THE COLD WAR *in the* BRECKS

A Report by The Breckland Society

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Front cover:
A Thor missile on its launch pad, *c.*1961. Pressurised liquid oxygen boils off during a 'wet countdown' exercise. Note the crew member in his protective suit.

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2021

Crew boarding a Vickers Valiant B.1 of No 214 Squadron at RAF Marham.

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1. Introduction

The Breckland Society was set up in 2003 to encourage interest and research into the natural, built and social heritage of the East Anglian Brecks. It is a membership organisation working to help protect the area and offering a range of activities to those who wish to see its special qualities preserved and enhanced. Since its inception the Society has initiated several projects designed to generate interest and expand knowledge into various aspects of the wider Brecks heritage, ranging from a survey of local vernacular architecture and an assessment of the significance of flint to the historical importance in the area of rabbit warrening and sheep.

In 2015–16 the Society undertook a successful project entitled *The Military History of the Brecks 1900–1949*, part of the Breaking New Ground Landscape Partnership, a scheme funded by the Heritage Lottery Fund (now the National Lottery Heritage Fund) and which delivered a range of heritage and landscape projects in the Norfolk and Suffolk Brecks over a period of three years. That particular project generated widespread interest in the various periods of military activity in the area and culminated with an account of the impact of the end of the Second World War and the start of the Cold War. The final project report can be found on the Breaking New Ground website.[1]

In March 2019 the Society was awarded a grant of £9400 by the National Lottery Heritage Fund for a new project, *The Cold War in the Brecks*. The Cold War is one of the most highly researched, documented and analysed periods of modern history, including at the regional level of East Anglia. Publications include Jim Wilson's excellent books *Launch Pad UK: Britain and the Cuban Missile Crisis* (2009) and *Cold War: East Anglia* (2014), with the University of East Anglia (UEA) 2010–13 Cold War Anglia project also important (originally available online but now archived).

By virtue of its airfields, training camps and other military infrastructure, the Brecks played a significant role in the Cold War and yet had not been looked at closely before in this specific context. When travelling around the area today you can still catch glimpses of relics from this period – the concrete hardened aircraft shelters, like giant Nissen huts, dispersed around the peripheries of RAF Lakenheath and RAF Marham; the giant microwave communications tower near Swaffham; the brilliant white golf-ball-shaped radomes at RAF Feltwell; an occasional lump of concrete in the corner of a field, the only clue to a long-abandoned Royal

[1] http://www.breakingnewground.org.uk/assets/Uploads/Mil-Hist-Report/BRECSOCMILREP.pdf

Observer Corps underground bunker; and the incongruous high-security fence and watchtowers around an industrial estate between Elveden and Barnham. These are some of the tangible remnants of the Cold War era in our area, but many more are not easily accessible to the public or have vanished entirely.

The main aim of the Society's Cold War project was therefore to explore the military history of the area from the conclusion of the Second World War until the effective end of the Cold War with the final breakup of the Soviet Union in 1991. Among the objectives was to identify, document and understand what constitutes 'Cold War heritage' in the Brecks, particularly the various built structures that relate to that period, as well as collating the reminiscences of people involved in both military and civilian activities relating to the Cold War. The project began in March 2019 and was completed in April 2021. See the Appendix of this report for a list of the project's activities.

This report draws heavily on the specific research done by the Society's team of volunteers, under the coordination of project manager, Peter Goulding. Interviews were conducted with people who lived through the Cold War – mainly current Breckland residents, although some did their military service in other parts of the country or the wider world during those years. Volunteers also visited and documented some of the physical remains of Cold War structures, hunted through archives and photo albums to reveal and relate some fascinating local stories, and also made some exciting new discoveries. We hope that this report will serve as a starting point for anyone interested in finding out more about the Brecks during this uneasy 'not quite war, but not really peace' period of twentieth-century history.

2. Escalating Tensions

On 5 March 1946, the British Prime Minister Winston Churchill gave a speech at Fulton, Missouri, in which he said: "From Stettin in the Baltic to Trieste in the Adriatic, an iron curtain has descended across the Continent. Behind that line lie all the capitals of the ancient states of Central and Eastern Europe. Warsaw, Berlin, Prague, Vienna, Budapest, Belgrade, Bucharest and Sofia; all these famous cities and the populations around them lie in what I must call the Soviet sphere, and all are subject, in one form or another, not only to Soviet influence but to a very high and in some cases increasing measure of control from Moscow."

With post-Second World War Europe partitioned into what became known as 'The West' and 'The East', and a divided Berlin isolated in Soviet-controlled East Germany, a dramatically different European order emerged. Boundary changes and the installation of Communist regimes in the East saw the extensive movement of people, with many either displaced or unwilling to live under the new governments. These monumental changes had early repercussions locally in the Brecks, where immediately after the end of the war ex-army camps had become home to soldiers of the Polish 2nd Corps who had fought in North Africa and Italy. With the USSR now controlling their homeland, the Polish soldiers had believed – with good reason – that they and their families could be imprisoned, tortured or shot if they returned home.

Despite being 'on the same side' in the fight against Fascism, the USA, UK and France were largely distrusted by the USSR, and the feeling was mutual.[2] With these countries still on a near-war footing, with huge armed forces, a sense of antagonism soon grew between the wartime Western allies (embodied in NATO) and the Eastern Bloc (formalised as The Warsaw Pact). The two sides began a race for superiority in philosophy, armaments and influence, with each seeing the other as a threat to its very existence and way of life. This led to a huge military effort on both sides, both nuclear and conventional, and the development of a tense global political situation after 1945 which became known as the Cold War – 'cold' because neither side ever engaged with the other in actual armed conflict, even if the levels of hostility and antagonism reached fever pitch on occasion. Only with the advent of *glasnost* and *perestroika* in the Soviet Union in the late 1980s under Mikhail

[2] In particular, the USSR believed that the Western allies had no concept of the huge scale of their suffering and sacrifice; over 26 million Soviet citizens died during the Second World War (over 13% of their 1939 population), compared to about 600,000 French (about 1.5%), 450,000 from the UK and Crown Dependencies (just under 1%) and 420,000 US citizens (just over 0.3%). For every American who died in the war, over 60 Soviet citizens were killed.

Gorbachev, and the ensuing collapse of the Communist bloc during 1989–91, did the Cold War come to an end and a new political rapprochement between East and West become possible (at least in theory).

The Berlin Crisis of 1948

Europe was briefly at peace immediately following the end of the Second World War, but a crisis soon flared up over the former German capital, Berlin. Located 100 miles within the Soviet-controlled part of Germany (which was to become the formal state of East Germany in 1949) and originally overrun by Soviet forces in bitter house-to-house fighting at the end of the war, Berlin was divided into four zones, controlled by the USSR ('East Berlin') and the UK, USA and France ('West Berlin'). West Berlin was largely supplied by road, canal and rail links that ran through areas under Soviet control, but access had never been formally written into a treaty. In the spring of 1948 the USSR began stopping and searching supply vehicles and freight trains, a move aimed at 'starving out' West Berlin by depriving that part of the city of food and other essential commodities. Through this so-called Berlin Blockade, the Soviet government hoped to wring concessions out of the Western powers, encouraging the Americans to leave and weakening the British position, with the ultimate aim of controlling Germany as a whole.

The Allied response was to supply Berlin by air: the Berlin Airlift. Unlike the road, rail and canal links, three air corridors were written into post-war treaties, so the USSR could not refuse legal permission for these flights. From June 1948, West Berlin was supplied solely by air. An astonishing two-thirds of what was flown in was coal to keep its citizens alive through the bitter winter months. By the end of the operation, which lasted officially for 15 months, over 270,000 sorties had been flown, totalling 92 million miles (the distance from the Earth to the Sun), and over 2.3 million tons of supplies delivered. Stalin's plan to isolate West Berlin and force the US out of Europe had failed.

The aircraft that supplied West Berlin flew from West Germany, a relatively short flight, but the final delivery of food, medicine, coal and other goods to West Berlin was only the tip of a pyramid of activity. Breckland airfields were an important staging point for components for US aircraft such as the C-47 and the C-54, with the huge number of flights taking their toll. A constant resupply of spare parts was required, including engine components and tyres (which wore out fast in winter on icy runways), with essential equipment being flown to West Germany from both RAF Honington and RAF Mildenhall.

Throughout the Cold War, Breckland airfields served as transport and logistics hubs. Some, such as RAF Mildenhall, RAF Feltwell and RAF Lakenheath, were leased by the USA and operated by the United States Air Force as a means of helping pay off the war debt that Britain had incurred through 'Lend-Lease', buying US-made armaments, ships, tanks and planes. The US valued Britain as an "unsinkable aircraft carrier" – in which East Anglia could be dubbed the "flight deck" – and throughout the Cold War the US and British operations in western Europe were closely linked. To this day, these leased bases are wholly American within their perimeter fences,

Undercarriage wheels and tyres being loaded aboard a Douglas Dakota aircraft of RAF Honington's 'Plumber Flight' during the Berlin Airlift of 1948–49.
© Imperial War Museums (IWM R 2105)

subject to United States jurisdiction and complete with stores (trading in dollars, of course), branding and facilities more akin to those found in Kansas or Kentucky than rural East Anglia.

The transport aircraft that flew continuously in and out of the Breckland bases often carried names that reflected their role: from the 1950s and '60s propeller-driven C-124 Globemaster and C-133 Cargomaster which took crucial design lessons from the Berlin Airlift; to the jet-powered replacements of C-141 Starlifter or the C-5 Galaxy in the 1960s. Notable among these transport planes was the C-130 Hercules, introduced in 1956 and still in production and flying for the USAF (and RAF) more than half a century later – the longest continually produced military aircraft.

The advent of air-to-air refuelling, a British invention, was an important development. Tanker aircraft considerably extended the range of fighters, bombers and transport planes and thereby the overall 'reach' of an air force. USAF tanker aircraft have operated from Mildenhall for many decades, and this function is currently provided by the 100th Air Refuelling Wing.

MAD: Mutually Assured Destruction

During the course of the Second World War, the USA developed the world's first atomic weapons in the famous Manhattan Project, with the first nuclear test – codenamed Trinity – taking place on 16 July 1945. Less than two weeks later, US President Truman advised Soviet leader Josef Stalin of the existence of the US atomic weapons programme, with the first two atom bombs detonated the following month over the Japanese cities of Hiroshima and Nagasaki, killing over

200,000 people. Stalin immediately made developing nuclear weapons a top priority for the Soviet Union; it exploded its first atomic bomb at the end of August 1949. The USSR was now the second nuclear power.

A number of top British and Canadian physicists were deeply involved in the Manhattan Project. Yet in 1946 the USA passed the McMahon Act, which prohibited the sharing of nuclear secrets with any other nation – including the UK and Canada.[3] Churchill was enraged by what he saw as a betrayal and directed that Britain should develop its own bomb. The first British nuclear test took place off the coast of western Australia in October 1952, making Britain the third nuclear power. The first production British bomb, codenamed Blue Danube, was developed very quickly and entered RAF service just over a year later, at RAF Wittering in November 1953.

From the climate surrounding the proliferation of nuclear knowledge and weapons emerged the doctrine of Mutually Assured Destruction (with the apt acronym of MAD). Both sides had such huge nuclear arsenals that a pre-emptive strike by either would prompt rapid retaliation and the resulting annihilation of all. Everyone would be "bombed back to the Stone Age", in a chilling phrase coined by the hawkish General Curtis LeMay, head of the USAF Strategic Air Command (SAC) from 1948 to '57.[4] The first generation of nuclear weapons were all fission devices, but in November 1952 the USA exploded the first practical (and hugely more destructive) hybrid fission/fusion 'hydrogen' bomb (the H-bomb). It had a yield (explosive power) 450 times that of the bomb that destroyed Nagasaki, a level of destructive power that is almost impossible to comprehend. The USSR exploded its first practical hydrogen bomb in November 1955.[5]

Despite – or perhaps because of – the ever-higher stakes in the tense stand-off between the West and the USSR, on 18 April 1956 the Soviet First Secretary Nikita Khrushchev and Premier Nikolai Bulganin arrived in the UK on a goodwill visit. Their itinerary included a visit to RAF Marham, which the *Eastern Daily Press* reported was unusually spotless for the occasion. Security was tight, with some roads closed around the base and the perimeter guarded by the Norfolk Constabulary and 150 RAF policemen. Krushchev and Bulganin met some of the families of personnel who lived on base, with one little boy asking Bulganin, who was portly with a friendly face and a neat white beard, "Are you Father Christmas?"[6]

The Soviet leaders were later treated to a display of flying by a squadron of Hawker Hunters, then the RAF's main interceptor aircraft and which had broken the world airspeed record less than three years earlier. It was also the RAF aircraft that would

[3] British and Canadian research began earlier than the American efforts, with a project codenamed Tube Alloys. This was subsumed into the much bigger American project, on the understanding that any technology would be shared – an agreement that the USA reneged on with the McMahon Act.

[4] In Stanley Kubrick's 1964 biting satirical movie *Dr Strangelove*, George C Scott's character, General Buck Turgidson, was a very lightly disguised caricature of LeMay.

[5] Britain followed in November 1957, as did France in February 1960.

[6] *Eastern Daily Press*, 23 April 1956.

Soviet leaders Nikita Khrushchev and Nikolai Bulganin on the saluting base at RAF Marham, April 1956. *Newspaper content courtesy of the Eastern Daily Press and Local Recall Project.* *© Archant*

have intercepted Russian nuclear bombers, a point doubtless not lost on the Soviet visitors. Later, while visiting a trade fair in Birmingham, Khrushchev spoke off the cuff. "His reference to the hydrogen bomb and guided missiles were heard in silence," reported the *EDP*, "[but] all his references to the need for peaceful relations between Britain and Russia were warmly applauded."

Given that MAD depended upon a shared understanding that for either side to press the nuclear button would mean their guaranteed destruction, such apparently conciliatory gestures as those made by Khrushchev were understandably welcomed in many quarters. Yet the overall atmosphere was one of tension and fear. Teresa Squires, a current Breckland resident who served in the RAF during the Cold War (and had a particularly significant role, see page 24), summed up the defining character of the age. "Growing up through the post-war period ... my dreams were always of apocalyptic worlds, post-'The Bomb' [and] for decades they were my worst dreams and nightmares, directly related to that threat of 'We could annihilate everything'. It didn't matter who you were, what you did, that threat was always present. You were always aware of it. And it marked several generations."

Teresa's experience was common to many people who lived through this era. It was a part of everyday life. "You just dealt with it," she recalls. "Yes, of course you could go down to your cellar, stockpile tins and ammunition and filtered water, but people like that were looked on as a little bit crazy. Even if, at some points, it seemed like the only response you could have, [yet] you had to keep on living and trust your politicians to actually find solutions. Yes, we lived through MAD and through the Star Wars initiative, and we thought Ronald Reagan was mad for that.[7] But if you had let it consume every waking moment, you would have gone crazy, I think."

[7] The Strategic Defense Initiative, nicknamed "Star Wars", was a missile defence system announced in 1984 by President Ronald Reagan and intended to protect the United States from nuclear attack. Much of it was wildly impractical, and potentially vastly expensive. It never progressed beyond the research stage and was formally abandoned in 1993.

3. "All Nuclear Weapons are White"

The launch of Sputnik 1 by the Soviets on 4 October 1957 was a huge shock to the USA. The Americans suddenly realised that if the Soviets could launch a satellite into orbit, they would soon also be able to launch nuclear missiles that could hit continental USA. It was assumed that the USSR would soon have more (and superior) nuclear missiles, and the perceived superiority of its nuclear arsenal led to calls within the USA to address the so-called "Missile Gap". These fears were shamelessly exploited by defence contractors, military chiefs and politicians to lobby for hugely increased levels of funding for US missile and warhead research, testing and construction.

Project Emily and Thor Missiles

In March 1957, British Prime Minister Harold Macmillan reluctantly agreed to US President Dwight D Eisenhower's request to base US Thor Intermediate-Range Ballistic Missiles (IRBMs) in the UK as a response to the perceived Soviet nuclear threat. The deployment of Thor to the UK was something that the USA pushed for, rather than something that the British wanted, and there was a strong belief in the upper echelons of both the Macmillan government and the RAF that the presence of the missiles made the UK's position more vulnerable, rather than less. Unlike bombers, which could be sent quickly to backup 'dispersal' RAF stations, the missile sites were sitting ducks, with their locations well known to the USSR and therefore potentially at the top of the list of first-strike targets.

Thor was the USA's first operational ballistic missile. Each carried a 1.44 megaton thermonuclear warhead with 80 times the destructive power of the atomic bomb dropped on Hiroshima in 1945, and it was claimed that missiles launched from the UK would have a range adequate to strike Moscow. Evidence has recently emerged from the UK National Archives that the USA misled the UK about the range of Thor, as measured from their test firings. Most missiles would have fallen far short of their targets, barely making it across the USSR border. However, as this was not known to the USSR, they were still arguably an effective deterrent.

Based on Second World War German V2 technology,[8] Thor was developed by the Douglas Aircraft Company in record time. The original four-year plan was

[8] During the Second World War, Nazi Germany had the world's most advanced rocket technology, the pinnacle of which was the V2 rocket. As they overran Germany from west and east respectively, the American and Soviet forces raced to find and capture Hitler's rocket scientists and ship them back home. These captives were at the heart of subsequent missile development efforts, especially the V2's designer, Wernher von Braun, who went on to design the famous Saturn V rocket for the USA moon-landing programme.

A Thor missile escorted by motorcycle outriders as it is ready to be transported by road.
Photo courtesy of Chris Cock

compressed to just over 12 months, but as a result the missiles were highly unreliable and many early test firings resulted in aborted launches or explosions on the launch pad or shortly after takeoff. Production started long before testing was satisfactorily concluded, and redesigned components or systems had to be replaced in supposedly completed missiles.

Under the codename Project Emily, 60 Thor missiles were deployed to 20 UK sites in a broad swathe from mid-Suffolk to north Yorkshire. Their locations in the eastern half of England were chosen to reduce the range needed to hit targets within the USSR. Just as in the Second World War, the proximity of the Brecks to the location of a threat led directly to the siting of military capability here. The Thor facilities were built inside existing RAF bases, which were already government property and had the necessary high security and support infrastructure such as accommodation, workshops and secure communications. They were arranged into four groups of five. In the Brecks, RAF Feltwell controlled the 'Feltwell Group' of Feltwell, RAF North Pickenham and RAF Tuddenham (all in the Brecks) along with RAF Mepal (Cambridgeshire) and RAF Shepherd's Grove (Suffolk). The bases were selected to have a minimum separation of 12 miles so that a single Soviet missile could not destroy more than one site.

Each base hosted three Thor missiles, with a near-identical three-launch-pad facility with a very distinctive layout. The three pads were surrounded by two high security fences, with the area between the fences patrolled by dogs. Each missile was stored and maintained horizontally inside a large protective shed that could be rolled back on rails prior to launch. It sat on an erector/launcher, which rotated through 90 degrees to the vertical for fuelling and launch. Large tanks at opposite sides of the pad held fuel (kerosene) and oxidiser (liquid oxygen or 'LOx'), with large concrete blast walls installed between them to shield key equipment.

Thor missile launch pad site plan overlaid on an aerial image of present-day RAF Feltwell. *Background image © Google and Europa Technologies 2021 / Site layout © Royal Air Force*

77 Squadron was formed at RAF Feltwell on 1 September 1958. The first Thor missile to be deployed to the UK had been flown into RAF Mildenhall three days earlier and was delivered on 19 September to Feltwell, which became the first operational UK Thor site on 19 January 1959, followed by North Pickenham and Tuddenham on 22 July that year. There was extensive nationwide publicity around the Feltwell Thor site 'going live', with public announcements and press tours of the site sending clear signals to Moscow. Keeping the bases secret would have been pointless, as it would have had no deterrent effect.

Although each Thor missile sported a large red, white and blue RAF roundel, they were controlled jointly by the RAF and the USAF. In order to launch each missile, two keys – one held by an RAF officer and one by a USAF officer – had to be turned simultaneously. The American key armed the warhead and the UK key allowed the missile to be launched. That way, each country had a veto on launch. However, it also increased the already long reaction time and in the event of a 'hot' war starting would have made the whole system potentially clumsy. If either key were withheld, the missile would either not be launched or would become just a piece of flying radioactive junk.

It is sobering to think that by the start of 1960, the Brecks alone hosted enough nuclear warheads to destroy Hiroshima 600 times over. And that was just the missiles; large numbers of both UK-controlled and US-controlled nuclear bombs were also present in the area by this time, on bases such as Lakenheath and Marham.

The military made considerable efforts to create a day-to-day environment that was as normal as possible for the personnel living on the bases, despite their obvious vulnerability. For example, the Feltwell Thor Group published a magazine called *Rocket Review* every couple of months.[9] The front cover of the Christmas 1960 edition is particularly notable, with a cheery Santa Claus sitting astride the nose cone of a rocket on its way to wreak nuclear havoc on the USSR.

Living with the threat of nuclear annihilation could become quite normal. The Christmas 1960 edition of *Rocket Review* shows Santa on his way to make a deadly delivery. The golliwog toy in Santa's sack is offensive by today's standards, but would have been unremarkable at the time.
© *Royal Air Force*

In October 1962, the world came closer to all-out nuclear war than it has ever been, before or since. In response to the USA deploying Jupiter IRBMs in Italy and Turkey (much closer to the USSR border than the UK-based Thors), Soviet leader Nikita Khrushchev ordered the deployment of Soviet nuclear missiles to Cuba, just 90 miles off the coast of Florida. President John F Kennedy responded by blockading further Soviet ships sailing to Cuba.

During the most fraught moments of what became known as the Cuban Missile Crisis, 59 of the 60 UK-based Thor missiles – including those in the Feltwell group – were in the vertical position, fuelled and ready to be launched with 15 minutes' notice.[10] And at V bomber bases across the UK, aircraft and crews were kept at a high state of alert and readiness. After several days of tense negotiations, Kennedy and Krushchev reached a diplomatic agreement. The USSR and the USA agreed to withdraw their missiles from Cuba and Turkey respectively, and nuclear catastrophe was averted.

Soon after the crisis, the decommissioning of the Thor bases began. This decision had been taken well before the Cuban Missile Crisis in line with the expected operational life of the Thor missiles – only five short years. The Feltwell group squadrons were disbanded in July 1963 and the missiles and warheads were shipped back to the USA.

Today, very little survives of the physical infrastructure of Thor in the Brecks. At North Pickenham, a wind turbine stands on a small remnant of one of the three

[9] Many of these are viewable in the project archive. Visit http://www.brecsoc.org.uk/the-cold-war-in-the-brecks

[10] This was particularly problematic; once fuelled, external parts iced up owing to the intensely cold liquid oxygen, which also reduced the expected life of some components. This is one reason that almost all subsequent ICBMs have been solid-fuelled rather than liquid-fuelled. They can be kept ready to launch at very short notice almost indefinitely, and the smaller ones can be transported on mobile launchers, making them far less vulnerable to attack.

A Thor Intermediate Range Ballistic Missile (IRBM) missile being raised on its launch pad at RAF Feltwell. *© Imperial War Museums (IWM RAF-T 1658)*

pads. At Feltwell, there are no visible remains (the base golf course now covers where the launch pads once were!), while at the former RAF Tuddenham the launch pads have long since been removed to extract the underlying gravel. The nearest site to the Brecks with recognisable Thor remains is the former RAF Shepherd's Grove, just north of Walsham le Willows in Suffolk.

The V Bomber Force

In the early post-Second World War period, the UK aircraft industry was still made up of many individual companies, and new models of military and transport aircraft appeared with great frequency. Three different aircraft with the same primary role – delivering nuclear weapons to targets in the Soviet Union and Eastern Bloc at high speed and high altitude – entered service with the RAF in the 1950s; the Vickers Valiant in 1955,[11] the Avro Vulcan in 1956 and the Handley Page Victor in 1958. As the names all began with V, they became known as 'V bombers' or collectively as the 'V Force'. In total, almost 330 V bombers were built.

V Force squadrons were based at 10 airfields in the more easterly counties of the UK; the two main V bomber bases in the Brecks area were RAF Honington and

[11] The Valiant was retired by the RAF in 1965 after extensive metal fatigue problems were discovered.

Under the watchful eyes of the crew chief, a member of the ground crew checks the engine on a Vickers Valiant of No. 214 Squadron at RAF Marham, *c.* 1957. *© Imperial War Museums (IWM RAF-T 308)*

RAF Marham. As the V bombers became more vulnerable to improved Soviet radar, ground-to-air missiles and interceptors, even after they had changed tactics from a high-level to a low-level approach, the Blue Steel nuclear weapon was developed and introduced. In essence it was a very large and relatively unsophisticated early type of supersonic cruise missile that allowed the crew to launch their nuclear weapon well over 500 miles from the target.

As part of the project, we collected oral histories from some of the aircrew who either served in the Brecks or who now live in the area. The pilots considered themselves "the top of the chain, basically. Being a pilot is the best job in the air force, that's what it's all about," said former Vulcan pilot Tim Elliot. A typical 'sortie' – often a training flight simulating an attack on the USSR – would be "a long level navigation exercise, followed by a descent to low level, then low-level navigation. Usually down the east coast [of Britain], which we got to know quite well, then a release of a practice missile, then the aircraft would follow the missile's navigation [data] to see where it would have gone..."

The flights were not particularly comfortable, with the pilot and co-pilot strapped into hard ejection seats. "The sorties themselves were quite boring," Tim continued. "If you were flying, you would start with three hours' planning before takeoff, eat two hours before takeoff, go to the aircraft one hour before takeoff, do your five hours and you might have your debrief. Well, it wouldn't be very long, the debrief."

As well as training flights, 'Launch On' exercises were practised for the deployment of the bombers. The objective was to get the aircraft into the air no later than 15 minutes after the order was given, too quickly to be destroyed by an enemy. Tony Garrod, at that time a civilian employee at RAF Marham, described these exercises. "They would start up their engines, these four V bombers, and they would belt off down the runway, and the first one would be just about to lift off, then he'd cut his

engine and go around the taxi-way. By then the second one would almost be in a takeoff position and you'd get a third one and a fourth one," he recalled. "Engines roaring at full belt... That would have been a warning for all the other aircraft to get going. I call it a Formula One race, because that what it looked like... You've never heard such a sound in your life, and they'd keep this up for half an hour or more, until they were stood down again."

For the pilots, these ground-based 'Launch On' exercises were more exciting than the navigation and bombing flights. They simulated the four bombers getting airborne in rapid succession, at intervals of less than a minute, with each aircraft effectively taking off in the exhaust plume of the one before it. Tim Elliot recalled how there was a "fair bit of adrenalin flowing then, I can tell you, because if anything went wrong with the first one, there was a lot of black smoke from the engines, so you couldn't see what was going on."

'Quick Reaction Alert' (QRA) is a state of readiness in which some aircraft at certain UK bases were (and still are) kept in special areas, fully fuelled and armed, with crews close by, wearing their flying suits, on alert and ready to take off as fast as possible to meet any threat. For the V Force crews on QRA duty, there were regular drills in which the aircraft were 'bombed-up', i.e. carrying nuclear weapons. Alan Collins, a Vulcan navigator, remembered that the bombs were "white, of course. All nuclear weapons are white".[12] The aircrew would eat and sleep near the aircraft while on QRA duty, so as to be able to scramble and be ready to take off within 15 minutes, with engines started and flight checks done. "The siren would go off in QRA," recalled Alan, who took part in many such drills, "but not in the rest of the station. You'd run out to your aircraft and do everything apart from actually start the engine. But you'd get on the radio and Ops would stand you down with a code – everything was codes, you know… QRA was a real pain in the neck, because you were there for 24 hours. It was quite boring really... You could go up to the squadron briefly, because it was close, and we were issued with QRA bicycles ... But you still had to be able to get airborne in 15 minutes. We were in flying suits the whole time."

As the British V-Force QRA aircraft had nuclear weapons on board, they never taxied and certainly did not fly, for fear of accidents. In a way, the QRA drill was the closest the pilots came to experiencing nuclear war. If a nuclear attack had been authorised by the UK Prime Minister, then the QRA crews would have scrambled to their aircraft exactly as if it were a normal drill, but they would not have received the 'stand down' code. Instead, they would have taxied and taken off, then flown across Europe. Each aircraft would have had a specific target, one of 69 cities, 17 air bases and 20 air defence sites on the RAF's nuclear war target list. The safe return of any of the aircrews would have been highly unlikely.

[12] This was true in the early days of the V Force, when even the aircraft were painted white as an 'anti-flash' measure to protect the crews from the intense heat of a nuclear blast. But both aircraft and bombs were later painted with more conventional camouflage colours. In addition, dummy and 'live' nuclear weapons were painted differently from each other for very obvious reasons.

Armourers load a dummy Yellow Sun Mark 2 free-fall thermonuclear bomb into the capacious bomb bay of a Handley Page Victor B.1A, during Exercise Unison at RAF Honington, 1963. *© Imperial War Museums (IWM RAF-T 4141)*

As a pilot, Tim Elliot remembers thinking that such a scenario was "very unlikely to happen. We felt that 'If it does, we don't know what our chances are of getting through, but we'll give it a damn good try.' That was the attitude of those days... The general feeling about the escape was 'you might be lucky'." Even if the British bombers managed to evade the Soviet MiG-21 interceptors and the highly effective S-75 Dvina surface-to-air missiles, they would have been returning to a country almost certainly devastated by Soviet nuclear weapons.

Although the RAF retained a tactical nuclear weapon role – the first-ever operational squadron of Tornado aircraft, based at RAF Honington starting in 1982, could carry the WE.177 family of free-fall nuclear bombs, for example – the introduction of the submarine-launched Polaris ICBM in the 1970s had seen the RAF cede the strategic nuclear deterrent role to the Royal Navy. This shift in responsibilities was felt earlier on the ground, as John Dwyer, a member of the RAF ground crew at Marham, remembered from a training exercise held in the 1960s. While looking at the aircraft with their engines running, he recalled how "I did have one crew-chief saying to me, 'Take this in, son, because we're coming to the end of an era.' I didn't know what he meant at the time." The V bomber role with nuclear weapons was nearly over, although the aircraft remained operational into the 1980s.

A Vickers Valiant of No 49 Squadron being defuelled at RAF Marham in April 1964. The dark-green and medium-grey tactical camouflage reflects the change from high- to low-level flying, adopted in early 1964. *© Imperial War Museums (IWM RAF-T 4885)*

Barnham Nuclear Bomb Store

With the introduction of the Blue Danube free-fall nuclear bomb, and the V bombers to carry it, specialised storage and maintenance facilities were required. The first of these purpose-built sites was at RAF Barnham, between Barnham and Elveden, and was completed in 1957. A second was built later at RAF Faldingworth in Lincolnshire. The Barnham site served the squadrons at Honington, Marham and Watton, as well as at Wyton, Upwood and Bassingbourn in Cambridgeshire.

The site was under the control of the rather blandly named No. 94 Maintenance Unit and was highly secure. The high outer fence was topped with barbed wire, and a watchtower with searchlights stood at each of the five perimeter corners. There was a no-man's-land over 20 metres wide between this and the inner concrete wall, patrolled by guard dogs. The main components of the bombs were stored and serviced in the three large buildings. These were kept spotless inside, and the temperature and humidity carefully controlled. Many surfaces were anti-static, to reduce the chance of a spark triggering an explosion. Each building was also surrounded by high earth banks to direct any explosion upwards, thereby protecting the rest of the site.

Brick hutches at Barnham Nuclear Bomb Store each stored a fissile core about the size of an orange.
© *Alan Clarke*

For safety, the bomb and its core were always stored apart; they were transported separately to and from the airfield and were not 'united' until the aircraft was in flight. Up to 66 nuclear cores, either of plutonium or uranium,[13] could be stored separately in 57 small brick 'hutches' around the site (*see Appendix*). The cores were tiny – each was about the size of an orange. Each hutch had a door that looked like steel from the outside (in fact it was just a mild steel sheet on a wooden door), a combination lock and an alarm system that alerted the guard-room when the door was open. Inside, each core was held in a small lead-lined canister placed inside a large, locked steel container buried in the concrete floor.

Although the site is now covered in trees, when the facility was built it sat in a completely open, typically Brecks landscape. It would have been very visible from the air, and deliberately so. There are reports that Soviet commercial flights from London to Moscow regularly 'accidentally' went off course, despite being admonished by air traffic controllers, and drifted north over militarily interesting parts of East Anglia, including Barnham. We can be sure that the USSR had detailed photographs of Barnham and other Breckland facilities.

Perhaps as few as 12 bombs were stored at Barnham at any time. Only 58 Blue Danube bombs were ever built and not all were operational at once, with about half nominally stored at Faldingworth. Furthermore, many of the bombs were held at the V bomber bases, in 'Unit Stores' at the edge of, or just off, each airfield. Only a fraction of Barnham's 57 hutches were really needed. It is likely that this was a deliberate deception to convince the USSR that Britain had far more nuclear weapons than was the case.

[13] Some sources mysteriously refer to cobalt cores, but cobalt is not fissile and there is no solid evidence that any nuclear warheads of the time, or since, contained cobalt.

Each fissile core sat in a small lead-lined canister placed inside a large, locked steel container buried in the concrete floor of the hutch.
© *Alan Clarke*

The successor RAF free-fall nuclear bombs, codenamed Red Beard and Yellow Sun, were designed to re-use the fissile cores from Blue Danube. These replacement weapons were very much smaller, and less than a quarter of the weight. Safer to store and more reliable, they entered service in 1961. The Barnham bomb store was closed in 1963, by which time it had become both sensible and feasible to store British nuclear weapons in high-security special facilities on RAF bases, close to where they might be needed at short notice.

A detailed survey of the RAF Barnham Nuclear Bomb Store was carried out by Wayne Cocroft and others, and a report published in 1998 by the Royal Commission on Historic Monuments in England.[14] The facility's current excellent state of preservation as a Cold War relic is a tribute to its owner Keith Eldred, who has financed a substantial part of the preservation and restoration. Historic England has co-funded the repair and conservation of many of the Barnham buildings.[15] As part of this project we were able to add some detailed recording of the hutches where the nuclear cores were kept. The project ran this as a training day, which was challenging as we had to schedule it to fall between the various lockdowns of the Covid-19 pandemic, but with instruction from archaeologist Dr Richard Hoggett our volunteers produced scale drawings of these simple but important structures (*see Appendix*).

[14] Cocroft also co-authored Historic England's excellent and very comprehensive near-300-page book *Cold War: Building for Nuclear Confrontation 1946–1989*, published in 2003.

[15] English Heritage (now Historic England) was one of the first organisations to recognise that Cold War infrastructure is of great historic interest and needed to be extensively documented before it disappeared entirely, and in some cases, preserved if feasible. In 2012 it gave Grade II* listed status to the two best remaining Thor missile sites, at North Luffenham and Harrington.

"Broken Arrows"

Then, as now, nuclear weapons were fitted with a huge range of safeguards to prevent them from accidentally detonating and there was typically no significant risk of a nuclear explosion, as the weapons were not normally armed (primed to explode) until close to their target. However, the conventional high explosive, which every nuclear bomb contains and is used to trigger the bomb, could detonate and spread large amounts of highly radioactive uranium or plutonium downwind, contaminating a wide area. If the device contained plutonium, there was the additional danger that this highly reactive element would spontaneously ignite, producing a toxic and radioactive cloud of plutonium oxide smoke.

The USAF has a specific term for a near miss involving one or more nuclear weapons: a "broken arrow". Two such incidents occurred at RAF Lakenheath. On 27 July 1956, a USAF B-47 Stratojet left the runway and, although not carrying nuclear weapons itself, crashed into a nuclear weapon storage 'igloo' containing three Mark 6 nuclear bombs, each of which contained over two tonnes of high explosive. The plutonium cores were stored elsewhere for safety, but the bombs did contain a significant amount of depleted U-238 uranium to boost the strength of the nuclear blast. If the conventional high explosive they contained had detonated, the radioactive uranium would have been spread over a wide area with horrendous effects.

Eyewitnesses – including local lads playing cricket on the field nearby – saw the base erupt into chaos, with ambulances and fire trucks racing across the grass and crashing through barbed wire fences. The blaze was tackled with foam by the American military fire crews under Sgt L H Dunn, who ignored the crew in the cab of the bomber and concentrated on the burning fuel around the nuclear bomb store. They were joined by the men of Brandon Fire Brigade, led by Frank Kybird, who poured water onto the bomb store until they were sure the danger was over. Immediately after this incident, investigators sent a Top Secret report to the Commander-in-Chief of Strategic Air Command (SAC), outlining how close the incident had come to disaster:

> *"Preliminary exam by Bomb Disposal Officer says a miracle that one mark six with exposed detonators sheared didn't go* [a euphemism for explode]. *Fire fighters extinguished fire around mark sixes fast. Plan investigation to warrant decorating firemen."*

Five years later, in January 1961, a USAF F-100D Super Sabre fighter-bomber carrying a Mark 28 H-bomb was sitting on the runway at Lakenheath ready for takeoff. On starting his engine, the pilot accidentally jettisoned his underwing fuel tanks. These ruptured on the concrete runway, the fuel was ignited by the jet's hot exhaust, and the aircraft was engulfed in flames. It was two minutes before the fire was extinguished, by which time the nuclear bomb casing was charred and blackened.

Eyes in the Skies

The physical delivery of nuclear weapons to a target relied on sophisticated intelligence, reconnaissance and communications. Early-warning capabilities, allowing the side under attack to respond even slightly faster, would give a crucial edge. They also had a deterrent effect in that, if a swift and massive counter-attack were inevitable, the other side would be less likely to launch a first strike. A key role was played by powerful ground-based radar stations, the most famous of which was at RAF Fylingdales in Yorkshire, with its very distinctive giant white 'golf ball' radomes. A similar facility existed in the Brecks at RAF Feltwell, its three prominent white radomes dating from near the end of the Cold War.

Breckland RAF bases were part of the 'Southern Sector', controlled from RAF Neatishead in the Broads, where in 1984/85 Teresa Squires worked as an Identification and Recognition Officer (IDRO). "The IDRO had to identify, digitally, the signature of every blip on their scope," she recalled. "When you consider that area includes Heathrow, Gatwick and Luton, with all the commercial and private flights, we had to know what every single blip on the radar was. So it was quite busy." Teresa was also stationed at RAF Fylingdales where, determined to land a role in Fighter Control and despite a longstanding RAF presumption against women serving on the front line, she became only the second woman whose duties included initiating the notorious 'Four Minute Warning': alerting those in power that a Warsaw Pact attack was underway. "No ballistic missile landed in mainland Europe, so we used the capability to look at space because the radars were so powerful," she explained. "There was a military objective to that as well, because a satellite can be weaponised... We were looking principally for satellites coming over with some sort of nefarious purpose. Spy satellites. So there was a big set-up looking at that on a daily basis, it was our bread-and-butter work."

As well as these sophisticated radar systems based on the ground, intelligence was gathered from the air. As during the Second World War, aircraft played an essential role in collecting photos and intercepting radio transmissions across Europe. The myriad data they gathered were the subject of detailed analysis aimed at building a comprehensive picture of Warsaw Pact assets and capabilities. A wide variety of aircraft was used, from Canberras through to the Tornado.

However, it was an American aircraft that proved to be arguably the most iconic ever to operate out of the Brecks: the SR-71 Blackbird. Developed at the Lockheed Skunk Works by legendary US aeronautical engineer Kelly Johnson, the SR-71 Blackbird entered service in 1966. Over 50 years later, it is still the fastest manned aircraft ever to have flown, having regularly exceeded Mach 3.2 (about 2200 mph) at over 85,000 ft. Blackbirds – perhaps the most famous of the 'spy planes' – flew intermittently on reconnaissance missions out of RAF Mildenhall between 1976 and 1990, but in great secrecy and almost exclusively at night. USAF personnel who were not security-cleared had to turn their backs when a Blackbird left and re-entered its hangar. RAF navigator Alan Collins occasionally glimpsed one, recalling how it "looked like a black dagger ... that thing flew so fast that by the time a missile had locked onto it and fired, it was gone."

An SR-17 Blackbird spy plane, which operated in great secrecy from RAF Mildenhall. *Newspaper content courtesy of the Eastern Daily Press and Local Recall Project. © Archant*

The SR-71 was equipped with optical and infrared imagery systems, side-looking airborne radar (SLAR), electronic intelligence (ELINT) gathering systems, defensive systems for countering missile and interceptor fighters, and recorders for SLAR, ELINT data. It could photograph over 100,000 square miles of the Earth's surface per hour, with the camera containing a roll of film almost two miles long! Missions involved flying up the west coast of Norway to the Soviet nuclear submarine bases in the Kola Peninsula, around Murmansk, or across the Baltic to over-fly other parts of the Soviet Union, with the objective being to build up as complete a picture as possible of the Soviet forces and their war-fighting capabilities. As with the early U-2 flights across their territory, the Soviet Union never publicly acknowledged or complained about the Blackbird spy missions; to do so would have been an embarrassing admission that they were powerless to prevent them.[16]

As well as being one of the first 'stealth' aircraft (its shape designed to appear much smaller on radar) the Blackbird simply flew too high and too fast for any MiG fighter or Soviet ground-to-air missile of the time to reach it. None was ever shot down. The last two SR-71s left Mildenhall in mid-January 1990, heading 'home' to Beale AFB in California; flying over three times the speed of sound, and at over 80,000 feet, the flights took a mere 5 hours, 20 minutes.[17]

[16] The Soviet attitude to the U-2 changed when they succeeded in shooting one down in May 1960, after which they became exceedingly voluble about their territorial integrity being violated.

[17] The 2001 Mildenhall Air Show marked the final public appearance of an SR-71 in the UK, when it thrilled the crowds by making repeated slow passes low over the main runway.

4. Against the Bomb

To a country desperate to win a war, weapons of mass destruction are a seductive short cut. But the history of the last century has many examples of weapons of mass destruction being introduced by one warring faction and banned later by international conventions and treaties. Examples include mustard gas, nerve agents and biological weapons. Many in Britain in the 1950s and later believed that nuclear weapons were so horrific that they too had to be banned. Governments and most military figures believed that, on the contrary, they were the only way to ensure the country's survival.

The first CND protests in the Brecks

On 17 February 1958 Central Hall, Westminster was the venue of the first public meeting convened by the Campaign for Nuclear Disarmament (CND), an organisation that was to have an impact on public life for the following three decades. It had been founded the previous November by a small committee of prominent people for whom the prospect of nuclear war was not something they were prepared to either ignore or accept. With momentum building, an estimated 5000 people attended the London meeting, protesting against nuclear weapons and in favour of unilateral nuclear disarmament. A few weeks later, members of the pacifist organisation the Direct Action Committee Against Nuclear Weapons (DAC) led a march of several thousand people to Aldermaston, the site of the Atomic Weapons Research Establishment in Berkshire.[18]

The Thor site at North Pickenham airfield was the focus of its own early anti-nuclear protest.[19] In November 1958 small numbers of demonstrators started to picket the base, protesting about the UK's imminent deployment of nuclear missiles and seeking to block access to the site by the contractors pouring concrete for the launch complex. Saturday 6 December saw a group of 90 people gathering in Swaffham (where they were jeered and pelted with rotten fruit by local stallholders) before marching along the country lanes to North Pickenham, carrying banners and chanting slogans. Upon arrival at the gates to the base, they were warned against entering but 50 or so people pushed past the guards to surround a cement mixer and obstruct the contractors, some of whom promptly set upon the demonstrators. "Yelling abuse, the construction workers grabbed men and women alike," reported the *Eastern Daily Press*, "Women were dragged along by their hair and many were

[18] In 1959 a similar march attracted over 60,000 attendees.

[19] Project volunteer Ric Parsonson produced an excellent study of Thor at North Pickenham for a separate project. If he publishes it, a note will be added to the Breckland Society website project page.

trampled on while trying to release themselves in the sea of mud." Not all the contractors condoned the behaviour of their colleagues, with one saying, "I am ashamed to be working on this site." The *EDP* concluded that it was "shocked and perplexed by the way in which the demonstration was handled or mishandled by the authorities. It looks as if the workers were left to do something the authorities did not care to do for themselves."[20]

The North Pickenham incident was witnessed personally by the local Labour MP, Sidney Dye, who showed little sympathy for the protestors. On Monday 8 December he travelled to London to ask questions in the House of Commons about "why demonstrators were able to enter upon the Royal Air Force Station at North Pickenham on 6th to 7th December, hindering the workmen from carrying on their normal duties [and] what action he [the Secretary of State for Air] intends to take." The next day, back in Swaffham, Sidney Dye was tragically killed when the brakes on his car failed. A by-election was called, and the DAC took the opportunity to launch a "voters' veto" campaign, under the banner 'No votes for the H-bomb'.[21]

Ogoniok and Swaffham Town Council

The protests in North Pickenham illustrated the wider ideological propaganda war being played out at the time, but the ruckus at the base itself was not the end of the story locally. Less than three weeks later, on 23 December 1958, the Clerk of Swaffham Urban District Council, JLB Dunn, was surprised to receive a phone call from a reporter at the 'Moscow News Agency', speaking excellent English and enquiring about the recent "riots at the missile base". The questions seemed fairly innocuous, with Dunn replying equally prosaically. "I ended by wishing them a Merry Christmas in Moscow," said Dunn. "I thought at first it was a hoax, but I am satisfied that really it was not." He kept a record of the conversation: "Since I expect that perhaps the Tass Agency or Pravda might publish a biased version of the interview, I thought it wise to furnish the particulars to the BBC for prompt reporting." The next day, the *EDP* ran a short story under the headline 'Swaffham Gets Phone Call from Moscow: Rocket Base Enquiries'.

There was more to come. In January a language tutor at the RAF College at Cranwell translated an article headed *Rocket Bases? – "No"!* that had been published in *Ogoniok*, a Soviet illustrated weekly magazine with a circulation of several hundred thousand. Here was a version of the Swaffham incident, but with a decidedly Soviet spin, as this 'record' of the exchange indicates:

> *"May we ask you one final question, Mr Dunn? What is your personal opinion concerning the building of American rocket bases in your native country and*

[20] Jim Wilson, *Launch Pad UK: Britain and the Cuban Missile Crisis* (2009), p.58. A smaller group of protestors broke in again the next day and were removed by RAF security police. There were some 45 arrests over the weekend.

[21] The campaign gained little traction and the South West Norfolk by-election was won by Labour with an increased majority. CND was attempting at the time to persuade the Labour Party to come out formally in favour of unilateral nuclear disarmament, a policy that was briefly forced through following Labour's defeat at the general election later that year, but overturned two years later by the party leadership.

particularly near your own town? There was a moment's silence at the other end of the wire and then came the reluctant reply: I am a government official and it is my job to support the government's actions and not to hinder them."

The fact that an *apparatchik* from a global superpower had called the town clerk in a small and rather remote part of England was an understandable source of glee for much of the British press.

Three decades of protest

During the late 1950s and early '60s there were regular anti-nuclear demonstrations in the Brecks. Protests focused on RAF Marham were often timed to coincide with Swaffham's Saturday market, from where the protestors would march or be driven to the base and try to get through the perimeter fence. In May 1963 CND members held a mock auction of the Valiant aircraft stationed at Marham, using the authentic serial numbers of the actual aircraft.

Some of the protests were large. "The CND people themselves ranged from children right through to pensioners [and] there must have been more than 2,000," recalled John Dwyer, a former aircraft fitter for the RAF, of one event. During such protests all station personnel were required to help prevent the CND protestors crossing the wire into the base and there was usually a heavy police presence also. On one occasion some demonstrators at Marham carried bread rolls soaked in aniseed to distract the police dogs, a ploy described by a Norfolk police spokesman as "not playing the game [and evidence of] just how low some people will go". Peter Cadogan, area secretary of the East Anglian branch of the anti-nuclear group, the Committee of 100, responded to the *Eastern Daily Press*: "If the police use dogs against human beings, what can they expect? We had one box of buns, but they were not used because we did not go near the dogs."[22]

One of the most sensitive areas of a V bomber base was the Quick Reaction Alert pan, where aircraft stood ready for takeoff. Because at that time the weapons they carried were American-supplied, the aircraft were guarded by armed American military personnel called Custodians. "Everybody on the base was involved in making sure that CND demonstrators did not get onto the airfield – we were actually told, 'Do not let the CND get near the QRA pan'," recalled John Dwyer. "These American guys wouldn't think twice about shooting them. Full stop."
As protestors crossed the wire, they were grabbed by military police, local police officers and RAF personnel like John. "We had four or five Pickford furniture vans lined up on the aerodrome, basically being used as transport," he explained. "As the demonstrators got onto the airfield we would put them in the back of the furniture vans with the help of the military police and police dogs and what have you. Then they were taken to Shouldham Primary School, which had been set up for the magistrates and where they were [charged and] fined. But the really hard-core people would then come back for a second time, with several finishing up with prison sentences."

[22] *Eastern Daily Press*, 13 May 1963.

A RAF police dog-handler guards the wire fence at RAF Honington on 20 October 1962 as an anti-nuclear protestor is carried by civilian police into a waiting furniture van, to be taken to court. *Photograph courtesy of Chris Cock*

Protestors at RAF Honington in October 1962, with accompanying tractor. *Photograph courtesy of Chris Cock*

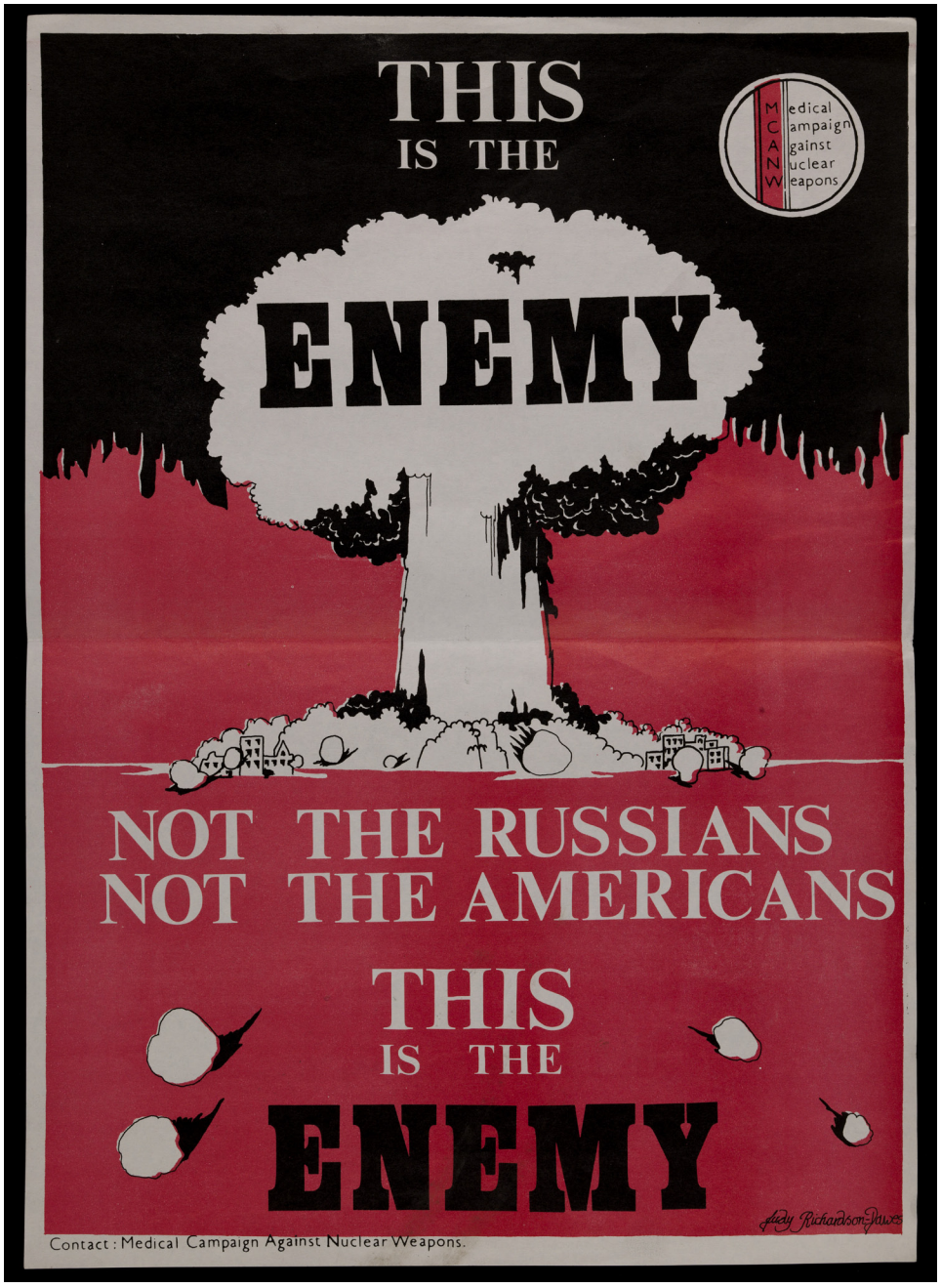
Protests were a regular feature of life at certain Breckland bases for a few years, including at RAF Honington where, on 20 October 1962, members of the East Anglia Committee of 100 arrived, having marched from Bury St Edmunds. They were led by a man driving a tractor, which then ploughed a furrow along the outside of the perimeter fence in which the protestors symbolically sowed seeds of winter wheat, beans and artichokes.

One of the most interesting discoveries made during the project was a photo album, bought a few years ago on eBay by volunteer Chris Cock. This was probably put together by an (unknown) member of the RAF Police as a souvenir of the places in which he had served around the world, and the events to which he had been party. He was almost certainly based at RAF Feltwell, and the album contains many pictures of Thor missile convoys and of the Honington anti-nuclear protests – mostly from 'inside the wire'. It is extraordinary just how minimal the physical security around RAF Honington appears to have been.

Protests tailed off nationally after the Cuban Missile Crisis. In the years that followed, radical protest was focused mainly around the Vietnam War, although CND did mount a protest picket at RAF Mildenhall when US President Richard Nixon stopped over for a few hours in 1969 and met with UK Prime Minister Harold Wilson.

In the 1980s, however, at a time of rising nuclear tension (due to the deployment in Europe of more missiles by both the USA and the USSR) and increasing unemployment, the anti-nuclear movement was reinvigorated. While many of the renewed protests were aimed at the American stationing of cruise missiles in the UK, the peace camps at RAF Greenham Common and RAF Molesworth being notable examples, there were other protests across East Anglia and in the Brecks.
The camps at Greenham Common and Molesworth were focal points for the Women's Movement in particular, as well as various radical groups. One current Breckland resident, who wished to remain anonymous, gave an informal testimony to the project. He lived at Molesworth Peace Camp for 18 months, having first visited with a friend when they were 16, just for a weekend to see what it was like. At the end of the weekend he turned to his friend and said "I'm staying". He recalled how the protest was always dynamic and sometimes daring. In one 'action' activists broke into the base and covered aircraft windscreens with porridge dyed bright pink; in another, he climbed one of the sentry towers with a nicely wrapped present for the sentry. "I said "Happy Christmas" and held out the present. He'd been just leaning there, but jumped out of his skin and then booted me straight in the chest, right down the stairs. I had his footprint right in the middle of my chest. I fell down the stairs and just legged it... The point to all this was: if a load of crusty hippies could get onto your base to deliver Christmas gifts or paint a load of pink porridge over everything, what could the Russian Special Forces do?"

In the early 1980s, local Norfolk activists – notably Angie Zelter who lived in Cromer at the time – started the Snowball Campaign, designed to encourage civil disobedience through the cutting of wire fences around RAF bases. One such 'Snowballer' was Kenninghall resident Oliver Bernard, a writer and translator of Rimbaud. He and Jacqueline Bullimore were arrested in the summer of 1987 while carrying broken hacksaw blades intended to saw through a single strand of barbed wire at RAF Sculthorpe near Fakenham. In court, they claimed that they were in fact upholding the law, specifically the 1969 Genocide Act, and this was their "lawful excuse for possessing half a hacksaw blade with intent". Motivated by her faith as a Quaker, Jacqueline Bullimore said in court that "I have to commit a small



Poster by the Medical Campaign Against Nuclear Weapons. © *Wellcome Images*

crime – as small as I could get – with the most minimal instrument necessary in the most reasonable way possible."[23]

In the Brecks, some sites attracted low-level protests. The ROC bunker at Maidscross Hill, just outside the perimeter fence of RAF Lakenheath, was broken into, and on the evening of 5 April 1987, ROC observers at the Mundford post turned up to find a home-made poster stuck to the hatch saying "CND VISITED

[23] *Eastern Daily Press*, 14 August 1987

HERE". The purpose of these protests was not to seriously disrupt military activities but rather to draw attention to them and promote wider debate about the risk to the civilian population of having nuclear weapons in their midst.

Over three years, 2500 arrests were made of Snowball activists who had cut wire at various bases, including RAF Watton. While the courts generally issued fines, some activists did go to prison – including Oliver Bernard, who received a short jail term. Others were given prison sentences for non-payment of fines. Angie Zelter went to prison nine times, and singer Billy Bragg (briefly a serviceman in the Royal Armoured Corps) was fined for attempting to cut the wire at the nuclear bunker at Bawburgh. Many of those who protested felt they had a duty to do their small bit in trying to keep the world safe, much like RAF personnel felt about their own role. The main difference between them was how they thought that could be best achieved.

In the mid-1980s, talks between the USA and USSR culminated in the Intermediate Range Nuclear Forces (INF) Treaty of 1987, requiring both sides to decommission their intermediate range nuclear missiles, including most of the land-based weapons in East and West Germany. Anti-nuclear campaigners, including those from Thetford Peace Group, celebrated with 'Champagne for Nuclear Disarmament'.[24]

[24] Record of the Thetford Peace Group, SO 260, Norfolk Record Office.

5. Thinking the Unthinkable

Nuclear war is an event so catastrophic and frightening as to be beyond human comprehension. Yet during the Cold War its very prospect was frequently thought about, analysed, predicted and planned for. The conclusions reached were so shocking that governments felt compelled to keep the full horror from their populations, while simultaneously making contingency plans that included both public awareness programmes and decidedly more covert provision.

After a strike

Throughout the Second World War, precautions against air raids were part of everyday life. But in a nuclear war, the ability to protect the civilian population was virtually nil. Air-raid shelters just would not be effective. In the bombing of Hiroshima, it is estimated that 70,000 people were killed immediately, with between 90–160,000 further deaths by the end of the year as a result of radiation and injury. The nuclear weapons held by the British and Americans on Breckland bases were immensely more destructive than the weapons dropped on Hiroshima and Nagasaki. Even a small number of nuclear strikes would cause millions of casualties.

To ensure that the business of government could continue after the radioactive dust had settled, deeply buried massive concrete bunkers – such as the complex at Barnham Broom, just outside Norwich – were created to protect essential officials and operations within nuclear-proof structures. As lightly-populated Breckland had little in terms of government infrastructure, most nuclear bunkers were on the military bases spread across the area, which were obvious targets for Soviet nuclear weapons, even the smallest of which would have devastated nearby towns and villages. Contingency plans for life after a nuclear strike included casualty-clearing stations and centres for emergency local government in local schools and village halls, with fire brigades, police and local authorities all carrying out exercises and drills designed to help re-establish control and deliver some level of community relief.

In 1957 Ray Kidd served in Civil Defence Scientific Intelligence as a Reconnaissance Leader, a voluntary role that he had moved to from the Home Guard. “Our task was to help plot radiation levels by driving around in a very poor condition ex-Second World War Land Rover,” he recalled. “The paint was new, but everything else was worn out. We carried a Radiac Meter, which recorded radiation levels, which we sent in by radio. We didn’t know to where, or who else was doing this, as knowledge was on a ‘need-to-know’ basis. We had no radiation pens to measure

our own contamination – I think we were considered expendable. Part of our responsibility was to plan the escape routes from the area to where there was the least chance of radiation exposure."

Members of the Women's Voluntary Service (WVS) toured rural areas, giving lectures to branches of the Women's Institute, farmers' groups and parish councils on how best to prepare. In 1963 the Government published a 24-page booklet *Civil Defence Handbook No 10 – Advising the Householder on Protection Against Nuclear Attack*, advising on practical matters such as how to build a fallout shelter inside the home and what essential supplies to stockpile.

"Basically you chose the room with the least number of doors and windows and blocked the windows from outside with sandbags," recalled one former volunteer for the WVS. "The inhabitants should have available candles and matches, seating and bedding, a supply of clean water, lots of food in tins, including biscuits, as well as a tin-opener, non-perishables, a primus or oil stove, paraffin, a Tilley lamp etc... If you had to go outside after the explosion you should put on a different set of clothes and discard them before you came in again."

The advice appeared to be practical, but the dire reality of the situation would have made such activities pointless, and the authorities knew this. However, implying that it was worth preparing and taking some kind of action that might mean survival was designed to reassure, however falsely. "Thinking back, it was really just to boost morale. Such measures would have been largely ineffective if there had been a bomb. In any case, I stopped being asked to do it in the late 1950s," said the WVS volunteer.

The Royal Observer Corps

In 1955 the Royal Observer Corps (ROC) was charged with observing and reporting on the effects of a nuclear attack on the UK. During the Second World War (as the Observer Corps) it had been closely tied to the RAF and played a key role in spotting and identifying incoming enemy aircraft, but during the Cold War its duties changed, especially with the establishment in 1957 of the UK Warning and Monitoring Organisation, with the ROC as its eyes and ears.

Between 1958 and 1968 a network of over 1500 underground monitoring posts was constructed in rural areas across the whole of the UK.[25] Those within or very close to the Brecks were located at (from south to north): Kentford, Culford, Honington, Isleham,[26] Garboldisham, Lakenheath (Maidscross Hill), Thetford, Great Hockham, Mundford, Stoke Ferry, Watton, Narborough and Swaffham. Each ROC post had a team of up to 12 volunteer observers, under the command of a Chief Observer. In times of high international tension, if nuclear war seemed a possibility, the Chief Observer would summon the whole team to the post, and choose three to initially man it. If they wished, the team could set up a rota and

[25] All are long since abandoned; the last few were closed permanently in 1992.

[26] Not near Isleham; in reality immediately south of RAF Mildenhall.

Observer Chris Cock at Mundford ROC post, manning his station during the 1980s.
© *Chris Cock*

change over every few days if conditions allowed. The smaller group would seal themselves inside the buried post, with food and water to last for up to two weeks, with power supplied by a generator on the surface. There was also a telephone connection to a regional centre that would collate data phoned in from a group of posts, and pass it on to central government.

Chris Cock, now a farmer living in Feltwell, was 19 when he volunteered for the ROC. He provided a great deal of information about the ROC from his scrapbooks, old training manuals and photos. "I joined the Corps in 1980 and I served right through until stand-down, which was in September 1991," he recalled. "We were given a uniform, which was basically an RAF uniform apart from the beret, which was black instead of RAF blue. And we had our own insignia." They trained once a week, at the Territorial Army centre in Thetford or at the local posts themselves. Chris helped man the Mundford post, part of the Breckland Cluster that included others at Lakenheath and Watton and reported to the regional headquarters at Norwich. In the event of a nuclear explosion, the measuring equipment at each post would give the direction and strength of the burst. When information from multiple posts was collated at the regional headquarters, the exact location of the burst could be triangulated.

"An instrument called the Bomb Power Indicator would give us a peak pressure reading of the blast in pounds-per-square-inch. We would report that reading in order to give an approximate size of the blast," explained Chris. "We had a fixed camera on top of the bunker, covering all four points of the compass and loaded with photographic paper. It was called the Ground Zero Indicator. We were supposed to wait – I think it was a minute after the burst – before sending the Number Three Observer to the top of the post to change the cassettes and reload

The photographic paper on the Ground Zero Indicator being changed by an observer at Mundford ROC Post. © *Chris Cock*

with fresh papers. He would bring the cassettes down, and we would then interpret the images on the photographic paper. That would give us a position of the bursts, as well as an image of the blast in the form of a spot on the paper. We could measure the size of the spot and then report all that information to headquarters as a Nuclear Burst Report."

Observers generally enjoyed what they did, with a sense of camaraderie and a feeling that they were training to be useful, to fulfil a necessary role. The Lead and Chief Observers for each post were responsible for training the others in using the equipment, taking observations and other duties. Each summer a one-week training course was held at one of the local air bases, covering subjects such as instruction and first aid. RAF Watton hosted the course several times during the 1980s. "Once a year a Master Test was held," recalled Chris Cock. "We used to go to RAF Marham for that. It was basically a 100-question test paper, and there were various levels of passes. If you got what was called a Master Pass then you were entitled to wear the Spitfire badge on your uniform." Training and exercises would include manning the post overnight. "There was a double bunk bed at one end of the post, and to be fair I don't think I ever remember any of us using it," said Chris. "If anyone wanted to have little sleep they'd just doze off in their chair." The more interesting exercises might involve taking a map and a portable radiation monitor and simulating collecting radiation samples around the Stanford Training Area (STANTA), which would make a pleasant break in the routine.

The Mundford post was unusual in having an additional facility. Someone had 'acquired' an old Anderson shelter, which the observers spent a couple of weekends digging into the ground. Senior officers turned a blind eye to something that was not strictly allowed but which represented a sensible improvement. Although it was

Observers at Mundford ROC wearing NBC suits. © *Chris Cock*

actually used for extra storage, a rumour later spread that the observers had built it to house their families.

Chris remembered the observers at the Mundford post discussing the idea that chemical or biological weapons might be used before nuclear ones. However, the ROC posts were not routinely issued with protective equipment and it was up to the initiative of the observers themselves to decide how best to acquire it: "We had a contact who was an instructor on STANTA and he used to come by a lot of this stuff. Through him we all had training suits and several sealed Mark 3 NBC (Nuclear, Biological and Chemical) suits and sealed Mark 6 respirators. At various points during the exercise we'd don the 'noddy suits' and try and do the tasks wearing the suits and the respirators. We couldn't understand really why they hadn't issued them to the posts."

Their contact also managed to arrange for them to sit in – semi-officially – on chemical warfare classes on STANTA. "We all turned up in uniform, but we weren't allowed to tell anybody in Norwich about it," remembered Chris. "It was all kept strictly within the post. But we were a bit more of an active post than some others, who followed the rules exactly."

Looking back, Chris Cock believes that he and his fellow observers did not really appreciate the real power of nuclear weapons. "If there was a limited strike, three or four bursts up and down the country, we could have been useful in what we did," he said. "But if it were an all-out total strike? We would have been quite pointless."

Training at STANTA

From the 1950s onwards, both NATO and the Warsaw Pact forces assumed that nuclear conflict would start with the detonation of a battlefield nuclear weapon. Tanks and infantry would then advance through the radioactive ruins. Soviet military exercises for this scenario were carried out in the Urals in 1954, led by the famous Russian commander Georgi Zhukov, with the US conducting similar exercises in the Nevada desert, including Operation Teapot in 1955. The British Army's principal role was to defend against the Red Army, should it invade West Germany or attack through Norway, and many resources and much time were devoted to training for this eventuality.

Lt. Col. Tony Powell was interviewed for the project. In a long career as a soldier, he initially served as an infantry anti-tank gunner in West Germany. "The one thing that we knew, and were told constantly, was that we were substantially outnumbered, both in terms of manpower and equipment. We were therefore going to be fighting a defensive battle, rather than an offensive one, and we had to prepare all the sneaky ways we could in order to take care of that," he recalled.

As an infantry soldier, Tony's job was to help stop a Warsaw Pact invasion. "The Russians would come pouring over the horizon in their tanks by the thousand... We would be grossly outnumbered, so we had to find a way to destroy as many of their tanks as we could, as early as we could. We planned to do that by a series of ambushes and defilade fire from cover positions. This was all part of our training and preparation should the 'Big Shout' come. One advantage that we knew we had was that our communication, i.e. our radio and signal systems between individuals, vehicles, fighting detachments, tanks and artillery, was far superior to theirs. So we had to become very skilful in deploying that."

The extensive necessary training and regular exercises required large areas of land. This was available in West Germany, the very terrain that the British Army might be fighting on. There were also good facilities in Canada, but it was very expensive to transport troops and equipment to and from there. In the Brecks, however, there was already a large military live-firing range. The Stanford Training Area (STANTA), often known locally as the 'Battle Area', was established in 1942, when this area of more than 25 square miles of sandy Breckland heath and farmland was requisitioned by the military, and the inhabitants of the villages of Tottington, Stanford, West Tofts and Langford were evacuated. The villagers forced to leave always maintained that they had been promised a right of return after the war, but the Ministry of Defence continues to deny that there is any evidence to support this claim. This dispute caused enduring bitterness among the affected families, who had mostly relocated to surrounding settlements such as Mundford, Thompson and Bodney.

In the preparation for the invasion of Normandy in June 1944, the Battle Area had been used to train tank crews of the famous 'Desert Rats' and supporting infantry, and even involved simulated bombing raids with dummy sand-filled bombs dropped from older RAF aircraft. This training role continued throughout the Cold

Paratroopers charging through smoke in front of a now-derelict building on STANTA, 1953. *© Imperial War Museums (IWM D 68507)*

War, although heavy-tracked vehicles like tanks were no longer used as the light Breckland soil quickly became churned up.

"Most of our training was for the specific roles that we were required to perform in the overall scenario," recalled Tony Powell, whose final army role was as Commandant of STANTA. "Bridge demolition was one… Remember, we were aiming to protect ourselves against the invading Russians. Across the whole of West Germany there were major river ways and bridges across all of them, which we would have been looking to blow up at the last possible moment to stop the Russians getting over. That requires specialist training, which was done at STANTA. The River Wissey runs through it, and there's an old Bailey bridge, which enabled us to train for that sort of thing."

STANTA had other specialist training areas, including an anti-tank range that can still be seen today, with rusted burnt-out tanks and armoured vehicles with holes punched in them. There was also a Nuclear, Biological & Chemical (NBC) warfare centre, which trained troops (including Chris Cock and comrades from the Mundford ROC post) in the use of Geiger counters and dosimeters, as well as how to wear the heavy gas masks and NBC 'Noddy' suits, and operate equipment while

wearing them. There was also a landing strip for Harrier jump jets, which could take off vertically from fields or car parks and so were very flexible tactically, and an important element of the aerial support for ground forces.[27]

Around the mid-1970s there was a realisation that while the British Army was well trained in mounting ambushes in the countryside, it would need to face Soviet forces in cities, towns and villages. So Fighting In Built Up Areas (FIBUA) villages were built at various training sites. On STANTA, Eastmere village was a custom-built complex around Eastmere Farm. Built in 1986, it "was, for all intents and purposes, a north-east European village with houses that looked the same as German houses," explained Tony Powell. "There were 25–30 buildings, including barns, churches, graveyards and gardens, and the houses had very complex cellar and attic systems. It was very effective for what we needed to do." The FIBUA complex on STANTA even had its own village sign: "Eastmere – Twinned with Alton Towers and Dunkirk".

STANTA was very important in the training of British (and other NATO) forces during the Cold War, and Tony Powell is proud of the role it played. "The Stanford Training Area is one of the best in the country... I don't say that because I am a Norfolk man or because I spent 20 years there. It simply *is*. It is a perfect spot for conventional warfare: map-reading there is relatively straightforward, the changes in terrain really test your skills and it can be very, very challenging... Overall it gives you all the necessary experience to do the required job."

The success of STANTA and the site's usefulness to the military throughout the Cold War (and since) has helped ensure that the Ministry of Defence has retained strict control over it. As the number of people actually born in, and evacuated from, the former villages dwindles, so any direct claim to return is correspondingly weaker. Access to what is a potentially dangerous area is permitted in a controlled way, with relatives allowed to visit the church graveyards, an annual carol service at West Tofts Church (which is filled to capacity) and coach tours allowing people to see the sites of homes that were abandoned nearly 80 years ago.

[27] A squadron of prototype Harriers was based at nearby North Pickenham airfield, and often flew into and out of STANTA during their evaluation.

6. The World Changes

In November 1989 the Berlin Wall came down, a hugely symbolic event. Across eastern Europe, border crossings opened, frontier fences were torn down and, for the first time since just after the end of the Second World War, people were able to move freely between countries. Within a few months, most of the Soviet-satellite Communist governments had gone.

Current Breckland resident Dr Peggy Stubley was an East German schoolgirl in 1989. Her exceptional academic ability had led to her selection for an elite language school, despite the fact that neither of her parents was a Communist Party member. She was interviewed for the project and described how most of the other pupils were the children "of the party elite, which was sometimes very hard to bear". She also explained how the school "would admit suitable children of non-party members, who were often incentivised or pressurised to join the party. I had all the grades and we had no West German relatives, which was regarded as a plus."

The collapse of the Eastern Bloc seemed to come out of nowhere, Peggy recalled – "At the beginning of the year nobody would have imagined it" – but by the summer something had started and "in September we had a new classmate. He was the coolest guy, everybody liked him. But come the October holidays, he didn't return and we learned that he and his parents had run away through the embassy in Budapest." Peggy remembered how she and her classmates were forced to write a statement: "We condemn his escape from Socialism".

As a result of her friendship, Peggy attracted particular attention from the school authorities. "They knew we had been close. He was a nice artistic guy and I really liked him. I was very distraught. And it was such a wrench having to write that sentence, because I hated saying things that I didn't mean. Ever since the Wall came down, this has been one of my principles." What happened next was even more remarkable: the reaction of the school staff to the collapse of the Communist regime. "Two weeks later, the self-same people who had made us write that statement did a complete 180-degree-turnaround, she recalled. "They said things like 'Oh, we always knew it', 'the West is not so bad', and 'we must welcome them with open arms'. These were the very people who used to indoctrinate you and tell you that you needed to know the Communist Party Manifesto, how 'the Party is Everything' and that 'You need to be a Socialistic Being, not an Individualistic Being'. Those people! They were the fastest to turn."

Meanwhile, the USSR itself had been moving towards at least nominal democracy. Mikhail Gorbachev, who became General Secretary of the Communist Party in 1985, had instituted the twin reforms of *glasnost* (openness) and *perestroika* (restructuring), which prompted wide-ranging changes across the Soviet Union and in every sector of daily life. Press freedom and open political commentary were greatly expanded, and Gorbachev held a series of summits with US President Ronald Reagan aimed at reducing decades-old tensions and ending the Cold War. A key moment came when Gorbachev refused to intervene militarily as Communist regimes in Eastern Europe came under intense pressure from their populations and were, in most cases, toppled. In 1991 the Soviet Union was dissolved and Gorbachev resigned.

With the USSR falling apart and rapidly losing its influence, the West could arguably have claimed to have 'won' the Cold War. Yet there was no overwhelming sense of achievement or victory among the Western powers, no VE Day equivalent. Not so in the former Soviet satellite states, where jubilant crowds thronged the streets of Budapest, Prague and Warsaw as their Communist governments fell. "We were euphoric!" recalled Dr Peggy Stubley of the reaction in East Germany. However, more generally there was a great deal of uncertainty about how things would play out once those heady days were over, with the former Warsaw Pact countries busy recalibrating and the dismembered Soviet Union re-emerging in a new series of sovereign states. The Cold War had ended, but what was to follow was anything but clear at the time.

Those who had given years of dedicated service in the defence of their country were left to muse on what had happened. There had always been issues over the lack of active combat in the peculiar atmosphere of the Cold War. In 1976 Tim Elliot attended a big dinner to celebrate the 60th anniversary of his squadron. "At one table were all these old Bomber Command guys with medals galore, they'd all survived the Lancasters. The rest of us had no medals at all. I couldn't help but think 'Would we be as brave as they were, would we live up to that?' You did question yourself, hoping that 'if it came to it, I would have the guts that they did'." Throughout the Cold War, aircrew never had the chance to test themselves in real combat.

"I never dropped a bomb on anybody," said former RAF navigator Alan Collins. "All I can say about the Cold War is that the world was a much safer place back then than it has been since. The next step up from our normal [peacetime] security level was a thing called 'Military Vigilance' and we only went to that level twice in the whole Cold War. Once was for the Bay of Pigs episode in Cuba and the other time was when the Berlin Wall went up. The Cold War didn't work for the people in Eastern Europe of course, but it worked for us. Nowadays you don't know what's going on – it's a very unsafe world."

The end of the Cold War led to new instabilities and new partnerships. Saddam Hussein, dictator of Iraq, invaded Kuwait in 1990 and a huge coalition of 35 countries rapidly mobilised to eject the Iraqi forces from the valuable oilfields.

The main forces came from the US, with Saudi Arabia and the UK as leading military partners. Notably, former Eastern Bloc Czechoslovakia contributed to the military campaign with a unit of chemical warfare and decontamination specialists, and Poland used its secret service to extract American CIA operatives in the top secret Operation Simoom.

Peeling paint on the door of one of the unrestored hutches at Barnham Nuclear Bomb Store.
© *Alan Clarke*

On STANTA, the Eastmere FIBUA complex continued its useful life beyond the Cold War and into the peacekeeping operations mounted in the Balkans from the mid-1990s, following the disintegration of the former Yugoslavia into civil war. "We were able to adapt the village to prepare our soldiers for going out into the Balkans, simply by changing the names on the shops," said Tony Powell. "You could take it out of the former West Germany and put it clearly into the Balkans. The houses are very similar, you know."

Other organisations proved less adaptable or useful to the new world order, not least the Royal Observer Corps. "We were stood down in September 1991," remembered Chris Cock. "We were already having some sort of review before the Berlin Wall fell in 1989, with several politicians visiting Group Control. So I think there was a sense of unease about whether or not we were going to carry on. We always feared a possible Labour government, because they were notorious for defence cuts and had something of an anti-nuclear stance at that time, but in fact it was a Conservative administration that signed the papers and ended civil defence." Within 18 months, the equipment had been collected up and the bunkers themselves were rapidly auctioned off to anyone who wanted them.

Defence reviews with bland titles such as *Options for Change* (1990) and *Front Line First* (1994) were to set in train the series of cuts the military would face. RAF Watton closed and was sold off in the early 1990s; other bases saw reductions in numbers of aircraft, and service personnel were offered voluntary redundancy packages. Only RAF Marham, RAF Mildenhall and RAF Lakenheath remained virtually as before, the last two as huge US military outposts with American products in the base retail outlets.

Despite the end of the Cold War, the Brecks are still home to an important military presence. The sound of jets continues to roar across the landscape, now in the form of F-35 Lightnings and F-15 Strike Eagles out on sorties or practising takeoffs and

landings, and American accents are still heard in the villages around the bases at Lakenheath and Mildenhall. While the global situation is very different from that of half a century ago, the need to maintain armed preparedness ensures that the area's role as a focal point of military activity remains undiminished.

Mildenhall Airshow was one of the biggest in Europe and attracted many tens of thousands of spectators, as here in 1991. *Newspaper content courtesy of the Eastern Daily Press and Local Recall Project. © Archant*

7. Postscript

As it is now almost 30 years since the Cold War ended, for anyone aged under 40 it is not even a memory. For children in particular, it will all seem very ancient and unreal. Yet for those who lived through it, it was an extraordinary time, when the annihilation of civilised life on Earth was a real possibility. It is also a period whose echoes we are experiencing more loudly of late as some of the certainties of the late-twentieth century fade and the world once more becomes unstable and unpredictable.

Despite the huge disruption caused by the Covid-19 crisis through much of 2020 and into 2021, we were lucky to be able to achieve most of the project's aims, despite several of our outdoor events having to be cancelled, curtailed or the numbers of attendees limited. Like the rest of the UK population, we had to adapt and improvise. We gathered much more information than could possibly be included in this report and part of the project's aims were to make this material easily accessible online. You will find a link to this online archive, and to many more online sources of information and suggested reading, on the Breckland Society's Cold War project page: http://www.brecsoc.org.uk/the-cold-war-in-the-brecks/

The archive contains hundreds of individual items, including photographs of Thor missiles being transported between bases, present-day images of the Barnham bomb store, reports on CND and Snowball protests over several decades, scanned copies of RAF Feltwell's *Rocket Review*, photographs of the Mundford ROC post and its volunteers etc. You are welcome to browse and download these, subject to any copyright restrictions noted there.

If you lived in or near the Brecks during the Cold War and have your own memories and pictures that you wish to share publicly with others, please email secretary@brecsoc.org.uk and they will be added to the archive. If you are reading the digital version of this report, you will find many highlighted links to detailed information on dozens of key topics, ideas and events that there was no space to include or explain in depth. Just click on them to explore in much more detail.

We hope you will find reading about the Cold War in the Brecks as fascinating as our project volunteers did when researching it, and that you will want to explore it in more depth.

Appendix: Project Activities and Outputs

Public Events

Launch meeting at Barnham Nuclear Bomb Store, 23 March 2019.
Launch meeting at RAF Marham Aviation Heritage Centre, 30 March 2019.
Norfolk Record Office visit and archival training for volunteers, 11 October 2019.
Oral History Training Day, Brandon Engine House, 6 December 2019.
Archive visit to Swaffham Museum, 27 February 2020.
Cold War Seminar, run by Dr Richard Hoggett, Brandon Engine House, 29 February 2020.
Landscape and Building Recording: online training session on 11 September 2020 and practical training and recording at Barnham Nuclear Bomb Store on 25 September 2020 *(see opposite)*, both provided by Dr Richard Hoggett.
Research Group meetings between the Project Manager Peter Goulding and core volunteers were held on 9 March 2020 (at Brandon Engine House) and on 16 June 2020 (by Zoom).

Oral History Interviews

Tony Garrod, 17 January 2019
John Dwyer, 6 December 2019
Tim Elliot, 6 December 2019
Teresa Squires, 6 December 2019
Alan Collins, 5 February 2020
Anonymous, 'A Farmer's Wife', 26 February 2020
Ray Kidd, 3 March 2020
Anonymous, 'Peace Camp Protestor', 14 November 2020
Chris Cock, 17 November 2020
Tony Powell, 11 December 2020
Dr Peggy Stubley, 23 December 2020

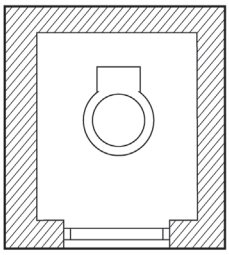
A total of 21 volunteers contributed to the project, 14 of whom received specific training in oral history collection, archival research and building recording. An additional 30 people attended the various meetings and events. More than 500 hours of volunteer time were donated to the project.

Former RAF Barnham,
Gorse Industrial Estate,
Barnham, Suffolk

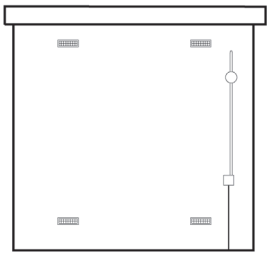
Type 'A' Fissile Core Store

Surveyed by:
Paul Warden, Alistair Graham Kerr
& Richard Hoggett

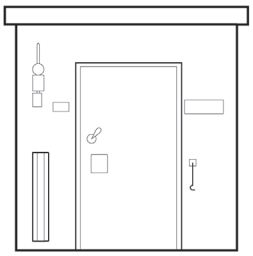
Date: 25 September 2020



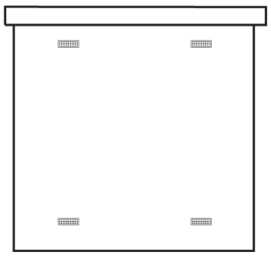
Groundplan



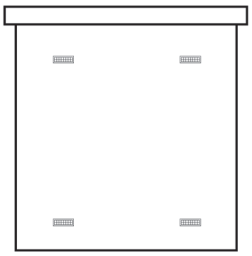
South-west Facing



South-east Facing



North-west Facing



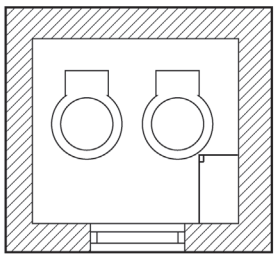
North-east Facing

Former RAF Barnham,
Gorse Industrial Estate,
Barnham, Suffolk

Type 'B' Fissile Core Store

Surveyed by:
Garth Tolmie & Richard Hoggett

Date: 25 September 2020



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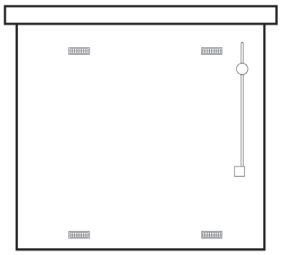

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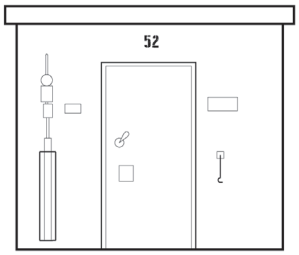

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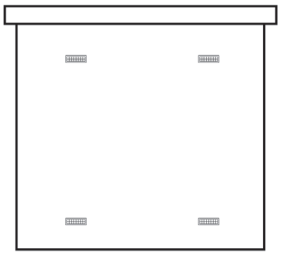
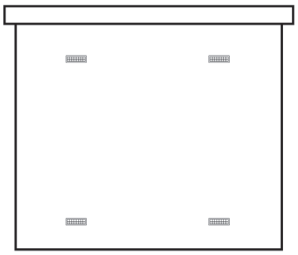


South-west Facing



South-east Facing

Extract from a detailed map of the Brecks, produced by the Soviet Union for military purposes. The primary source was published Ordnance Survey maps, which were then augmented with spy satellite data and a limited amount of 'on the ground' spying around military sites.

Courtesy of The Red Atlas: How the Soviet Union Secretly Mapped the World (https://redatlasbook.com)

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The Breckland Society was set up in 2003 to encourage interest and research into the natural, built and social heritage of the Norfolk and Suffolk Brecks. It is a membership organisation which works to help protect the area and offers a range of activities to those who wish to see the special qualities of this unique part of England protected and enhanced.

In March 2019 the Society was awarded a grant of £9400 by the National Lottery Heritage Fund for a new project, *The Cold War in the Brecks*. This report is a summary of the project and an overview of that period in the area's history.

The Breckland Society
www.brecsoc.org.uk