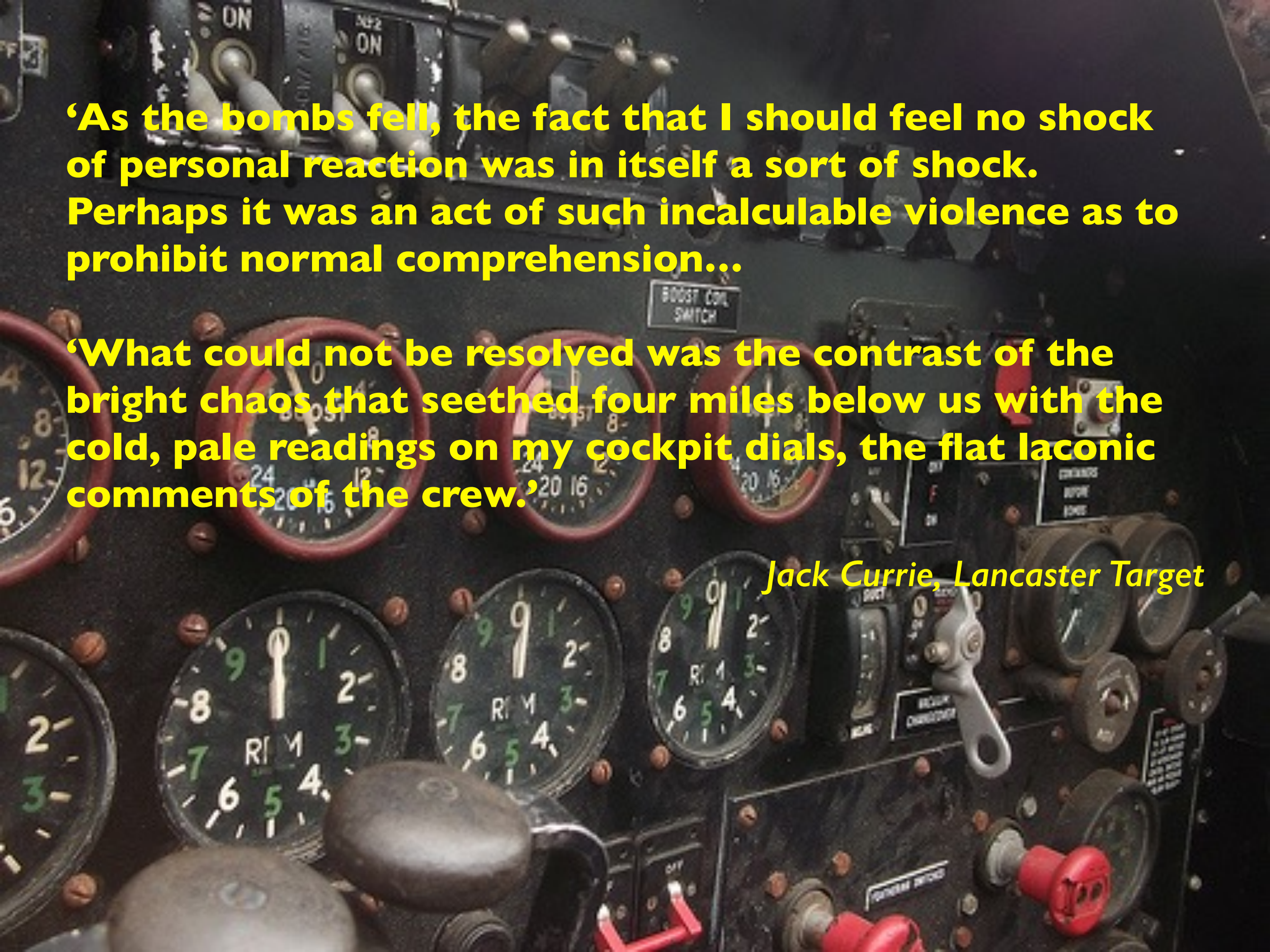
Jack Currie

‘A German city was always this ... hellish picture of flame, gunfire and searchlights, an unreal picture because we could not hear it or feel its breath. Sometimes when the smoke rolled back and we saw streets and buildings I felt startled. Perhaps if we had seen the white, upturned faces of people, as over England we sometimes did, our hearts would have rebelled.’

Don Charlwood

‘It was black, and then suddenly in the distance you saw lights on the floor, the fires burning. As you drew near, they looked like sparkling diamonds on a black satin background... [T]hey weren’t people to me, just the target. It’s the distance and the blindness which enabled you to do these things.’

Harold Nash



‘As the bombs fell, the fact that I should feel no shock of personal reaction was in itself a sort of shock. Perhaps it was an act of such incalculable violence as to prohibit normal comprehension...

‘What could not be resolved was the contrast of the bright chaos that seethed four miles below us with the cold, pale readings on my cockpit dials, the flat laconic comments of the crew.’

Jack Currie, Lancaster Target

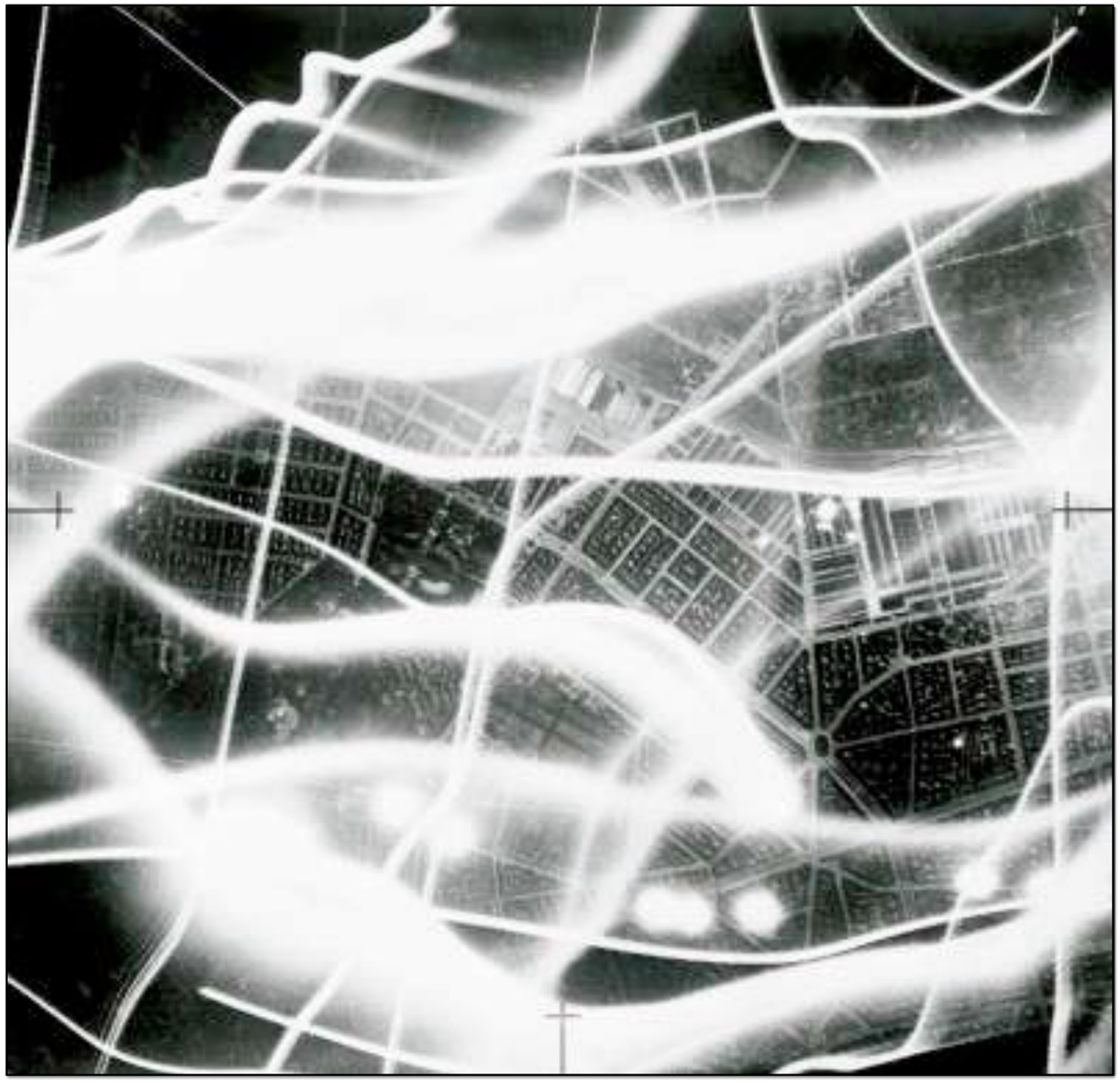
Charles Lindbergh

'**You press a button and death flies down.** One second the bomb is hanging harmlessly in your racks, completely under your control. The next it is hurtling through the air, and nothing in your power can revoke what you have done… **How can there be writhing, mangled bodies?** How can this air around you be filled with unseen projectiles? **It is like listening to a radio account of a battle on the other side of the earth. It is too far away, too separated to hold reality.'**

29 May 1944

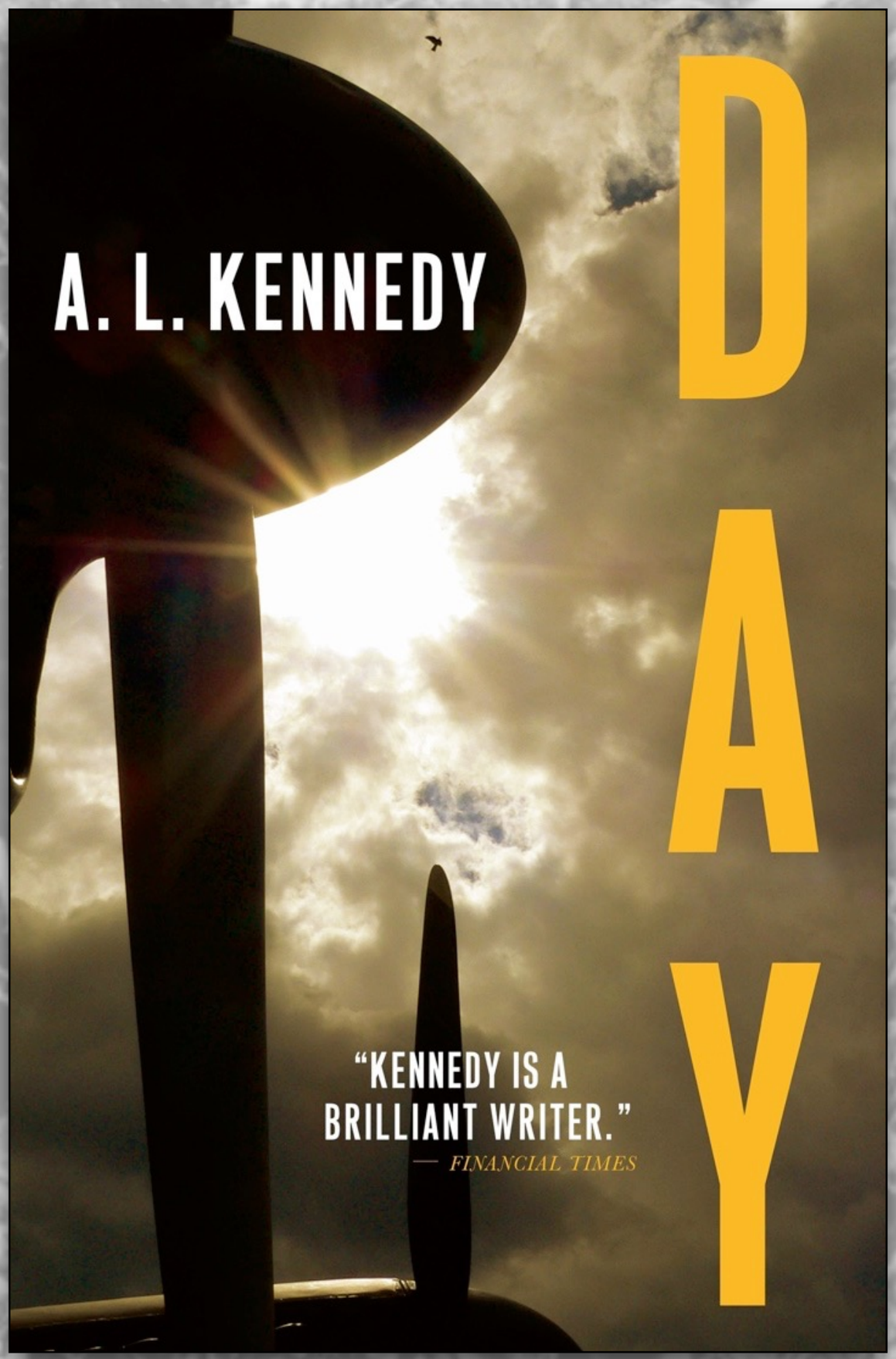
'One is separated from the surface of that island as though he were viewing it on a motion-picture screen in a theater on the other side of the world. A plane in the sky, an island in the water: there is no thread of realization, of understanding, of human feeling that connects the two. **In modern war one kills at a distance, and in doing so does not realize that he is killing.'**

10 September 1944



The bombers
‘dropped their load
into this abstraction.’

Jörg Friedrich, The Fire



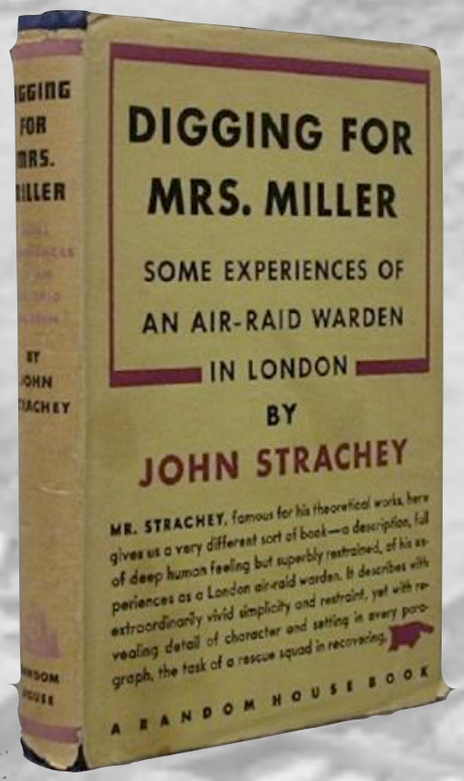
'My, but wasn't it all just a big, free university – the university of war – with HE and armour piercing and incendiaries, just for a lark. And so much to find out: the far edges of people and **the bloody big doors into nowhere** that you don't want to know about.'

‘There is no public record of the labours of the inter-departmental Committees, of the Boards of Inquiry, of the Treasury minute, of the final Cabinet minute, which **settled upon the word “incident” as the designation of what takes place when a bomb falls on a street. Yet how important it was to select such a word** ... So when the time came, Whitehall had a word for it... **“Incident” cannot be held to convey very graphically the consequences of a bomb. Just the contrary. The word is wonderfully colourless, dry and remote: it touches nothing which it does not minimise.** And this, it may be supposed, was what recommended it conclusively to the authorities. It formed an important part of their policy of reassurance. For while anyone might be frightened of a bomb, who could be frightened of an incident?’

John Strachey, *Post D: some experiences of an air raid warden*
(London: Gollancz, 1941)
Strachey served as a public relations officer in the Directorate of Bombing Operations

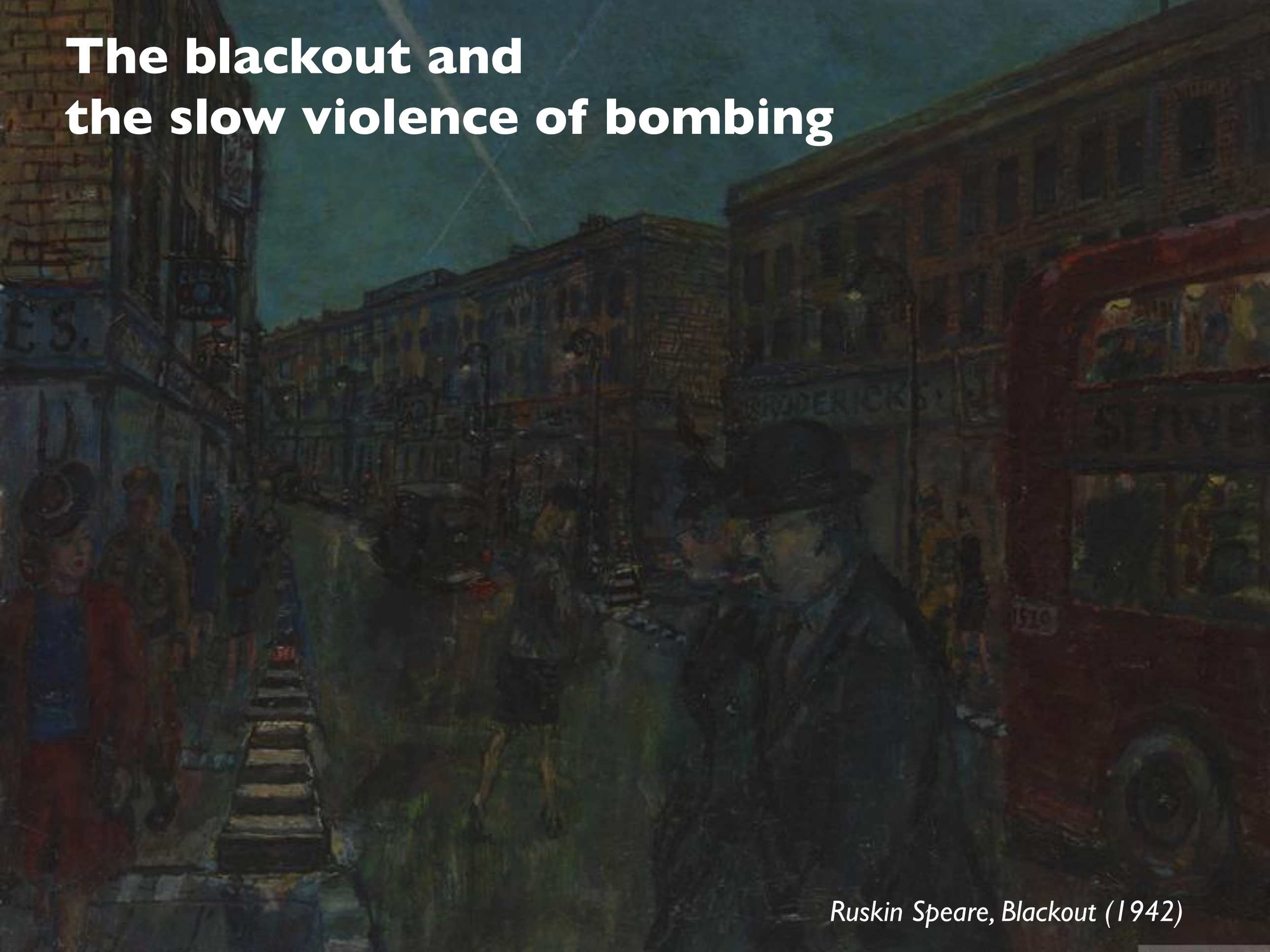
For those crouching beneath the bombs, the experience was anything but abstract

‘What a domestic sort of war this is... it happens in the kitchen, on landings, beside washing-baskets; it comes to us without stirring a yard from our own doorsteps to meet it. **Even its catastrophes are made terrible not by strangeness but by familiarity**.’



John Strachey, *Post D: some experiences of an air raid warden* (London: Gollancz, 1941); *Digging for Mrs Miller* (New York: Random House, 1941)

The blackout and the slow violence of bombing



Ruskin Speare, Blackout (1942)

City of Westminster.

AIR RAID SHELTERS AT NIGHT

See the **BLUE LIGHT** - it means **SHELTER** at **NIGHT**

Issued by Westminster City Council, A.R.P. Office, Alhambra House, 31, Charing Cross Rd., W.C.2. 12th January, 1940.

IWM

IN AN AIR RAID . . .

WHAT MOTORISTS MUST DO

BY DAY

- Park your car off the main highway, close to the kerb.
- Obey promptly any instructions from police or air raid wardens.
- Go to the nearest shelter, or take cover.

AT NIGHT

- Do the same as by day, but **SWITCH OFF YOUR HEADLAMP.** Leave rear and side lights on.

Joan Connew, Blackout (1942)

SANDEMAN'S
PORTY
MORRIS
STEWART & ARDERN
RESTAURANT
Monico
GUINNESS TIME
GUINNESS
IS GOOD
FOR YOU
GIVES YOU STRENGTH
ATLAS ASSURANCE
BOVRIL
SCHWEPPES
TONIC WATER
DIAMONDS & RING
WILLS'S
GOLDFLAKE
CIGARETTES
CRAVEN
OFFICES TO LET
IRST ON YOUR LEFT
GORDON'S
SUPREME
GIN
Haig
WHISKY
WRIGLEY'S
AFTER EVERY MEAL
FOR GOOD HEALTH
HAIRDRESSERS
Ever-Ready
BLADES
ARE MARVELLOUS
Ever-Ready
BLADES
CH STE
MORRIS
"BLI

Wait !

Count 15

slowly

before moving in the Blackout

Issued by THE NATIONAL "SAFETY FIRST" ASSOCIATION (Inc.), Terminal House, 52, Grosvenor Gardens, London, S.W. 1

In the Blackout

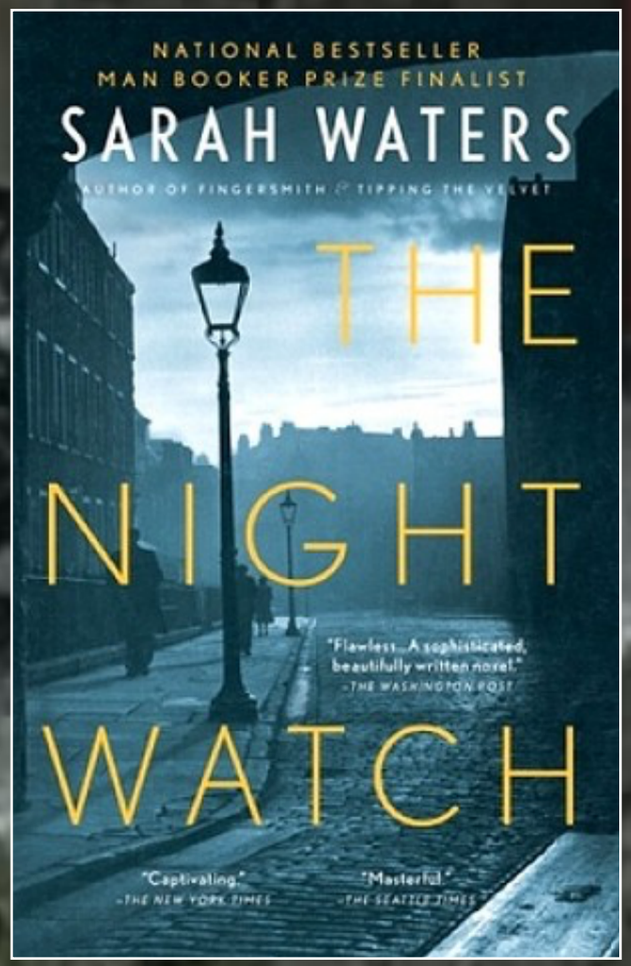
Pause, as you

leave the station's light—

and you'll see better in the night

SANDEMAN'S
PORT
MORRIS
RESTAURANT
Monico
GUINNESS TIME
GUINNESS
IS GOOD
FOR YOU
GIVES YOU STRENGTH
ATLAS ASSURANCE
BOVRIL
SCHWEPPES
TONIC
WATER
DIAMONDS & RING
PLAYER'S
GOLDFLAKE
CIGARETTES
Ever-Ready
BLADES
AMAZING
VALUE
FOR GO

‘It was always disconcerting, in a black-out, leaving the places you knew best. A particular feeling started to creep over you, a mixture of panic and dread: as if you were walking through a rifle-range with a target on your back.’



‘Walk anywhere and you’ll catch yourself calculating out from where the first cookie [blockbuster bomb] would fall and blast the buildings open, let the incendiaries in to lodge and play.

‘And so you see targets beside targets: nothing but targets and ghost craters looping up from the earth, shock waves of dust and smoke ringing, crossing. *You feel the aerial photograph staring down at you where you stand, waiting to wipe you away.’*

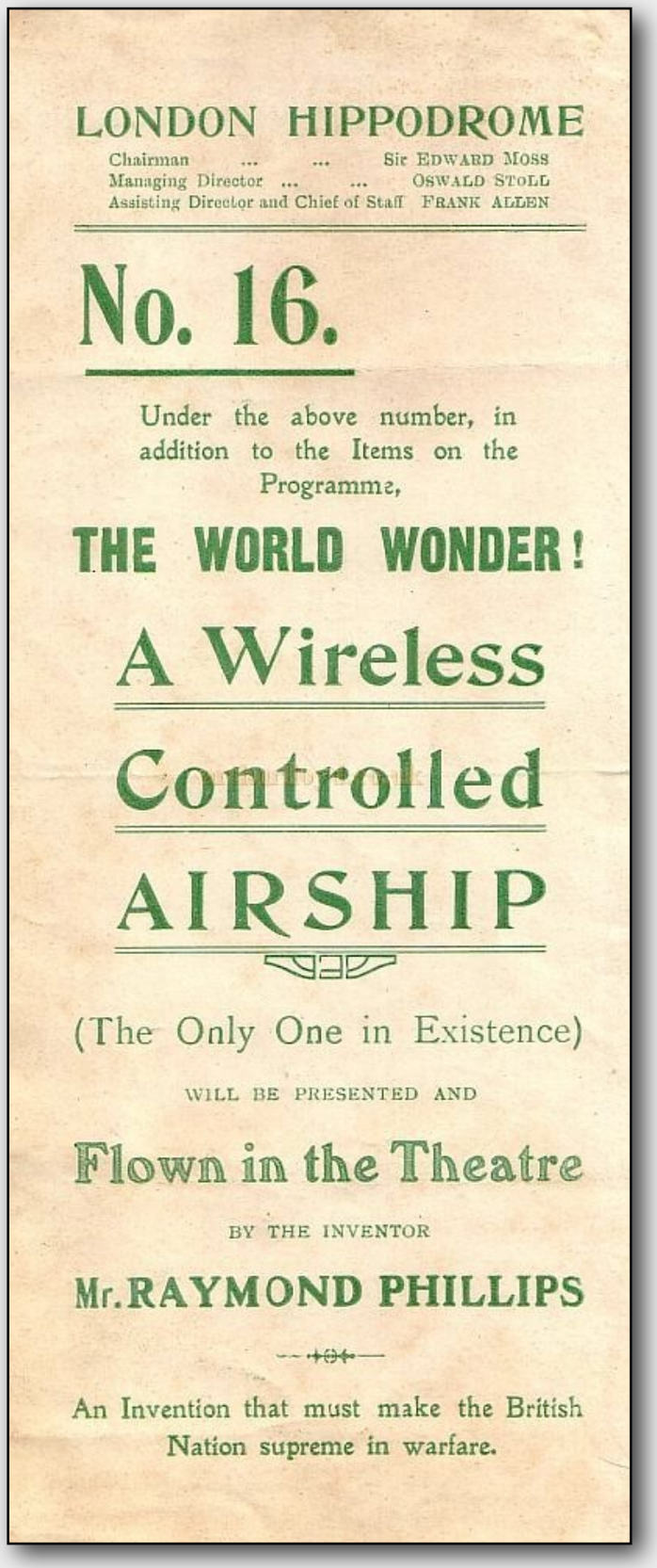
A.L. Kennedy, Day

Eye in the Sky/Gavin Wood

4: Remote control

Raymond Phillips's Aerial Torpedo

May 1910


LONDON HIPPODROME

Chairman ... ... Sir EDWARD MOSS
Managing Director ... ... OSWALD STOLL
Assisting Director and Chief of Staff FRANK ALLEN

No. 16.

Under the above number, in addition to the Items on the Programme,

THE WORLD WONDER!

A Wireless Controlled AIRSHIP

(The Only One in Existence)

WILL BE PRESENTED AND

Flown in the Theatre

BY THE INVENTOR

Mr. RAYMOND PHILLIPS

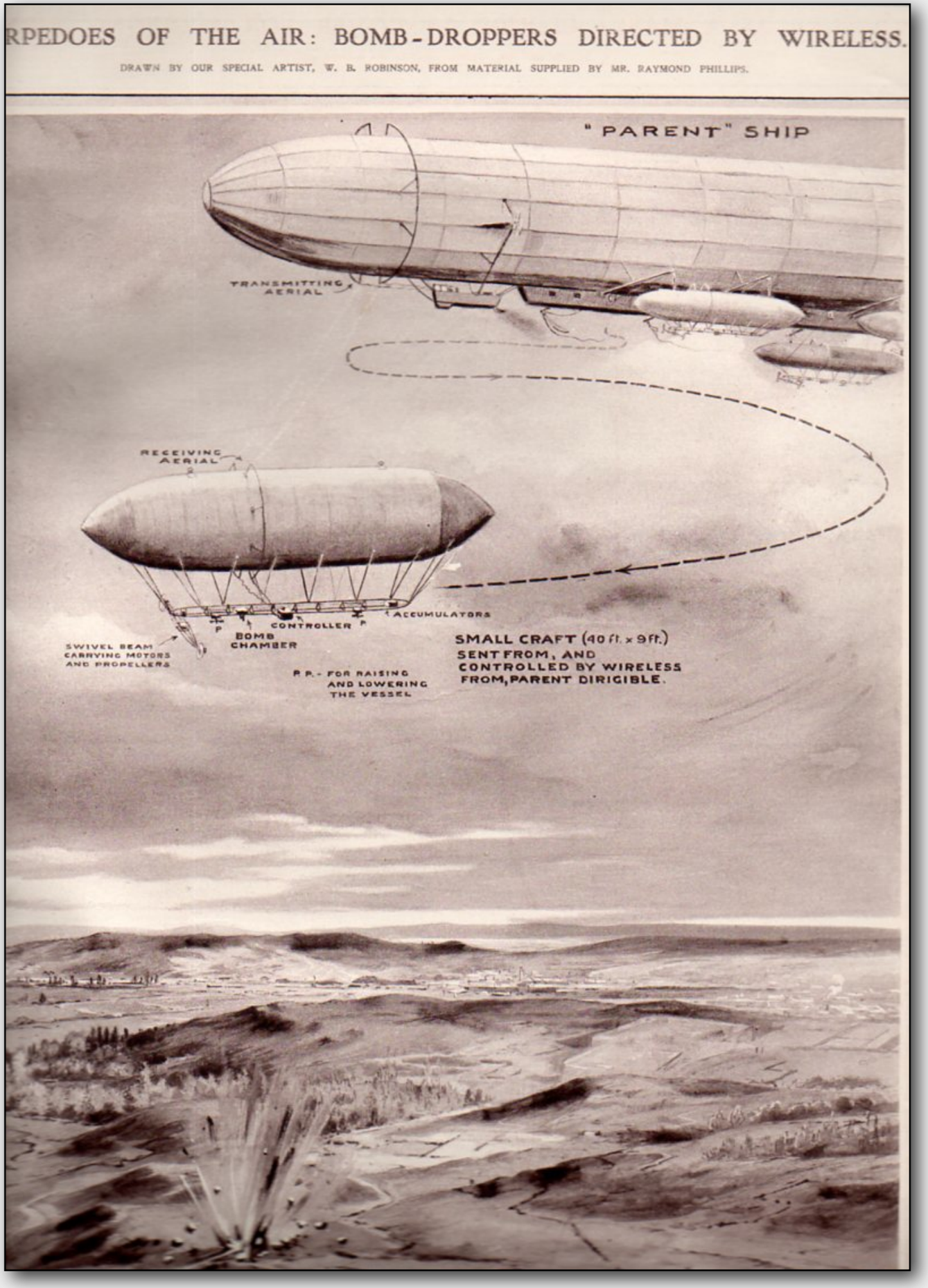
An Invention that must make the British Nation supreme in warfare.

"'Now," said he, "just imagine that row of seats is a row of houses, and that instead of a model, with paper toys in its hold, in its hold, I am controlling a full-sized airship carrying a cargo of dynamite bombs. Watch!"

He pressed another key. There was a faint click from the framework of the airship, and the bottom of the box that hung amidships fell like a trapdoor, releasing, not bombs, but a flight of paper birds, that fluttered gracefully down on the seats beneath. "There!" said the inventor, with a note of finality...

New York Times 22 May 1910

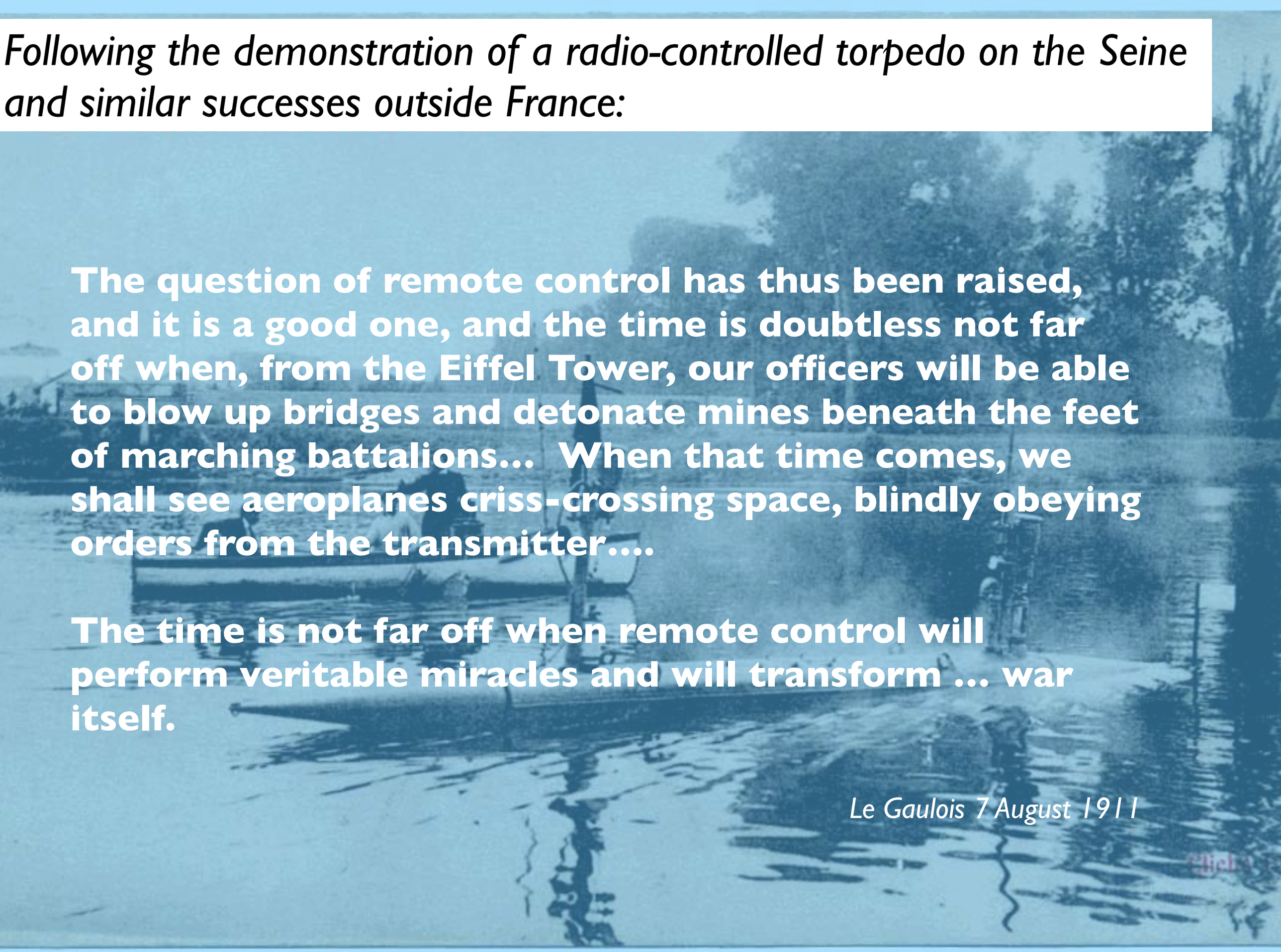
'I don't want to brag, but I feel sure that if England purchases my aerial torpedo she will make short work of the enemy's fleets and cities in any future war. Why, I can sit in an armchair in London and drop bombs in Manchester or Paris or Berlin.'



'I don't want to brag, but I feel sure that if England purchases my aerial torpedo she will make short work of the enemy's fleets and cities in any future war. **Why, I can sit in an armchair in London and drop bombs in Manchester or Paris or Berlin.'**

Illustrated London News, September 1913
Illustration by W.B. Robinson 'from materials supplied by Mr Raymond Phillips'

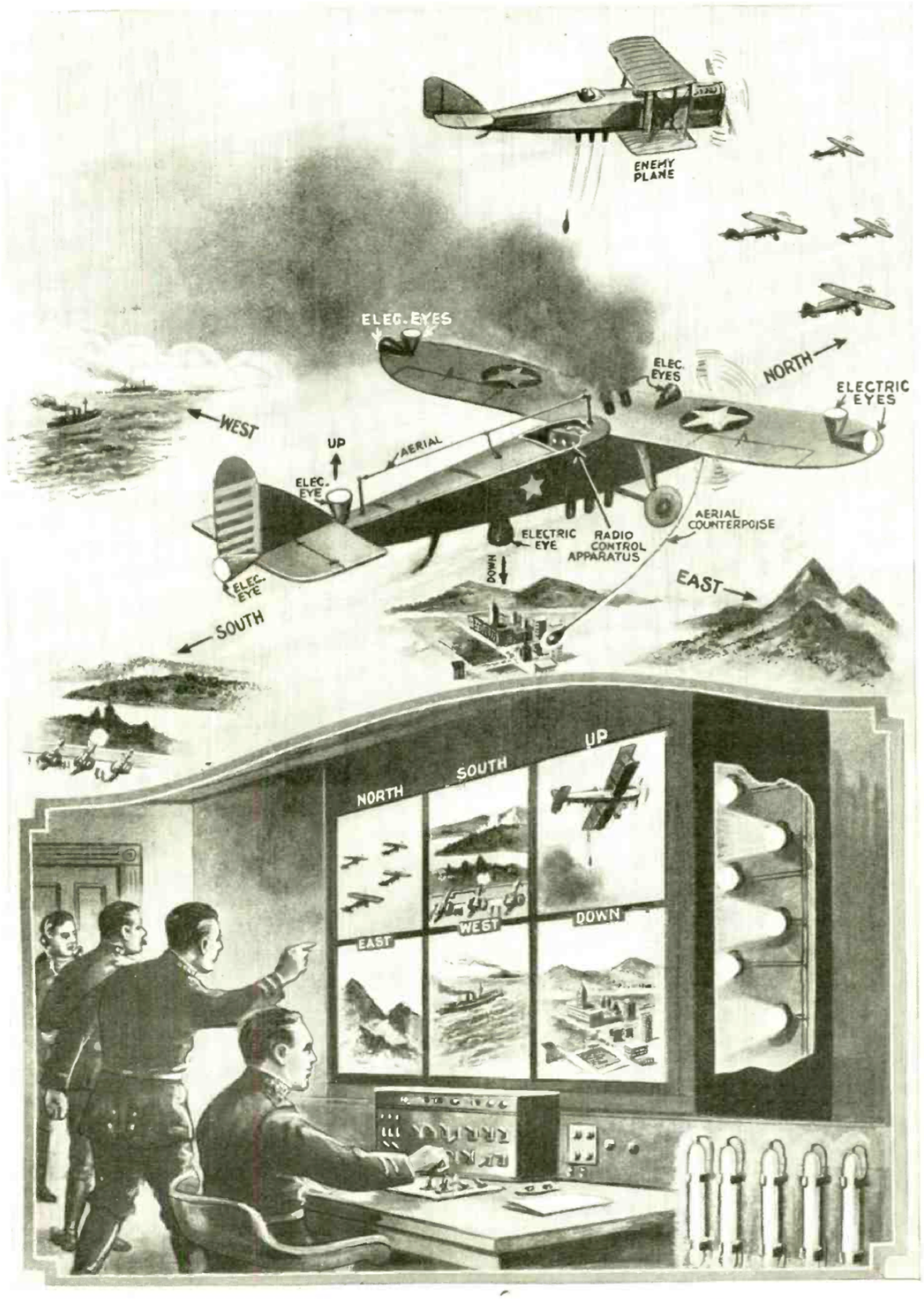
Following the demonstration of a radio-controlled torpedo on the Seine and similar successes outside France:



The question of remote control has thus been raised, and it is a good one, and the time is doubtless not far off when, from the Eiffel Tower, our officers will be able to blow up bridges and detonate mines beneath the feet of marching battalions... When that time comes, we shall see aeroplanes criss-crossing space, blindly obeying orders from the transmitter....

The time is not far off when remote control will perform veritable miracles and will transform ... war itself.

Le Gaulois 7 August 1911



Hugo Gernsback's radio-controlled television plane 1924/1931

'The airplane is started from the ground and is sent over the enemy territory. **During every second of its flight the control operator, although 50, 100 or possibly 500 miles away, will see exactly what goes on around the plane, just the same as if he himself were seated in the cockpit**; with the further advantage that, sitting before a screen, he can scan six directions all at once, which no human aviator can do….

'The radio-controlled television airplane can … be directed to the spot where it is supposed to drop its bombs. Moreover, **the distant-control operator can see exactly when his machine arrives over a given spot. A sighting arrangement can be attached to the plane in such a manner that, when the object to be bombed comes over the cross-wires in the range-finder, the bomb or bombs are dropped at the exact moment.**'

Television News (1), March/April 1931

Project Aphrodite

In the waning days of World War II, the US turned worn-out bombers into missiles targeting Germany. It didn't go well.

The Remote Control Bombers

By Walter J. Boyne

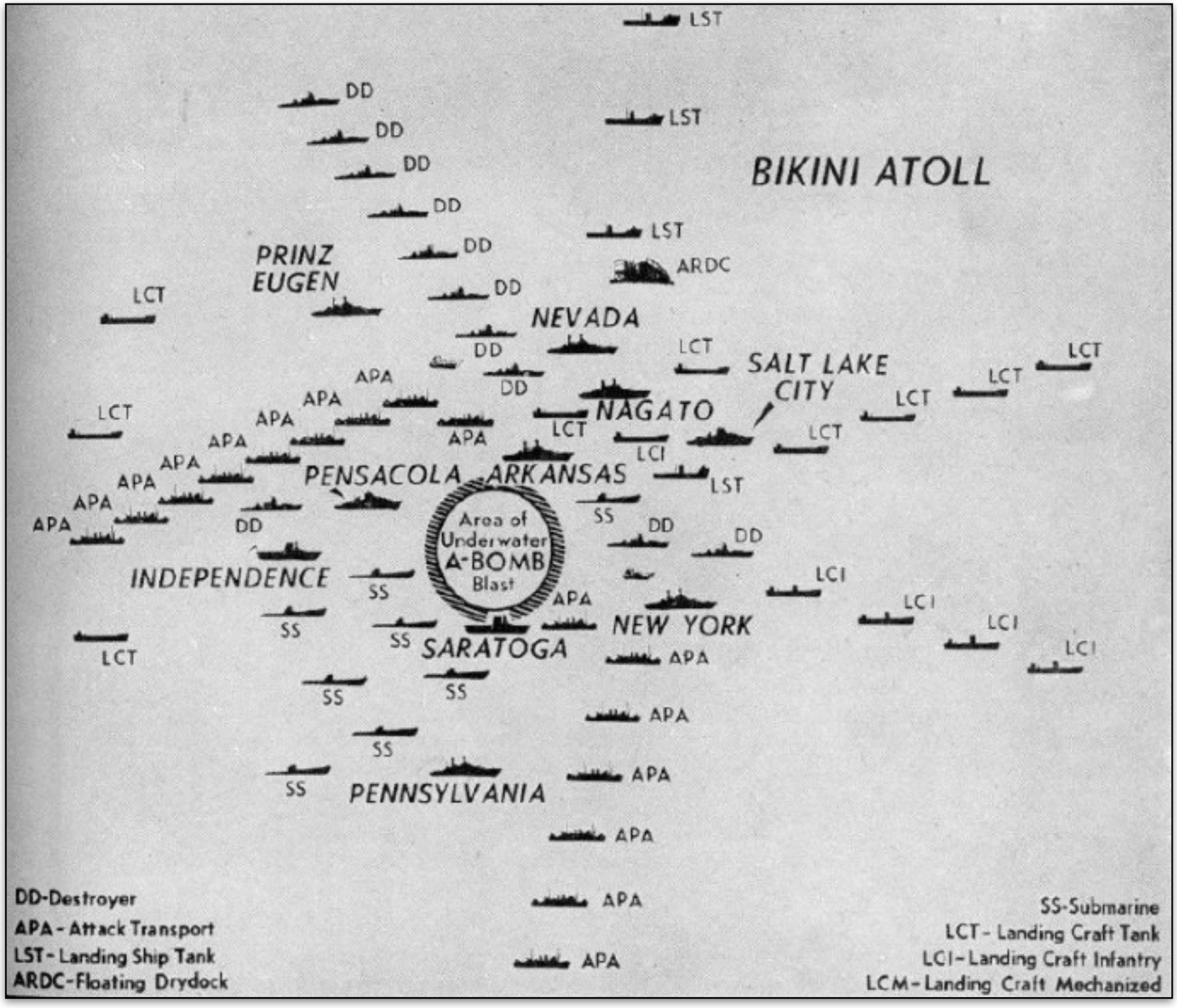
USAF Pilotless Aircraft Branch
B-17 experiments

'director aircraft'

Ground Control Station

Drones in the Marshall Islands

Operation Crossroads, July 1946



A B-17 drone, controlled by transmitters on the ground, lands at Eniwetok during Operation Crossroads in the Marshall Islands. *(Manhattan Project Heritage Preservation Association)*

This photograph was taken by an automatic camera mounted in a drone plane flying directly above the Zero-point at the instant of detonation, a remarkable achievement in drone control. The cauliflower is funnel-shaped at this stage; within its jagged rim is a condensation cloud nearly a mile in diameter, which evaporated a few seconds later.

Project Brass Ring (1949-1951)

'The ultimate objective was to fashion a B-47 carrier with completely automatic operation from take-off to bomb drop... Under direction from the mother aircraft, the missile would take off, climb to altitude and establish cruise speed conditions. While still in friendly territory, the crew aboard the director checked out the missile and committed its instruments to automatically accomplish the remainder of the mission. This was all that was required of the director. The missile, once committed, had no provision for returning to its base... either the B-47 became a true missile and dived toward the target ... or a mechanism triggered the bomb free, as in a normal bombing run.'

Drones at Indian Springs

Air Force mechanics at Indian Springs Air Force Base are shown calibrating radio-control equipment in a Lockheed QF-80 drone (pilotless aircraft) which was used in penetrating a radioactive cloud resulting from an atomic detonation during a recent nuclear test at the Nevada Proving Ground

US Air Force, 1953

THE AMERICAN WAY OF BOMBING

"I don't think anyone here thinks about blowing in and dropping bombs and killing a person. It's all very impersonal. You don't hear the bombs. It's all very abstract."
—Marine Capt. John Waddell, to a *New York Times* reporter

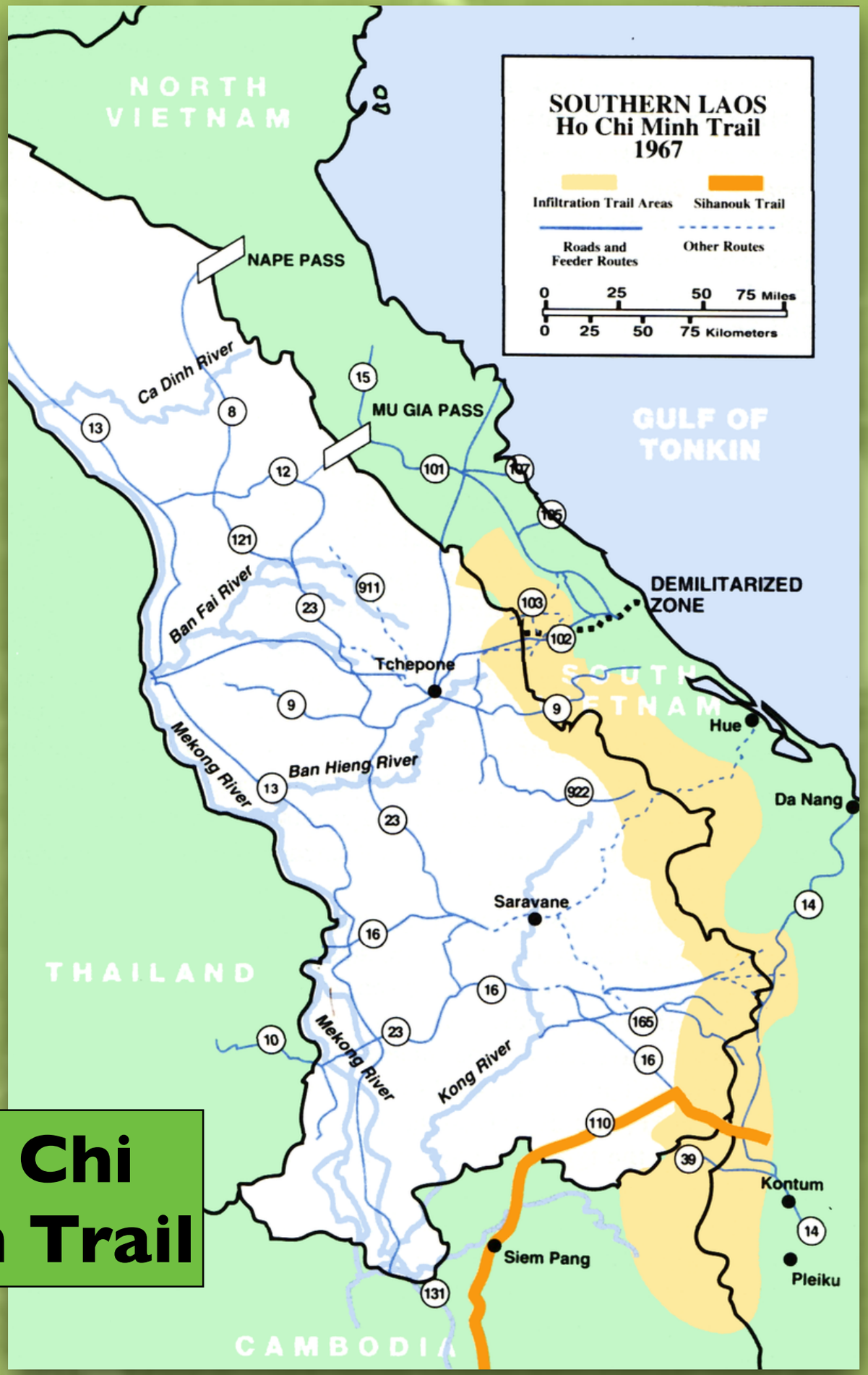
SINCE THE BATTLE OF AGINCOURT, where the English longbow was decisive, warfare has become increasingly depersonalized. The distance between the combatants has become progressively greater, and each man has been given a growing offensive capability that permits him to kill many others with a single effort. The massive use of air power in World War II and in Korea contributed to this trend of increasing the physical and psychological separation between combatants and of minimizing the emotional interaction between them. The most recent developments in the instrumentation of warfare in Indochina—especially aerial navigation, target detection, and weapons delivery advances—have accelerated this trend considerably.

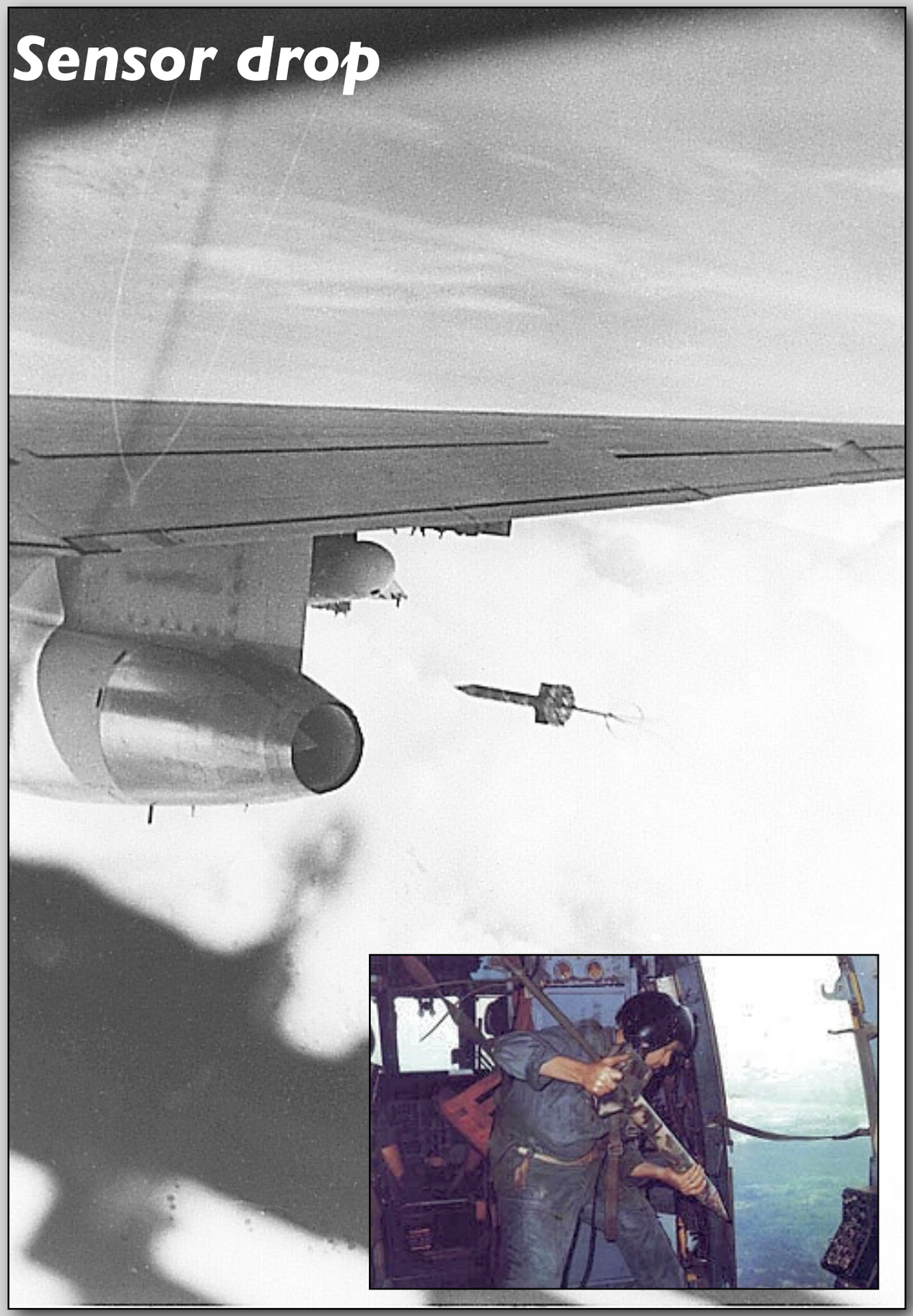
So far, advances in navigation and computerized weapons release have had their greatest impact on interdiction attacks by fixed-wing aircraft against stationary, soft targets; some degree of blind bombing capability has been achieved. Ground sensors are used primarily for accumulating intelligence for preplanned strikes on stationary targets, though they are also utilized for immediate strikes against trucks. The airborne sensor devices, on the other hand, have found their most important use in the truck interdiction campaign over the Ho Chi Minh trail, about which the Air Force has recently made

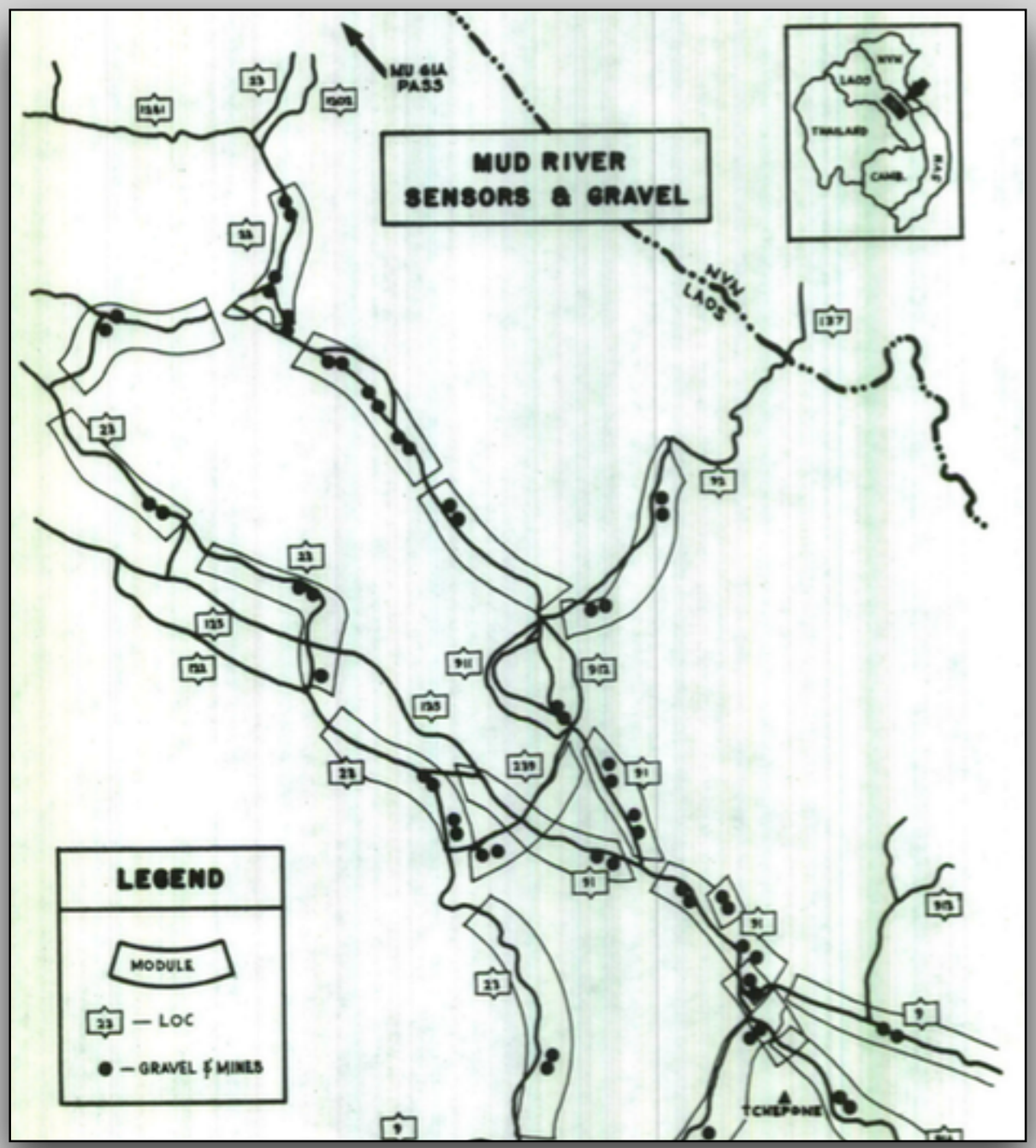
"These two, father and son, don't have hands and feet on account of a bomb dropped by the airplanes that didn't explode right away. They thought it would never explode and went to pick it up to look at. It exploded, hitting them as shown in this picture. Now they can't do anything. But this father and son pair did not come away with us. . . . They said that it was because of having been hit by the bomb. Leaving wasn't any good. Better to die in the village. This was the decision of these two, father and son."
—Artist: a twenty-four-year-old man

Harper's Magazine
June 1972

Ho Chi Minh Trail







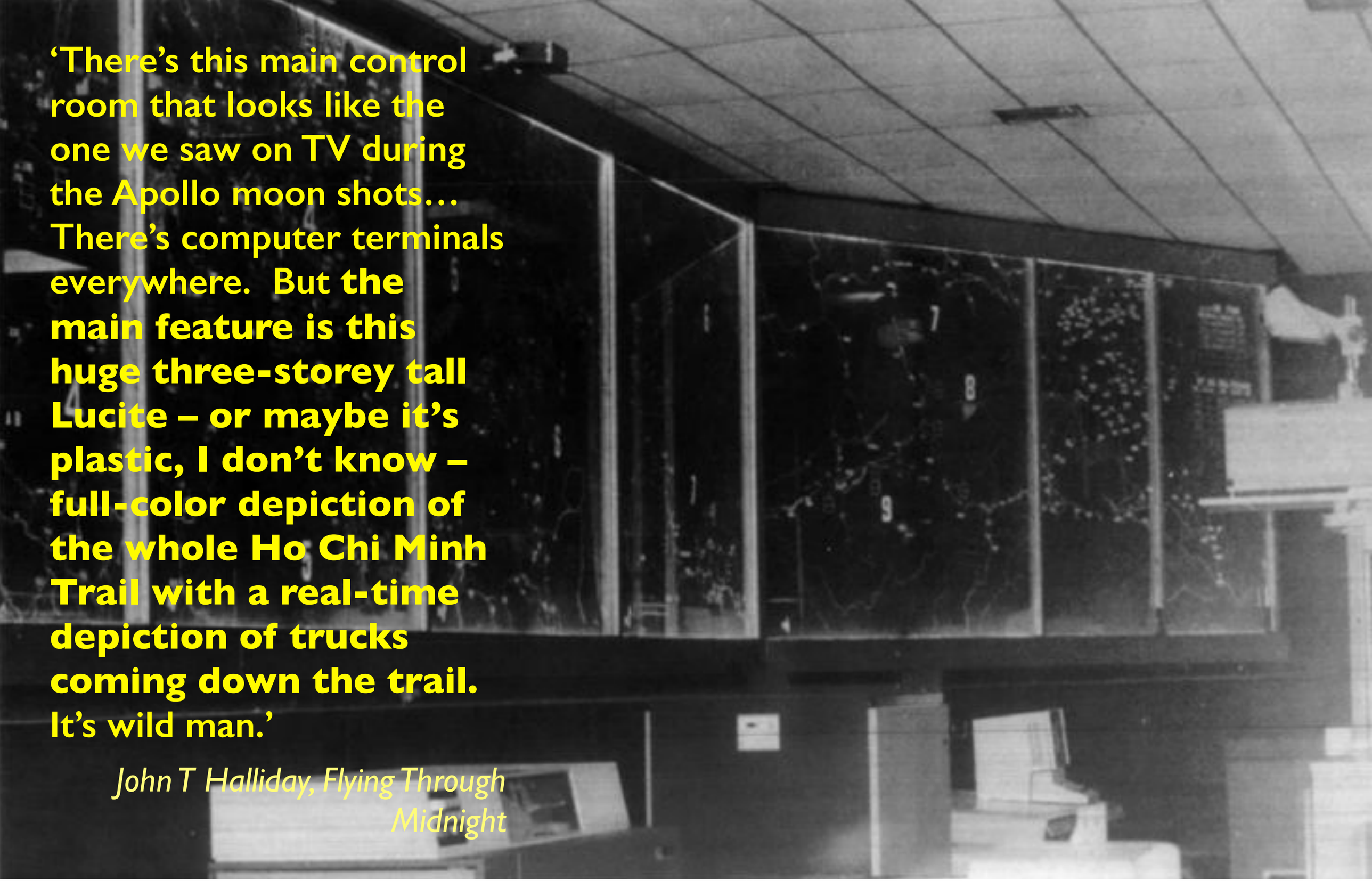
‘IGLOO WHITE’
1968-1973

Drones as relay aircraft

The transmission range of the sensors was limited to 20 miles so relay aircraft flew the Trail 24/7. Most of them were **QU-22** modified Bonanza Beechcraft aircraft **designed for remote operation but in practice a pilot controlled takeoff and landing and monitored the automatic flight system.** They were eventually replaced by conventional C-130B aircraft.

Infiltration Surveillance Center ('Dutch Mill')

Seventh Air Force, Nakhon Phanom, Thailand



‘There’s this main control room that looks like the one we saw on TV during the Apollo moon shots… There’s computer terminals everywhere. But **the main feature is this huge three-storey tall Lucite – or maybe it’s plastic, I don’t know – full-color depiction of the whole Ho Chi Minh Trail with a real-time depiction of trucks coming down the trail.** It’s wild man.’

John T Halliday, Flying Through Midnight

IBM 360 predicted the trajectory of the target
and constructed the co-ordinates of a target box

Remote control bombing

The F-4D Phantom and A-6E Intruder jets that attacked the 'target signatures' were equipped with advanced navigation-bombing systems that triggered an air strike without eyes on the target using coordinates automatically transmitted from the ISC.

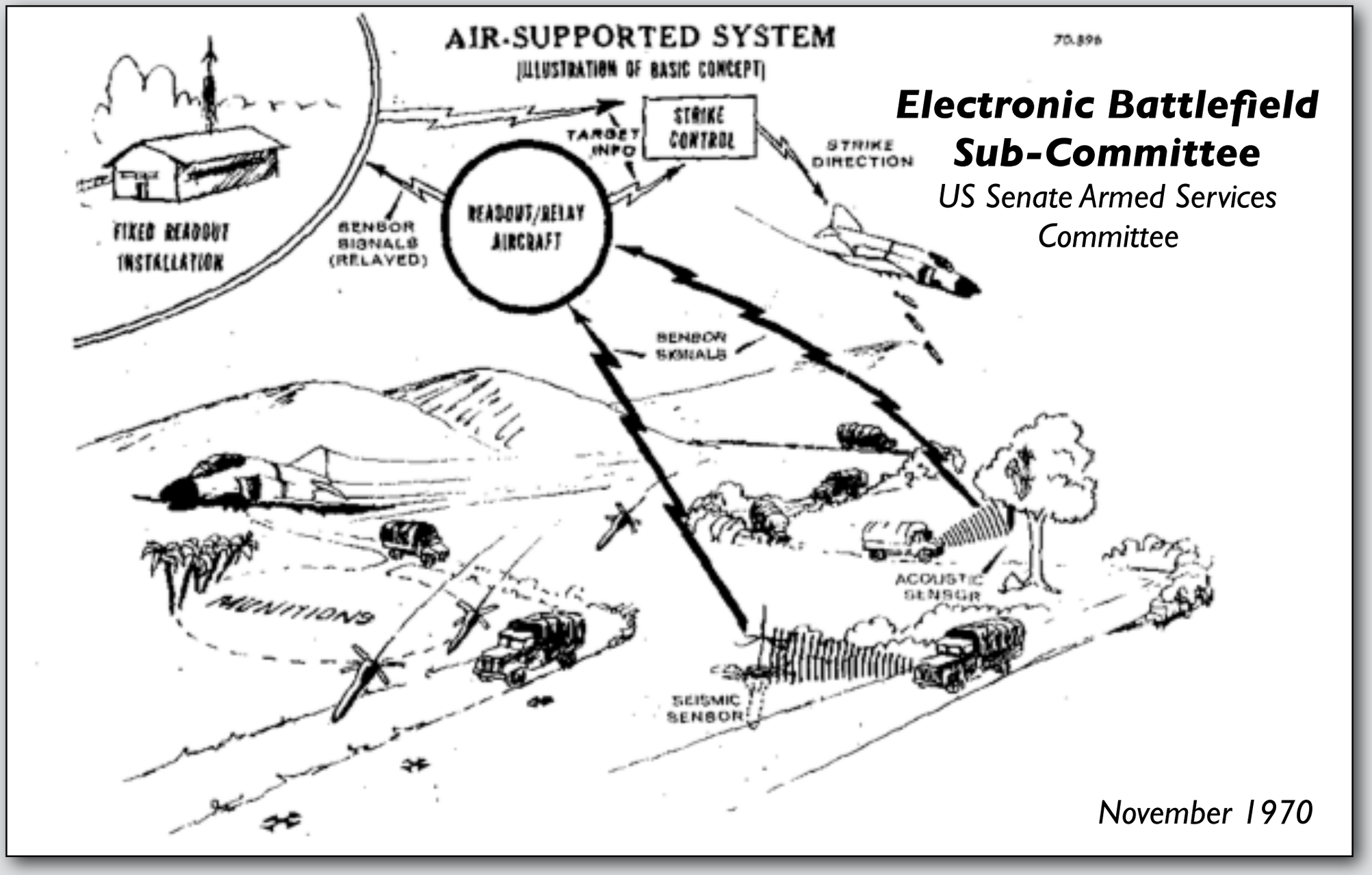
'Bombs explode on a truck park on the Ho Chi Minh Trail' (USAF)

'We are not bombing a precise point on the ground with a point target bomb – we can't determine each truck's location that accurately with ground sensors, which are listening – not viewing – devices. Since we never actually "see" the trucks as point targets, we use area-type ordnance to cover the zone we know the trucks to be in.'

‘You can sit back and watch all the sensors automatically fire off along the whole trail and see where the trucks are running any given night… Sometimes you can hear the drivers bullshitting when they stop for dinner. If we’re lucky we might hear an airstrike. You can listen in on the pilots’ frequency and hear the explosions. It’s a front-row, armchair-quarterback seat on the whole air war.’

John T Halliday, Flying Through Midnight

GSM Using Light Pen IBM
2250 Display Console.



Electronic Battlefield Sub-Committee

US Senate Armed Services Committee

November 1970

'Half a world from America one of the strangest wars in history, and the first of its type, is being waged… **Only in this war can you find the veterans of a hundred computer battles who have never heard a shot fired … bombs which drop on electronic signal, drones that fly without manual control – and the entire system tied to a collection of tubes, transistors and diodes that calculate time and space with the precision of an astronaut's moon landing**.'

George Weiss, 'The Air Force's secret electronic war', 15 October 1971

"We've got the Ho Chi Minh Trail ***wired like a pinball machine****, and every night we plug it in."*

USAF Airman, Project Igloo White.

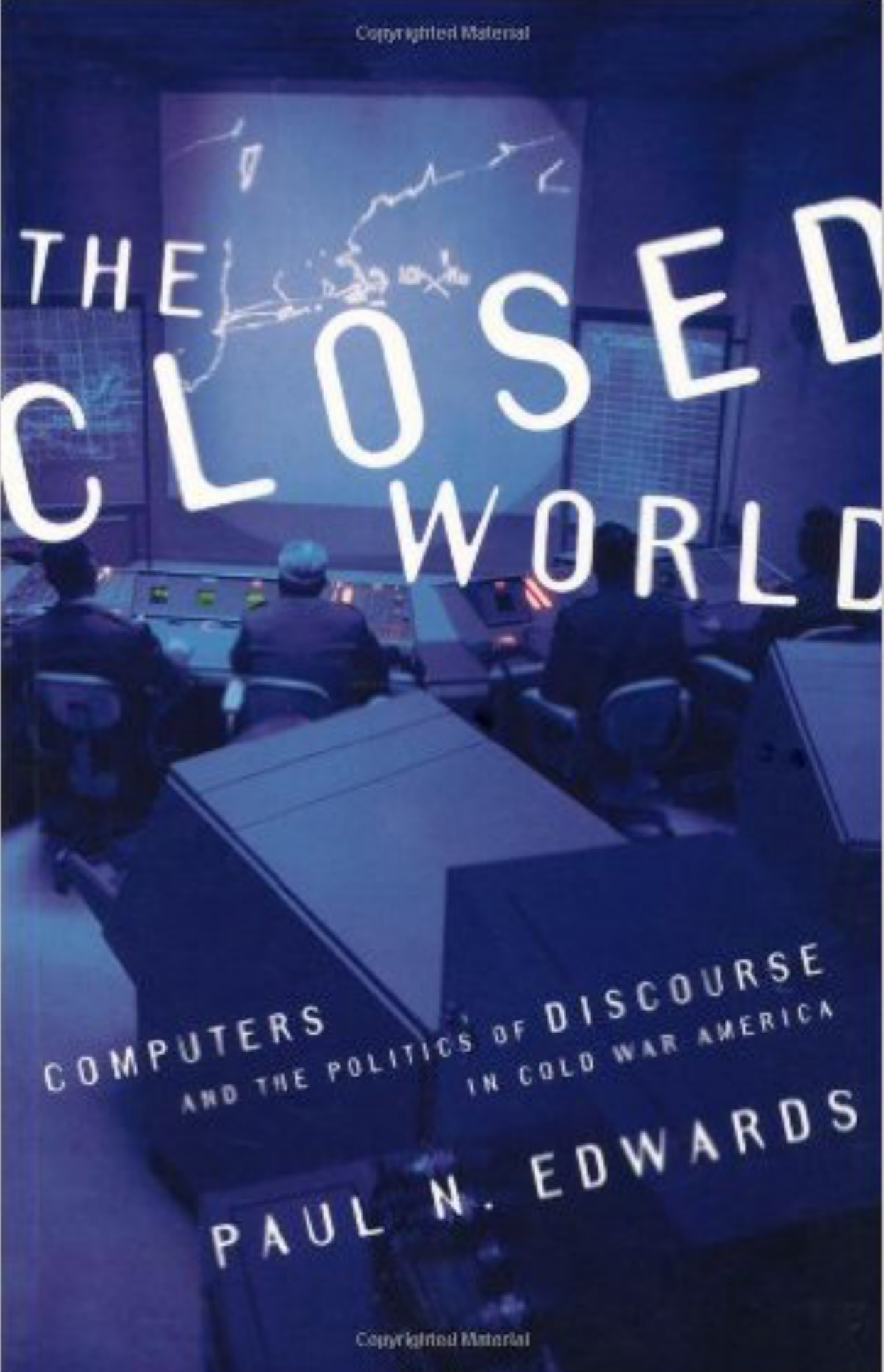
'Very soon, if all goes according to plan, it will be possible to **think of the entire world as one big pinball machine.** *And when that day arrives it will be possible for someone to think about plugging it in.'*

Phil Stanford

Pin-ball Wizards

‘**The only real problem with the Automated Battlefield was that it didn’t work very well.** It was frequently in error, almost haphazard at times, and … never more than slowed down traffic on the Ho Chi Minh Trail.

‘[But] Westmoreland never expected that Automated Battlefield to work in Southeast Asia. **Vietnam was a proving ground**…. Today it appears that his vision may have been modest [and that we are on the threshold of] **wars fought without pilots between armies that may never see each other except as blips on an oscilloscope [fighting on] a global, even universal automated battlefield.**’



'What they were trying to do then is what we do now, except a lot of those sensors are mobile because they are on drones. But **the basic principle of remote control war where you get the soldiers as far away [from] battle as possible and do it with planes if you can or missiles**, that's been a steady theme in US military history from World War II right on up.'

Paul Edwards

Dynamic Target Storyboard
RC(SW) – TFH J3 Tgts – Op STEN TAKAY
Obj DOODY – Mullah Niaz Muhammed – IS3673

Unit: TFH J3 Tgts

POC: [redacted]

Engagement Asset: UK AH-64 C/S UGLY 50

Qualified Observer: WIDOW 87

Objective: DOODY

Date of Engagement/ATO: 7 Feb 11 (YD)

ISAF No. IS3673

Location: 41R PQ 1768 9260

Description: JPEL Tgt

Function: Mid-level commander and facilitator

Significance: JPEL Pri 3 Tgt

BDAR:

UGLY 50 conducted a 429 strike on JPEL tgt Obj DOODY (Mullah Niaz Muhammed, IS3673). UGLY 50 engaged target alone and on foot in the open with 100 x 30mm. 1 x EWIA.

Initial engagement with 1 x AGM-114 of Obj DOODY + 1 x PIDROF may have resulted in 2 x Civcas (1 x WIA, 1 x KIA).

Engagement Summary:

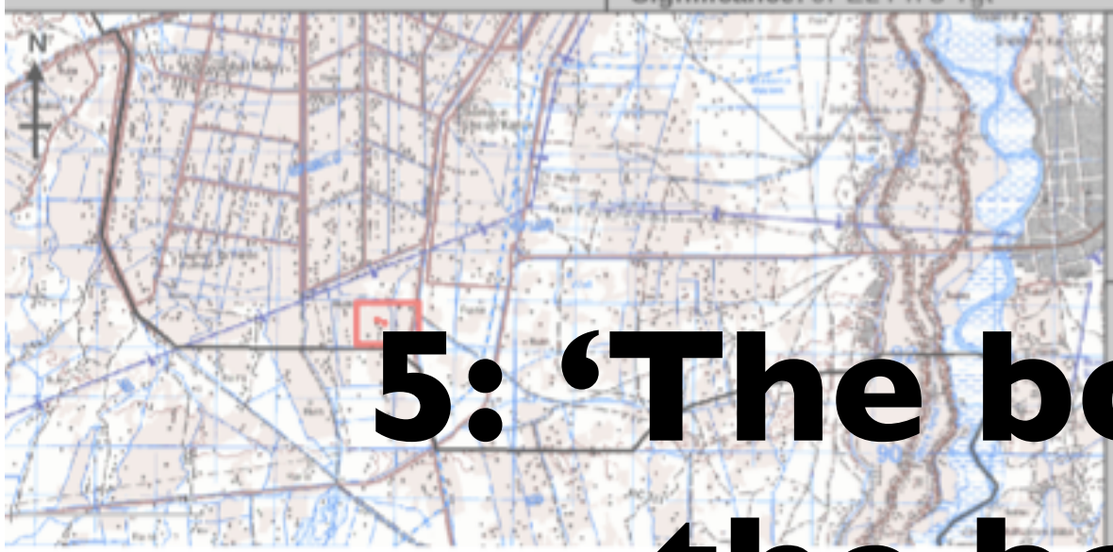
071017D*FEB11 – UGLY 50, 41R PQ 1781 9254, 1 x AGM-114.

071019D*FEB11 – UGLY 50, 41R PQ 1768 9260, 100 x 30mm.

Munitions Employed:

071017D*FEB11 – 1 x AGM-114.

071019D*FEB11 – 100 x 30mm.



Follow-on Plans:

Ground C/S arrived at engagement site at 1134D*. Initial BDA 1 x EWIA (Obj DOODY), 1 x WIA (adult male), 1 x KIA (male child). Immediate first aid given to 1 x EWIA and 1 x WIA, with subsequent Casevac at 1144D*. 1 x KIA taken to compound by LN for immediate burial.

INT Summary:

Obj DOODY is a mid level commander who reports to [illegible] MJH. He works to Obj KOJAK when he requires discussion with Obj STILTSKIN with whom he is assessed to discuss commission matters, particularly TB dispute resolution by lethal means. Obj DOODY active in planning [illegible] supply of heavy weapons and ammunition. Obj DOODY is a new commander who has been given the responsibility for Saidebad by Obj KOJAK.

Expectation:

The removal of Obj DOODY will deny the INS within NDA(S) and MJH of a competent commander linked into the HMD Military Commission. The networks within this area are suffering as a result of recent targeting and BG operations. Denying the INS this commander will further impact on the INS ability to conduct attacks against CF and ANSF and the resupply of weapons.

Further Details of Tgt Struck:

All Timings: LOCAL (D*).

0741 – RELINT places Obj DOODY at 41R PQ 1803 9180 in NDA(S) AO.
0950 – Obj DOODY conducts Shura with 5 x adult males at 41R PQ 1780 9250.
1003 – Following the necessary analysis PURSUE [illegible] Obj DOODY.
[illegible] – UGLY 50 checks in with TFH J3 Tgts JTAC WIDOW 87.
1014 – UGLY 50 is talked onto Obj DOODY.
1016 – Obj DOODY with 1 x PIDROF moves away from group on foot heading generally West.
1017 – TEA granted for Obj DOODY + 1 x PIDROF by TFH Comd.
1017 – UGLY 50 engages Obj DOODY + 1 x PIDROF on foot in the open with 1 x AGM-114. AGM-114 appears to miss the target impacting at 41R PQ 1781 9254.
1018 – Obj DOODY and 1 x PIDROF then split with Obj DOODY moving away West and 1 x PIDROF moving away North East.
1019 – UGLY 50 engages Obj DOODY on his own on foot in the open with 100 x 30mm at 41R PQ 1768 9260.
1026 – Initial BDA is Obj DOODY EWIA.
1134 – Ground C/S arrives at engagement area. Immediate first aid given to Obj DOODY EWIA. 1 x WIA (adult male) and 1 x KIA (male child) also discovered by ground C/S. Immediate first aid given to 1 x WIA.
1144 – Obj DOODY and 1 x WIA Casevac'd to BSN.

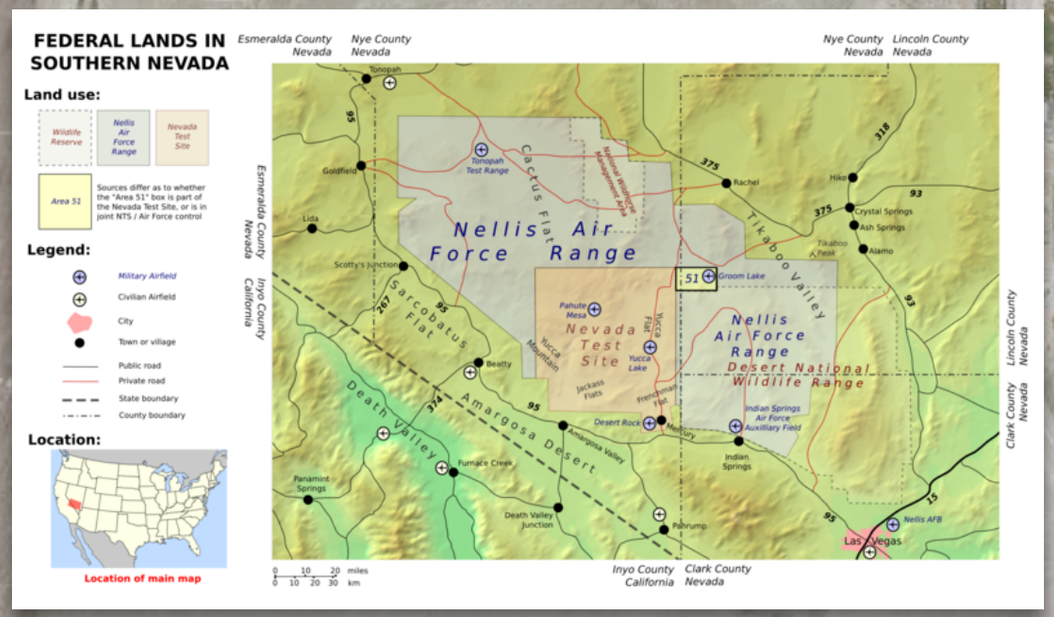
SECRET //REL TO NATO/ISAF

5: 'The body becomes the battlefield'

Where in the world is Afghanistan?

Where in the world is Afghanistan?

U.S. AIR FORCE
Creech Air Force Base
Indian Springs, Nevada


FEDERAL LANDS IN SOUTHERN NEVADA
Land use:
Wildlife Reserve
Nellis Air Force Range
Nevada Test Site
Area 51
Sources differ as to whether the "Area 51" box is part of the Nevada Test Site, or is in joint NTS / Air Force control
Legend:
Military Airfield
Civilian Airfield
City
Town or village
Public road
Private road
State boundary
County boundary
Location:
Location of main map
Esmeralda County Nevada
Nye County Nevada
Nye County Nevada
Lincoln County Nevada
Esmeralda County Nevada
Inyo County California
Lincoln County Nevada
Clark County Nevada
Inyo County California
Clark County Nevada
Tonopah
Goldfield
Lida
Scotty's Junction
Beatty
Death Valley Junction
Furnace Creek
Panamint Springs
Tonopah Test Range
Cactus Flat
Sarcobatus Flat
Death Valley
Amargosa Desert
Amargosa Valley
Pahrump
Desert Rock
Mercury
Jackass Flats
Yucca Mountain
Pahute Mesa
Yucca Flat
Yucca Lake
Frenchman Flat
Nevada Test Site
Nellis Air Force Range
Tikaboo Valley
Tikaboo Peak
Groom Lake
51
Rachel
Hiko
Crystal Springs
Ash Springs
Alamo
Indian Springs
Indian Springs Air Force Auxiliary Field
Nellis Air Force Range Desert National Wildlife Range
Nellis AFB
Las Vegas
95
375
318
93
267
374
15
0 10 20 miles
0 10 20 30 km

“‘Inside that trailer is Iraq, inside the other, Afghanistan.”... Inside those trailers you leave North America, which falls under Northern Command, and enter the Middle East, the domain of Central Command.

‘So much for the tyranny of geography.’

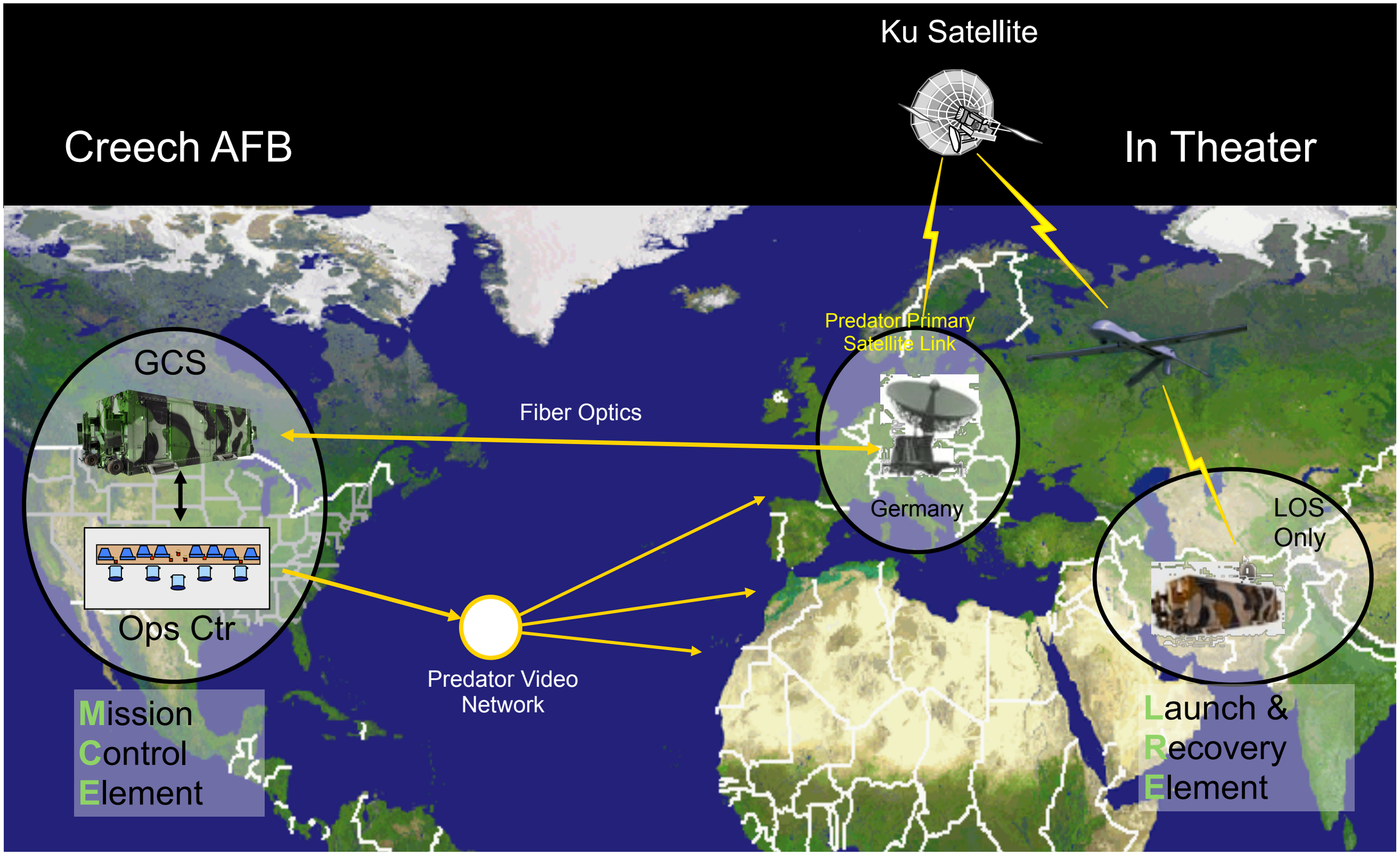
Robert Kaplan, ‘Hunting the Taliban in Las Vegas’, *Atlantic Monthly*, September 2006

Capt. Bob and Major Sgt. Lyle step out of a mobile conex container after finishing their shift operating a Predator over Kandahar, Afghanistan

Tony Avelar/Christian Science Monitor/September 2009

U.S. AIR FORCE

Remote-Split Operations



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Remotely operated aircraft systems produced by General Atomics Aeronautical Systems are routinely operated over world trouble spots. With the persistence and precision capability to detect, identify, track, and even strike time-sensitive targets instantly, U.S. Air Force MQ-1 Predators and MQ-9 Reapers fly missions beyond the capabilities of manned aircraft.
The multi-mission MQ-9 Reaper, equipped with electro-optical/infrared (EO/IR) streaming day and night video, Lynx Synthetic Aperture Radar (SAR), and weapons, provides unparalleled support to ground forces.
A cost-effective force multiplier in every sense. Not only operational, but indispensable.
GENERAL ATOMICS
AERONAUTICAL
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www.ga-asi.com
Leading The Situational Awareness Revolution

‘When you’re sitting in the box flying these things you lose sense of the fact that you’re sitting in Nevada. You get so in to what’s going on…

‘As he’s talking to me on the radio I can hear the bullets whizzing over his head and you completely lose track of the fact that you’re sitting in a CONEX box sitting in Las Vegas. All of a sudden you’re in the middle, **you’re pitch in the middle of this battle**, and everything’s going off like hopefully you want it to go and, you’re talking to the inbounds, you’re talking to the Forward Air Controllers that’s trying to get on scene, you’re talking to the guy that’s being shot at, you’re trying to coordinate with the Pentagon, you’re trying to coordinate with the Combined Air Operations Center there in Qatar and get assets in to these guys, and **it is a total immersion. It’s astounding that your brain can all of a sudden leave where you are and you’re in Afghanistan helping these guys.’**

Lt Col Bruce Black, USAF

Close Air Support

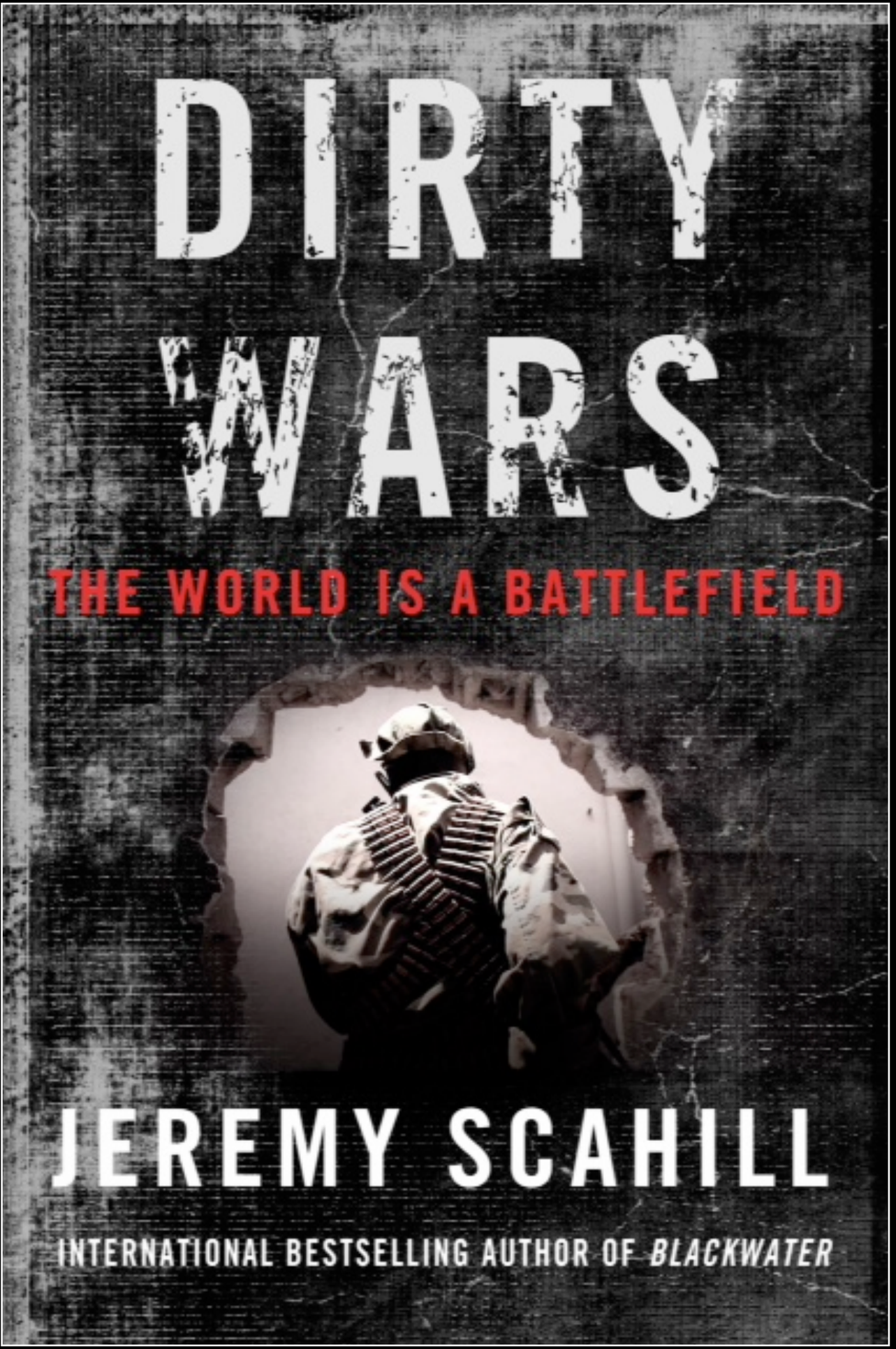
‘For the United States, the use of the drones is justified because it means that its soldiers are not placed in potentially fatal ground operations of war: no flesh and blood is lost, merely machines. **This dualistic logic is, of course, violently asymmetrical.** For the targets of this drone war, it is flesh and blood that is shed, without the possibility of traditional combat counter-retaliation: drones kill silently, firing their missiles from a two-mile distance. **With nothing to lose but machines, the United States is now in a position to wage war without the usual weighing up of the human cost.’**

Joseph Pugliese

Warheads on Foreheads

By Anna Mulrine

USAF photo

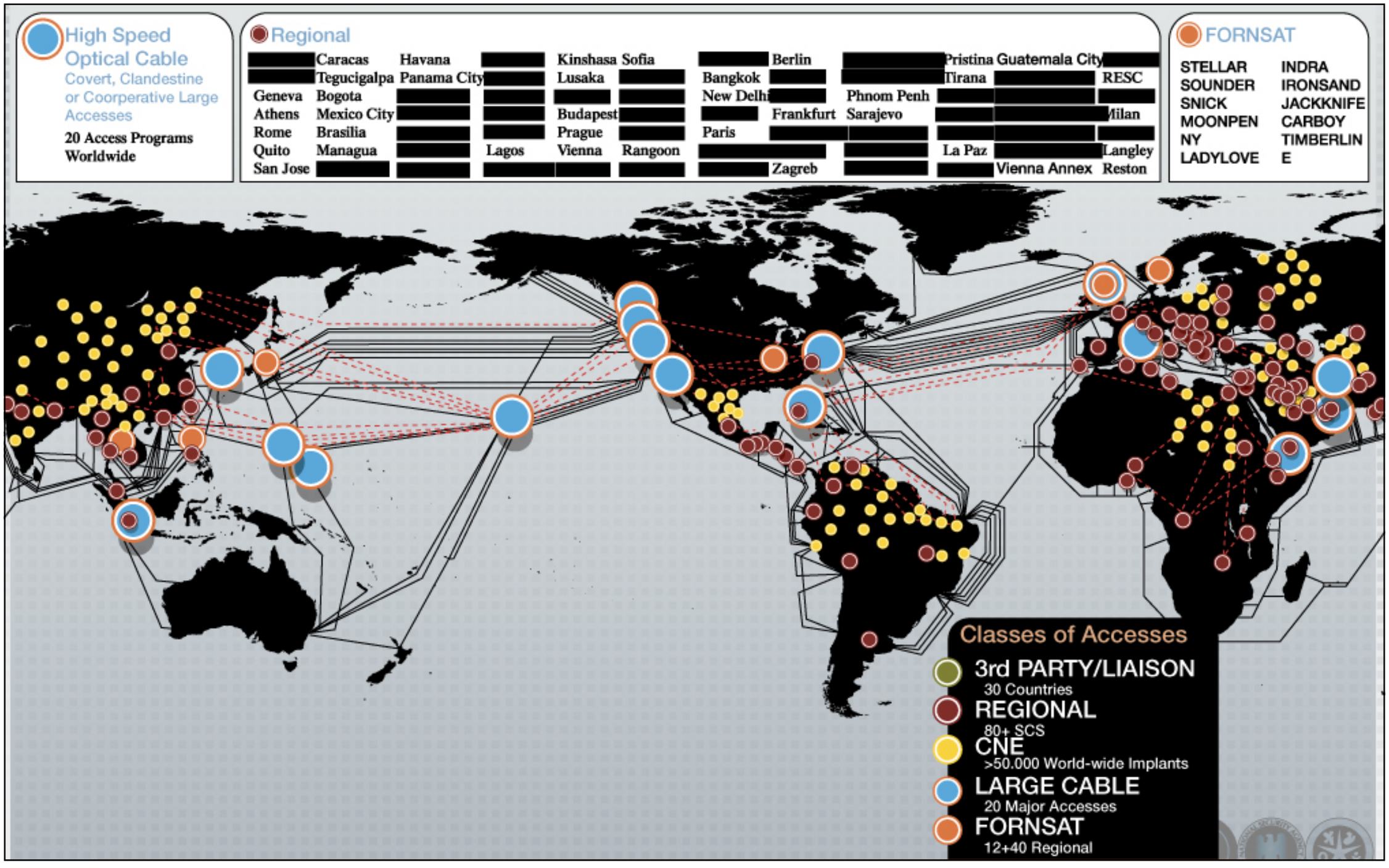


'Because we can target our quarry with precision, the military and the CIA say in effect, we can strike them wherever we see fit, even outside a war zone.'

Grégoire Chamayou, Drone Theory

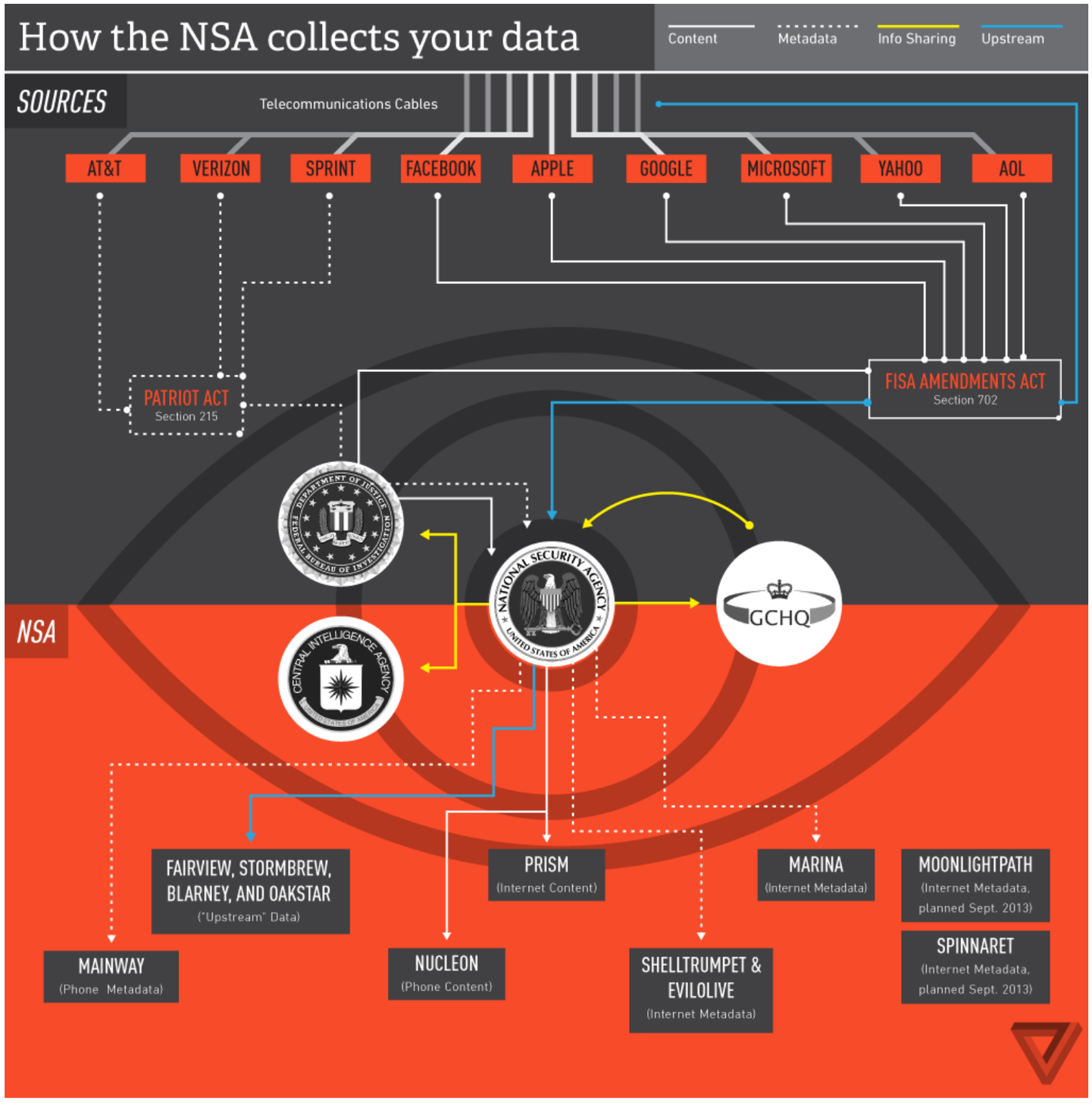
Targeted Killing

Digital Network Intelligence: UPSTREAM INTERCEPTS



The NSA conducts data-harvesting via intercepts of foreign communications travelling through submarine fiber-optic cables at switching stations in the United States or through overseas intelligence services ('Five Eyes' and Tier II 'Third Parties')

Digital Network Intelligence: DOWNSTREAM INTERCEPTS



The NSA also collects data from the servers of major Internet companies and corporations (Google, Microsoft, AOL, Skype etc) in response to demands under S702 that requires ISPs to turn over any data matching court-approved search terms; **these are DOWNSTREAM intercepts because the data has already been collected by the companies (un)concerned; the data include e-mails and social network activity, and together these intercepts are the major source of raw intelligence,** accounting for 91 per cent of Internet traffic collected under S702

SECRET//REL FVEY

TF EAST LETHAL BURWYN KINETIC STRIKE STORY BOARD

040835Z NOV 2012, Dar-ye Pech District, Kunar Province (42SXD8362672203)

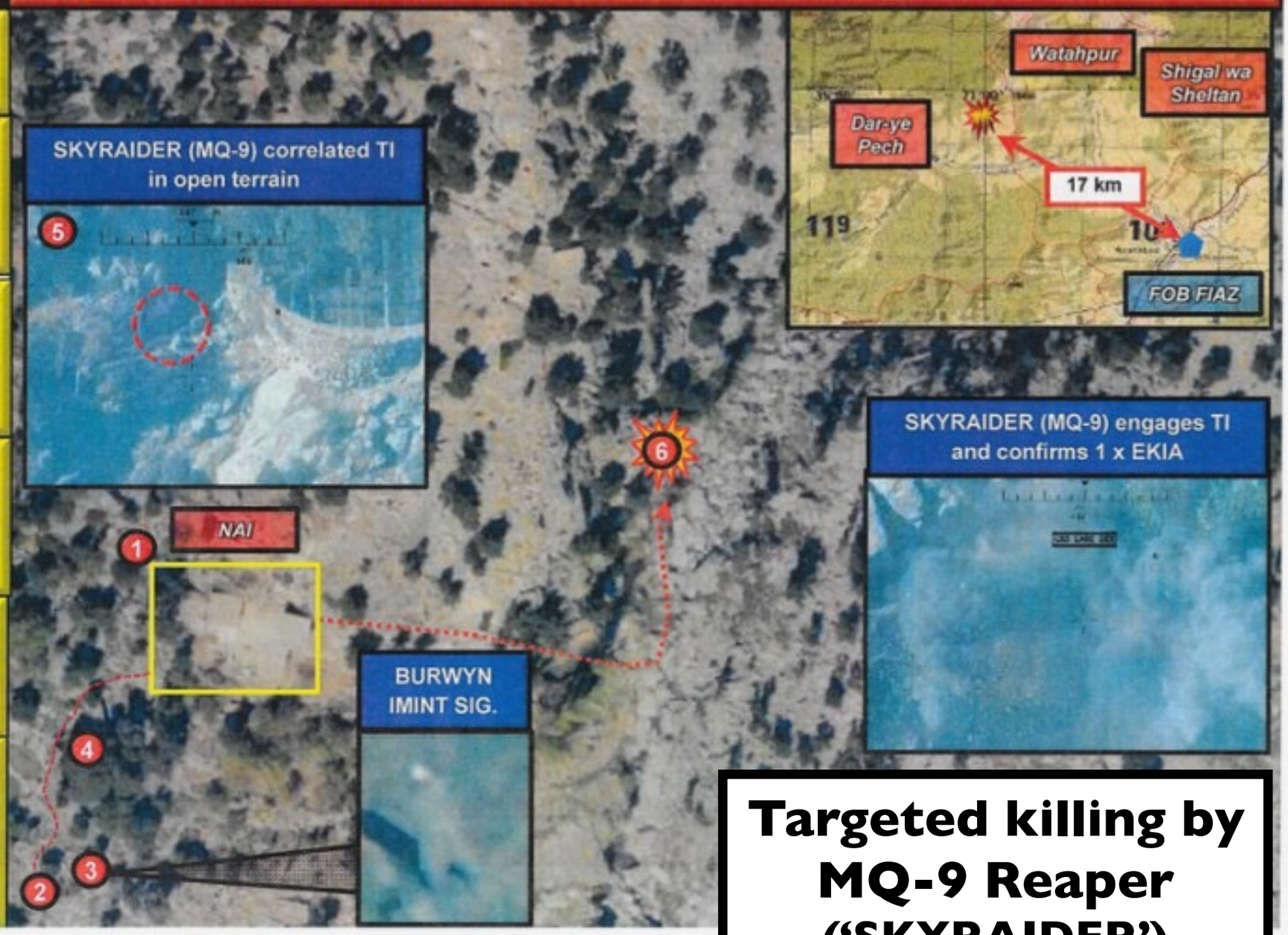
MISSION: TF East conducts a kinetic strike against Qari Munib (LETHAL BURWYN) in the Dar-ye Pech District, Kunar Province on 04 November 2012 in order to degrade the insurgent network in Kunar Province and enable the Battle Space Owners freedom of maneuver in RC-East.

SIGNIFICANCE: Qari Munib (LETHAL BURWYN) is a Taliban sub-commander operating in Dar-ye Pech District responsible for numerous attacks on ANSF and coalition forces. Qari Munib is associated with numerous Taliban district shadow governors, relays guidance, and provides BDA on attacks against Taliban officials in Pakistan.

SEQUENCE OF EVENTS

1. ~0230z GR76 reported SI at BDL compound for OBJ LETHAL BURWYN.
2. GR76 SI/IMINT correlated 5xMAMs left the compound and proceeded 150m SW of BDL compound. 5x MAMs remained static from 0320z-0740z at this location.
3. 0523z SKYRAIDER correlated SI activity on OBJ LETHAL BURWYN and established IMINT signature.
4. 0740z OBJ LETHAL BURWYN proceeded up ridgeline with 2xPAX and re-entered BDL compound. SKYRAIDER maintained IMINT lock on the compound.
5. 0819z OBJ LETHAL BURWYN departed BDL Compound, SKYRAIDER confirmed PID of IMINT signature.
6. 0835z SKYRAIDER engaged OBJ BURWYN resulting in 1xEKIA. TF East observed multiple PAX transport remains away from strike site.

RESULTS: JP—Pending EKIA, 1 x TOTAL EKIA



Targeted killing by MQ-9 Reaper ('SKYRAIDER')

‘**No other pilots got to see the target like we did… the images on their targeting pods were tiny and fizzy compared to our high-def pods, keeping them remote to the effects on the ground. Our targeting pods not only showed us everything, but also lingered over the carnage, searing the images into our brains’**

‘One of the biggest misconceptions … is that the aircraft allows us some distance from the killing, since we’re thousands of miles away. The opposite is true. We are too close. … At the end of the day, the pilots and sensor operators took the image home…’

Mark McCurley, USAF

‘Eighteen inches away’

Good Kill (Andrew Niccol)

Chris Cole, interview with 'Justin Thompson', RAF Reaper pilot, May 2017

"I don't recognise the notion of detachment that some people claim about UAV pilots. The idea that 'you are not there so you are not in the action'. I just don't recognise that from my experience. My mind-set was very much one of being there, and I was able to see so much of what I was looking at, in so much detail that you develop an intimate and in-depth knowledge of what is going on around you. So much more so than the fast jet, for example, that would rock up, stay around for 20 minutes or an hour depending on how much fuel the plane's got and then head off again. You mind becomes invested in it….

"For me, what I was seeing on the screen was very real. In addition to that for me it was more than just two-dimensional. My mind very easily perceived a three-dimensional scene that extended out of the side of the image… "

Good Kill (Andrew Niccol)

‘Double tap’

‘There are rescuers, we can’t…’
‘The fuck we can’t, they’re Taliban. Who do you think the first responders are gonna be – Quakers? The rescuers have RPGs.’
‘I see people with shovels…’
‘Then just hit the ones with the RPGs.’

Good Kill (Andrew Niccol)

‘The video provided by a drone is not usually clear enough to detect someone carrying a weapon, even on a crystal-clear day with limited cloud and perfect light. *This makes it incredibly difficult for the best analysts to identify if someone has weapons for sure. One example comes to mind:* ***“The feed is so pixelated, what if it's a shovel, and not a weapon?”*** *I felt this confusion constantly, as did my fellow UAV analysts. We always wonder if we killed the right people, if we endangered the wrong people, if we destroyed an innocent civilian's life all because of a bad image or angle.’*

Heather Linebaugh
‘I worked on the US drone program’, Guardian 29 December 2013

Good Kill (Andrew Niccol)

June 2006, Helmand Province

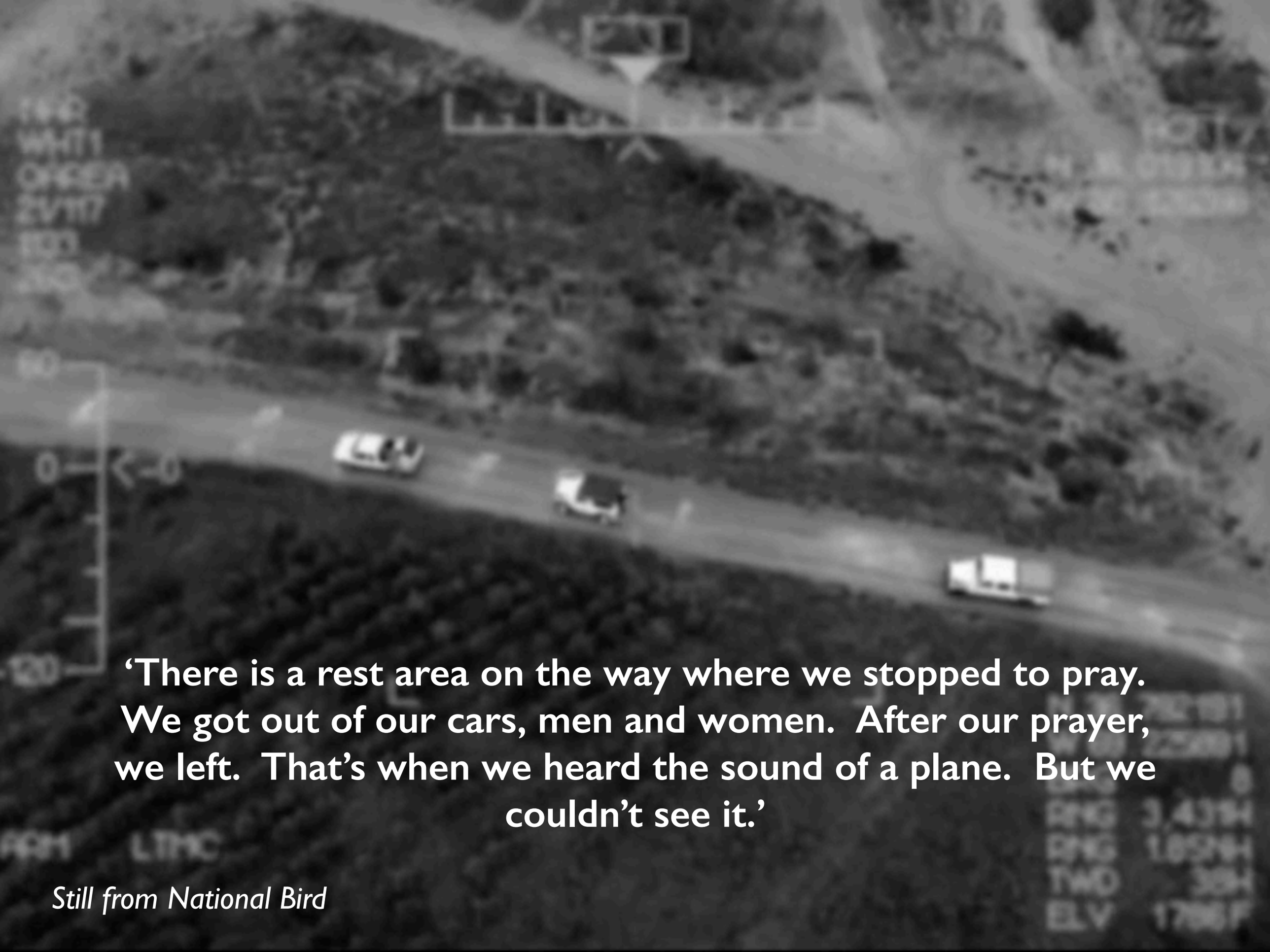
N

Silent movies

‘There is no microphone equivalent to the micro-scopic gaze of the drone’s camera. This mute world of dumb figures moving about on a screen has particular consequences for how we experience the image…. In the case of the drone strike footage, the lack of synchronic sound renders it a ghostly world in which the figures seem unalive, even before they are killed. The gaze hovers above in silence. The detachment that critics of drone operations worry about comes partially from the silence of the footage.’

Nasser Hussain, ‘The sound of terror: phenomenology of a drone strike’, Boston Review 16 October 2013

21 February 2010



‘There is a rest area on the way where we stopped to pray. We got out of our cars, men and women. After our prayer, we left. That’s when we heard the sound of a plane. But we couldn’t see it.’

Still from National Bird

05:47 (Sensor): **They're praying, they are praying.**
05:47 (Jag25): KIRK97 JAG25
05:48 (Pilot): JAG25 just want to confirm that you copied we have about 20 pax dismounted, they are outside the trucks praying at this time and we're 3 1/2 miles from the friendly location.
05:48 (Jag25): Roger good copy, from SOTF, we should have A-10's and OH-58's that are on standby...*garbled*
05:48 (Sensor): A-10's as well, that's consistent with the vehicle capacity, 24-25 people. This is definitely it, this is their force. **Praying? I mean seriously, that's what they do.**
05:48 (MC): **They're gonna do something nefarious.**

Sensor: Oh sweet target.

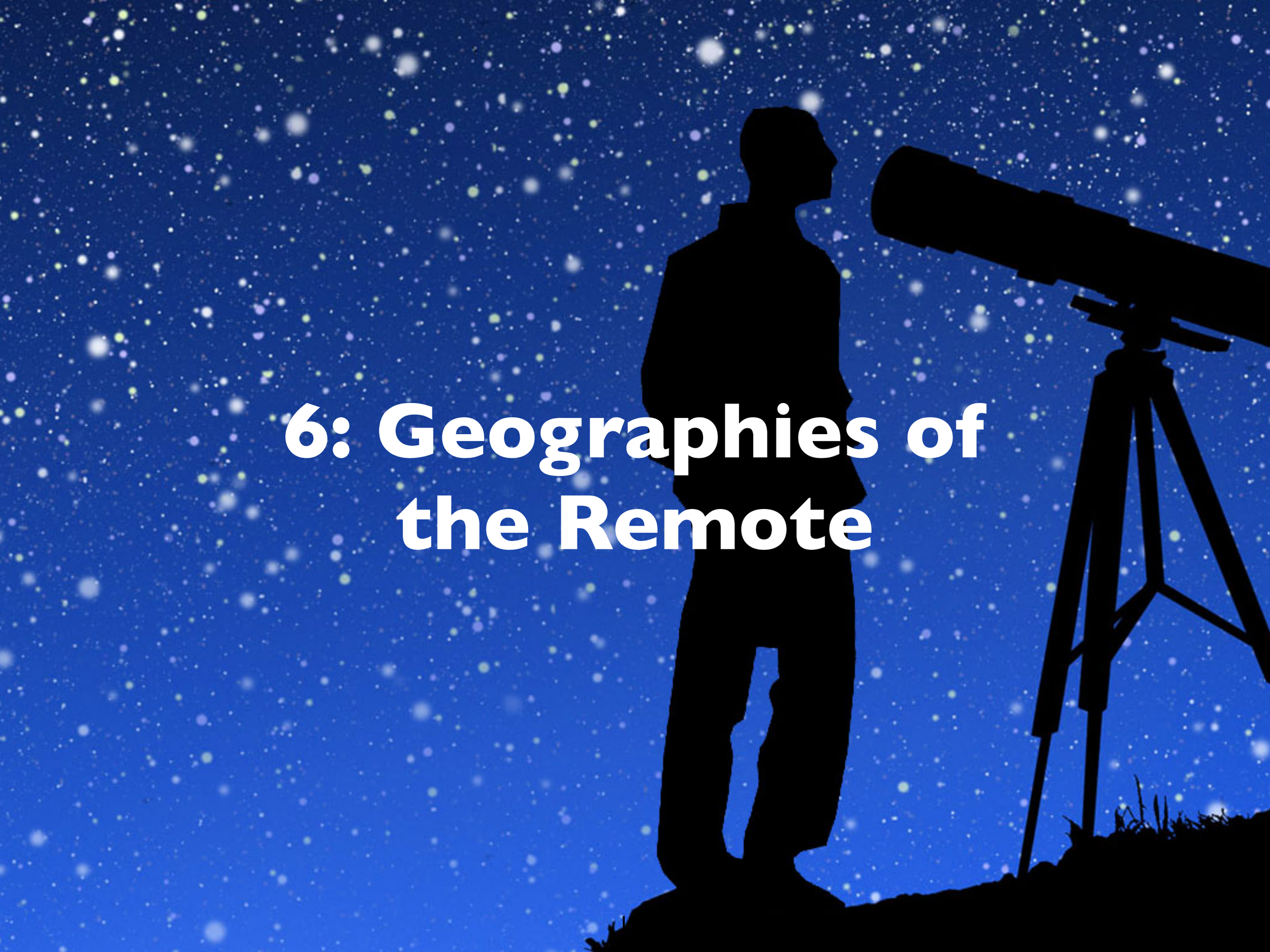
We thought that they would stop
when they see women.

~~SECRET//REL TO USA, FVEY~~

21 FEB 2010 CIVCAS
IN URUZGAN PROVINCE

~~SECRET//REL TO USA, FVEY~~ 000008

15-16 people reported killed; *solatia* payments made to 21 families; 12 people injured and treated at military hospitals



6: Geographies of the Remote

‘Predators and Reapers are useless in a contested environment ...’

General Mike Hostage
Commander, USAF Air Combat Command
18 September 2013

Josh Begley: Drones+ app

'Do we really want to be as connected to our foreign policy as we are to our smart phones? ... which are these increasingly intimate devices, the places where we share pictures of or loved ones and communicate with our friends, the things that we pull out of our pockets when we're lost and which auto-magically put us at the center of the map..... Do we really want these things to be the site of how we experience remote war?'

‘Wadi al Abu Jabara. Beit al Ahan. Jaar. Dhamar. Al-Saeed. Tappi. Bulandkhel. Hurmuz. Khaider khel.

‘These are the names of places. They are towns, villages, junctions and roads. They are the names of places where people live and work, where there are families and schools. They are the names of places in Afghanistan and Yemen, which are linked by one thing: they have each been the location of drone strikes...

‘They are the names of places most of us will never see. We do not know these landscapes and we cannot visit them.

‘What can reach them are drones, what can see them – if not entirely know the – are drones.’

'... **the technology that was supposed to bring us closer together is used to obscure and obfuscate.** We use military technologies like GPS and Kinect for work and play; they continue to be used militarily to maim and kill, ever further away and ever less visibly...

'**History, like space, is co-produced by us and our technologies**: those technologies include satellite mapping, social photo sharing from handheld devices, and fleets of flying death robots. We should engage with them at every level. **These are just images of foreign landscapes, still; yet we have got better at immediacy and intimacy online: perhaps we can be better at empathy too**.'

http://booktwo.org/notebook/dronestagram-drones-eye-view/

‘Drone use … *has generated* ***a new disenfranchised class of “targeted” people***. Particular inhabitants of Pakistan, Yemen, Somalia, the Occupied Territories … have become part of a disenfranchised “targeted” class simply because they live in areas in which terror *suspects may operate*. In such areas anyone and everyone is at risk and daily life is haunted by the spectre of aerial bombardment…’

Lisa Parks, ‘Drone media: networked visions of the US Drone War in Pakistan’

‘I'm … really disturbed by the ways in which the burden of making oneself legible to the eyes in the sky is distributed… The people to whom we're bringing the war have to perform civilian-ness without fail.’

Christiane Wilke, pers. comm., 23 January 2017

Image: National Bird/Sonia Kennebeck

‘Stop’

Blake Morrison

As of today, the peace process will be intensified
through war. These are safe bombs, and any fatalities
will be minors. The targets are strictly military
or civilian. Anomalies may occur, but none
out of the ordinary. This release has been prepared by
official Stop

First reports indicate a major break through
hospital roofs. The bombs were strictly targeted at
random personnel. Any errors are a mere blip
on the radar screen. Until our aim is achieved we will continue
missing. In modern war, mistakes are never made
official Stop

We can confirm that many personnel now enjoy peace,
underground. Several terrorists have been
created overnight. Our smart bombs are subject only to
intelligence errors. Certain one-off tragic events
will regrettably recur. We anticipate a stepping up
of funerals Stop

In another time-zone, the bombs fall unsafely.
There are reports of urgent talk under the rubble.
Numberless children lie accounted for in morgues.
Regrettably, we are unable to offer regrets today.
This poem has been subject to certain restrictions.
Stop.