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and the founding of the UK's Royal Observer Corps' fallout
monitoring posts network**

BENNETT, Luke <<http://orcid.org/0000-0001-6416-3755>>

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Cold War Ruralism: civil defence planning, country ways and the founding of the UK's Royal Observer Corps' fallout monitoring posts network

Luke Bennett*

Short biography

Luke Bennett is Reader in Space, Place and Law in the Department of the Natural & Built Environment at Sheffield Hallam University. Following an earlier career as a solicitor specialising in environmental law, Luke's research now examines how law, spatiality, materiality and culture intersect within the formation, management and proliferation of specific place-types. His research has a particular emphasis upon industrial and military land uses, their spatial forms and the practices that sustain them. Luke has researched the rise and fall of cold war bunker-building in the UK. He is the editor of *In the Ruins of the Cold War Bunker: affect, materiality and meaning making* (London, UK: Rowman & Littlefield International, 2017).

*Sheffield Hallam University, Sheffield, UK

Corresponding Author:

Luke Bennett, Sheffield Hallam University, Department of the Natural & Built Environment, Norfolk 306, City Campus, Howard Street, Sheffield, S1 1WB, United Kingdom.

Email: l.e.bennett@shu.ac.uk

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Abstract

1954 saw the first public detonation of an H-bomb, a weapon whose radioactive fallout challenged existing spatialised notions of targeting and post-attack recovery by making a whole country vulnerable to the vagaries of drifting toxic clouds that drew no distinction between urban centres and rural periphery. In response, the UK government established a network of 1,518 underground nuclear fallout monitoring posts spread uniformly across the country. This article considers how planning for this new reality brought a diffusion of cold war urban anxieties and ways of doing into the UK countryside, but in a way that was awkward and approximate.

Keywords

H-bomb, civil defence, fallout, ruralism, urbanism, positive planning, nuclear war, cold war, bunkers.

This article considers the implications of the rise of the H-bomb for the United Kingdom's experience during the 1950s of "cold war urbanism", and that expression is taken here to encompass (1) the influence of cold war anxieties upon urbanists, their professional discourses and practices and (2) the production of built environments shaped by, or in service of cold war objectives. In short, cold war urbanism is how urbanists thought and built in response to the cold war. This article will pursue its investigation of the UK's experience of cold war urbanism primarily by presenting a case study that considers the planning and implementation of one of the few conspicuously cold war motivated building schemes actually undertaken in the UK: the creation of a network of 1,518 underground nuclear fallout monitoring posts spread uniformly across the countryside.

Situating urbanism & cold war urbanism

In looking at the UK experience, and in turning scholarly attention to rural areas rather than urban centres, this article seeks to open-up a new perspective on the study of cold war urbanism. To date scholarship on cold war urbanism has mainly been presented in a North American context¹, and has been conspicuously urban-centric². At one level this is unsurprising, as (as its name would suggest) the urbanist discourse itself has always been avowedly urban-centric. Throughout the 20th century urban growth was seen as a phenomenon needing evaluation and direction by dedicated urban-centric professionals: the urbanists. Whether in clearing slums, promoting 'new towns' or pioneering new, efficient road schemes urbanists' mission and their professional identity was always directed towards urban centres. However, this article will take urbanism to have become,

by the mid 20th century, a pervasive mode of thinking about and implementing the planning and design of built environments *per se* and whose reach was not by then entirely confined to urban centres.

By 1945, buoyed by an ascendant modernism and an unrivalled public appetite for state-led intervention in the wake of the command economy years of World War II, urbanists were well-placed to summon forth more efficient modes of settlement as part of post-war reconstruction, and they had a broad public mandate to unleash change upon urban-centres through sound planning, good design and technocratic unsentimentality. As Klemek has shown, on both sides of the Atlantic³ (though each via different processes) professional urbanists – and particularly planners – were in the ascendant and it was no surprise that others would soon see them as having a key role to play in responding to the threat of nuclear war that the rise of cold war tensions brought from 1948 onwards. Thus campaigning U.S. nuclear scientist Ralph Lapp could declare in 1949 that the American public's future vulnerability lay "in the hands of city planners"⁴.

The cold war urbanism thesis posits that the cold war's real – albeit at times quite subtle and indirect – ideological and material impacts and influences can be detected in the discourse, collaborations and projects of urbanists (principally urban planners and architects) in the first two decades of the cold war. Over the last 15 years scholarship has sought to frame and to investigate the logics and effects of this cold war urbanism, and specifically to show how urbanists came to be co-opted into the cold war effort – on the home front at least. In an important – and early – contribution to this field Tobin⁵ showed how US postwar suburbanisation was at least in part facilitated by cold war concerns to decentralise both war production and residential settlement, so as to reduce the ease of Soviet targeting of existing urban concentrations of industry and population. This facilitation was subtle and not coercive, but acted out via a combination of fiscal incentives and discursive support. A good example of the latter is the US Congress approving legislation for a massive expansion of the interstate highway network in 1956 after its promoters ascribed city-evacuation and other defence benefits to the new infrastructure. Thus, both Farish⁶ and Light identify cold war urbanism as primarily a mutually reinforcing intellectual compact – with goals like population dispersal presenting as an opportunity for urbanists and defence intellectuals alike. As Light puts it:

"During the 1940s and 1950s...civil defense initiatives offered important social settings for several groups – defense experts, atomic scientists, urban planners, and city managers – to come together in conversation about topics from highway planning to shelter design to future city form"⁷

Meanwhile Monteyne has shown how architects became willingly co-opted into shelter survey programmes and promoted shelter designs (e.g. as bunker architecture for civic buildings). In his account of the US' experience of cold war urbanism Monteyne observes both that much of the activity was consumed in plan-making that never materialised in any particular building projects, and also that the US experience was "middle of the road"⁸, in comparison to the compulsory shelter building policies enacted in countries such as Switzerland and the Soviet Union and at the other pole – the zone of lesser activity than the

US – the ambivalence seemingly to the fore in the UK, where even less was actually implemented.

The UK's experience was not, however entirely passive to the cold war's threat. In the period 1945 to 1955 the UK Government and its planners sought to interpret the cold war's threats to the nation's built environment, and how best to plan for, and materially respond to such threats, albeit within the nation's constrained political, economic and geographical context. The 'British way' entailed considerable waves of strategic planning endeavour by many disciplines (some urbanist, others not), at least in the cold war's first decade. This planning sought to understand – and to spatialise – the new realities likely to be presented by ever greater Soviet nuclear offensive capability, and to devise contingency plans of how a future war could be responded to on the home front. But, as Grant⁹ has noted, much of this activity was confined to paperwork – in the UK the physical implementation of cold war related building projects was very limited indeed, and in contrast to the US experience there were no surveys of the built environment seeking out shelter potential amongst existing building stock, and there was no prototyping by institutions or individuals about shelter design and/or the dual purposing of conventional building projects. And there was certainly no actual programme of public shelter building.

This instinct to *plan* for nuclear war needs consideration, as it appears to form the base-line for cold war urbanism, and an analysis of the UK experience of plan-making will be presented below. However, arguably the true test of the impact of the cold war upon urbanism should be an assessment of what was actually *built*, the practices by which that building was achieved and (in the UK experience at least) where that development actually occurred. And with regard to *where*, this article will show how the UK's limited material response within the built environment to the threat of nuclear war often took place away from urban centres, and where it took the form of nuclear bomber bases, continuity of government bunkers (which have been extensively documented by others¹⁰) and in the underground nuclear fallout monitoring post network that will be the subject of this article's case study. This apparent dislocation of the UK's cold war urbanism – its decamping to the countryside – in turn raises questions about what happens when urbanism is called upon to act away from urban centres and how its practices, concerns and preoccupations may manifest differently there and/or have to adapt. In short, it requires us to characterise a cold war ruralism as a previously under-explored variant of cold war urbanism.

But before turning to the case study, we must set out the journey that leads to it. To do so we must first consider why in the late 1940s the UK actually seemed primed to develop a cold war urbanism more potent than that which scholars have charted in the US, and we must then explain why by the early 1950s (even before the rise of the H-bomb) that prospect had come to appear ever less likely.

Understanding why cold war urbanism didn't flourish in the UK

As the Second World War drew to a close in 1945 Britain emerged from that conflict with urbanism in the ascendant, its rise fuelled by the "emergence of a mass consensus for planning"¹¹. Schemes of inquiry between the wars had culminated in reports issued during

the war that were now set to feed directly into the incoming Labour (socialist) government's political programme of delivering marked improvement of the social and urban realm by utilising all of the planning and command economy tools honed by the state during the war years. As Cherry put it, in this era planners felt valued, listened to and well-armed now as

“a new machinery of government was established and far-reaching planning legislation provided the basis for a freshly devised planning system. A mood of post-war reconstruction charged planning with new responsibilities. The profession responded with new-found self confidence.”¹²

Urban planning had – it seemed – politically come of age, the post-war welfare state consensus providing a driving engine for an energetic urbanism, expressing as both a now-confident professional practice and a moral mission. And it was assumed that the New Jerusalem would largely be built by the state, and that money would be no object, as it

“came to be argued that if weapons of war could be produced in such profusion, seemingly regardless of expense, then community facilities in the subsequent peace could not be denied; tanks, aircraft and ships would give way to houses, schools and hospitals, just as much by the effort of the state. By 1945 it could safely be assumed that government would continue to play a major role in directing the economy.”¹³

The immediate post war years were therefore an era of “positive planning”¹⁴: with the planners leading the assault in urban renewal campaigns sweeping away the illogical clutter of the *ad-hoc* past. Nowadays we see spatial planning as balance-finding, amelioration, controlling externalities – rather than directive, but we need to appreciate that under high modernism it was intended to be directive, with the state and its local organs leading the way. In reflection of this the 1947 Town & Country Planning Act had framed development as essentially a plan- and local government-led process, specifically placing an emphasis on local government as the developer of most houses, schools, factories and shops (and under the oversight of central government strategic planners). In this iteration of the spatial planning system it was assumed that the role of “negative planning” (planning control over private development) was but a minor feature of the system.

The British post-war model then saw the state, and its planning activities, as the main agent of public betterment. Robert Fishman has defined planning as “collective action for common good”¹⁵. Working within a progressive urbanist lens, planning's goal has always been improvement of the socio-spatial circumstances of a population, in short a project aimed at making things better. The modernism at the heart of the mid-20th century planning ethos believed that improvement doesn't happen within the built environment by accident, but instead through co-ordinated expert-enabled design. The post-war consensus (still) saw virtue in a “meliorist administrative state”¹⁶ that was “imposing rational new form on cities”¹⁷ fuelled by a faith in science and progress, and this was the era in which such schemes could actually be implemented (rather than just theorised). By the early 1950s British urban planning was technocratic rather than utopian – fuelled by functionalism, physical determinism and the experience of total war. Thus the ascendant, mid-century

planning instinct represented a modernist faith in the ability of the state to analyse and predict, so as to decide proactively how to provide for such improvement of the common good. But implicitly, a planning-driven urbanism that sought to make things better through technocratic foresight and intervention, also needed to mobilise the tools of planning in order to address threats which if unanticipated or unaddressed might otherwise make the common good *worse*. Furthermore, as Michel Foucault¹⁸ argued, the most fundamental provision that a state must ensure, in order to maintain its legitimacy, is the protection of its public (something that became increasingly difficult to promise in the era of thermonuclear war, as we will see below).

The modernist planning instinct was thus particularly strongly conditioned in the UK to search for plan- and state-led solutions to the perceived problems of the day – for the reflex reaction of post-war planners was “something must be done”. The cold war’s risk of nuclear war was one such challenge for which planners were expected to find a solution. However, this challenge, and its escalating costs and potential scale of destruction, would eventually come to set the limit condition for the British state’s confidence in its ability to plan for the provident management of its population, and whether urban or rural.

In acclimatising to the era under investigation we must appreciate that “planning” had a wider meaning and remit than we might ascribe to that term now. The Second World War had been won at least in part through the British state taking unprecedented powers of direction over all aspects of social and economic life. During the war the civil service had doubled in size and new ministries of economic control had proliferated. Central government was full of economic and war planners exercising plan-led oversight and direction over a near-infinite range of industries, territories and resources.

All of this planning had been in aid of the national war effort. Thus in rising to the new challenges posed by the cold war, planning for national defence in an atomic war was assumed to require holistic, multi-disciplinary plan-making in terms of both forecasting attack scenarios and the development of workable solutions to their effects. Thus attempts to predict and provide for civil defence in the face of nuclear threat was a type of planning, and one which clearly had spatial implications, but which was not exclusively concerned with the efficiency and direction of land-use *per se*. Accordingly, in examining the fate of cold war urbanism in the UK we must not overlook civil defence planning (or ‘home defence’ or ‘war’ planning as it might have been more familiarly characterised in the 1950s). Indeed it is this variant of planning that led to the creation of the network of monitoring posts to be considered in this article’s case study.

At the end of the Second World War the assumption was that home defence would remain as important as military defence. This was reflected in the Civil Defence Act 1948 which required local government bodies to plan and implement civil defence measures. It also established the voluntary Civil Defence Corps in 1949. By the end of the 1940s civil defence-related planning measures included “evacuation planning, plans for the “due functioning” of essential industry and the creation of additional port facilities”¹⁹, all of which had important potential implications for urban and regional planning.

Civil defence planning and urban planning then, grew from the same roots and had a strong conceptual affinity. In particular, calls for the redistribution of urban centres and port capacity during the late 1940s and into the 1950s (to reduce the vulnerability of the UK to urban-centred atomic bombs targeting the few key conurbations) fitted well with the inter-war era's anxieties about the so-called "the regional problem"²⁰ of uneven industrial and economic fortunes as reflected in the Barlow Royal Commission (established 1937, reporting 1940) – on *The Distribution of the Industrial Population*). Indeed, an express link had been made in the Civil Defence Act of 1939, which had imposed a duty on urban and regional planners to avoid dangerous concentrations of population. Civil defence planners' calls for dispersal of industrial and ports capacity persisted throughout the 1950s, with the 1955 Strath Report²¹ (which we will discuss below) avowing a faith in a substantive dispersal of government and industry as "the only sure means of reducing economic risk from hydrogen bombing"²², albeit that such pronouncements increasingly took on an unrealistic – undeliverable – air.

Through such anxieties about the vulnerabilities of built-up areas to bombing we see a continuation of pre-nuclear anxieties into the cold war era. Initial attempts to appraise the A-bomb threat sought to view it as an intensification of conventional city bombing²³, reappraisal in 1953²⁴ saw the validity of this approach challenged and then comprehensively overthrown by the Strath report in the wake of the rise of the H-bomb. In this succession of attempts to model and plan for the effect of a nuclear war upon the UK's built environment, the scale of destruction increasingly targeted at urban centres took planners to the limits of their imagination, and beyond the limits of their ability to provide for solutions through planning: the evacuations that their plans envisaged could never work beyond the confines of their convenient reality-simplifying assumptions. In the cold war era planners found themselves asked to contemplate the ultimate contingency – a thermonuclear war, and the extreme exceptionality of this contingency would prove to be a fundamental challenge to the ascendancy of the planning ethos in the post-war era. Indeed, even at the dawn of the atomic age, in the aftermath of the 1945 bombing of Hiroshima and Nagasaki, planners had to grapple with a fundamental step change: that a single A-bomb would be likely to produce the same number of fatalities as the 60,595 deaths caused by all enemy air raids over Britain during the entirety of the 1939-45 war, and that just six A-bombs would produce the same amount of housing damage caused by five years of German bombing. As Matthew Grant²⁵ has shown, during the 1950s the rapidly developing power and number of nuclear bombs likely to be targeted at the UK (alongside recurrent post-war financial crises) increasingly outstripped the ability of planners to plan for the defence of the UK population, two thirds of whom were living in towns of 50,000 or more by the 1950s.

This impracticability in turn led to an erosion of the UK government's commitment to (and funding of) civil defence during the 1950s – with post-war planners' efforts to provide for systems of national 'recovery' (i.e. restoration to pre-attack conditions) giving way from 1954 to a more modest aspiration of a 'best efforts' support of 'life saving' (i.e. ameliorating some of the otherwise irreversible changes inflicted by the attack). Then in 1957 this finally gave way to the bare provision of a 'control system': an attempt to perpetuate a semblance

of martial governance (and nuclear retaliation capability), but without the promise of assistance to affected citizens.

At the same time that Britain's civil defence planners were anxiously considering what could be done to respond to cold war threats, urban planners were setting to work to implement the fruits of their urban and regional plan-making. But there proved to be little cross-over between the two endeavours. The roll out of post-war urbanism appears to have been little influenced or affected by cold war anxieties. Thus even as regards the desirability of industrial and residential dispersal, an issue that had striking similarities of goal between civil defence and urban and regional planners, we see little if any co-option of civil defence justifications in support of urban and regional planning projects.

Thus, without cross-referencing civil defence planners' goals, British urbanists pursued residential and industrial dispersal projects for their own ends. On the residential side, urbanists energetic implementation of the New Towns Act 1946, saw eight new settlements founded to transfer population away from London by 1951, echoing the spirit (if not the numbers) of Sir Patrick Abercrombie's 1944 Greater London Plan²⁶ which had recommended the relocation of over 1 million people out of London in order to achieve a reduced population density, both in London and in the New Towns. But then in the 1950s the construction of the New Towns faltered, with urbanists' power reducing somewhat (although it recovered again in the 1960s). This was in part due to political control having passed to a Conservative administration who favoured a less directive approach, and who introduced the more facilitative Town Development Act 1952 in its place, which sought to encourage the growth of smaller towns at a distance from big cities. Meanwhile in pursuit of industrial dispersal, urbanists facilitated state led initiatives under the Distribution of Industry Act 1945 (which picked up the Barlow Commission agenda of dispersing industry away from London and the South East). But this dispersal agenda was employment-driven and also took an increasingly old fashioned view of what industry was, applying no controls on the service sector or office developments (concentrations of economic and human capital who in civil defence terms were equally in need of dispersal). Like the New Towns, industrial dispersal saw the bulk of its activities and successes in the late 1940s, and by the early 1950s the amount of effort and money spent state-constructed industrial estates and factories under this dispersal policy had already markedly reduced amidst the change of political and social tone, and the lesser regard accorded to planners and planning by the public in the 1950s.

An early example of urban and regional planners' apparent ambivalence towards civil defence related dispersal considerations is the fate of an application in 1948 for a new power station to be built at Poplar, East London close to the docks, dense population and existing electricity generation plant. As Grant shows, such citing was the polar-opposite of what the civil planners were then recommending in terms of dispersal of likely targets away from urban centres. The development was opposed as foolhardy by the Air Ministry, but it went ahead anyway, the realities of post war need and convenience having won the day over cold war anxious contingencies. For Grant "Poplar demonstrated the inability of defence planners to override economic policy-makers".²⁷

With such bruising civil defence planners perhaps saw little reason to seek the support of urbanists in the development of their own schemes, and of which few saw any physical implementation. Throughout the 1950s the Government wrestled with the conundrums of evacuation in time of war. Such policies were considered to be more affordable than those of constructing shelters, but very difficult to plan operationally. Implementing evacuation would have required local authorities to survey every business in their area to determine which firms were essential (and for whom the workers should be excluded from evacuation). Meanwhile, the construction of shelters within new buildings was generally thought a good idea, but very expensive of money and materials, and labour too for it would have also have required a force of surveyors to police that construction requirement. Neither policy progressed beyond paper-based discussion at central government level. Only the Port Emergency Scheme can be presented as a successful – and implemented – instance of a civil defence instigated development scheme. This saw a programme of central government investment to reduce dependency on the ports of London and Liverpool by improving facilities and anchorages around the coast. Planning work for this scheme was complete by 1951 and its implementation was largely achieved by end of 1953 (although with some delays due to steel shortages). But, by the time of its completion the scheme was arguably already redundant. The goal had been to secure Britain's ability in the wake of an atomic attack to continue to supply its military forces fighting Soviet forces on the European continent, and to continue receiving imports of food and other vital resources. But by the early 1950s defence planners had already concluded that, even with the benefit of the port dispersal scheme, in the event of a nuclear strike the UK would cease to be capable of either activity.

In the first 10 years of the cold war responsibility for civil defence planning lay with the UK central government's Home Office, and its plan writing continued to attempt to address the unthinkable, and to lobby for civil defence funding, but it did so in the face of the Ministry of Defence's increasing pessimism about the cost effectiveness of civil defence (the military instead putting their faith – and the bulk of funds allocated to addressing the Soviet nuclear threat – into Britain's nuclear weapons and the policy of deterrence via mutually assured destruction). This intra-governmental tension came to a head in 1956 where in a six month period civil defence funding received a near fatal mauling in a round of emergency government cuts, falling from £70M to £30M and then remaining below £20M p.a. for the following five years. Set in this context civil defence's achievements after 1956 could only ever be tokenistic and only elements of civil defence that could be justified as supporting the nuclear deterrent could be taken forward as development projects. Furthermore, by 1956 – as we are about to see – the rise of the H-bomb had made everything even harder to plan or provide for given rapidly increasing number and power of nuclear weapons, the relative geographical smallness and the population density of the UK, its proximity to the European theatre of war and its own primary target status as the European home of the UK's and the US' atomic bomber fleets. The rise of the H-bomb also opened-up opportunities for opponents of civil defence to undermine it at local government level, as was the case when in April 1954 Coventry City Council announced cessation of all civil defence measures, the Town Clerk having declared it to be a waste of public time and

money in the face of the recent announcement of the first publicised testing of a hydrogen bomb²⁸.

When the H-bomb came

On the 1st March 1954 the United States had detonated a 15 megaton (MT) thermonuclear hydrogen bomb (codenamed 'Castle Bravo') at Bikini Atoll in the Pacific Ocean. Whilst not the world's first thermonuclear detonation (the US' first test had been carried out secretly in 1952), this highly publicised event sent shock waves around the world, as that detonation (an explosion 1,000 times greater than that of the Hiroshima bomb) ushered in a new scale of nuclear destruction. Whilst atomic bombs (fission devices of the type used upon Hiroshima and Nagasaki in 1945) could be conceptualised as anti-urban munitions, H-bombs (powered by thermonuclear fusion) were quickly revealed to be not only anti-metropolitan in the range of their explosive effects but also regional (and potentially nation-crossing) in their ensuing atmospheric pollution effects. Even a small H-bomb, it was revealed, could easily lay waste to an entire city, with a five MT detonation destroying housing within a three mile radius of ground zero, and setting off a firestorm consuming the combustible residue within much of that zone.²⁹

In addition to its massively enhanced explosive force, the H-bomb brought with it new effects: radioactive fallout. The effects of nuclear detonations would no longer be localised effects confined to the site of detonation. Instead they would inflict a new, mobile and unpredictable regional effects. This was brought to public consciousness in 1954 through press reports of the experience of the 23-man crew of the Japanese fishing boat, the Lucky Dragon, which found itself unwittingly exposed on the high seas to Castle Bravo's fallout cloud at a point 82 miles from ground zero. Seven crew members were hospitalised, and six months later, Aikichi Kuboyama – the ship's radio operator – died from radiation poisoning after an agonizing (and publicly observed) illness.

As Peter Sloterdijk has noted, the 20th century saw the rise of a new form of anxiety – that related to threat from the air ("the Atmoterrorist Model"³⁰). The first world war had seen the opening-up of the sky as a new arena of warfare, and in the form of poison gas had hinted at the lethal potentiality of atmosphere itself. The H-bomb marked a new chapter in this development. The H-bomb fallout problem came at a time when UK population and policy makers were already sensitised to atmospheric pollution³¹ – the great smog of December 1952 had shown how polluted air could kill (at least 4,000 fatalities and 100,000 made ill), and would lead via the ensuing 1956 Clean Air Act to the imposition of a step-change in urban fuel use with the technocrats introducing comprehensive restrictions on the burning of fossil fuels within designated "smoke free zones", and mandating new technologies (smokeless fuels). The problem of how to respond to fallout and its mobile effects sent governments into an equivalent flurry but the findings were far less palatable, even in the highpoint of interventionist urbanism. Towards the end of 1954 a secret committee was set up under civil servant William Strath to report on *The Defence Implications of Fall-Out from a Hydrogen Bomb*, and Strath's committee presented their findings to the government in March 1955.

Interim advice issued to the Cabinet in November 1954 mapped out the harsh predications of blast and fallout from a 10 MT H-bomb detonation³². Radiation released from this single detonation would affect an area of 5,000 to 6,000 square miles: with an inner zone of around 270 square miles in which radiation would be so powerful that all life would be extinguished. Outside this area the danger would progressively lessen with distance – but with a fallout plume of radioactive debris sucked up into the atmosphere, likely to be 170 miles long and 20 wide in average wind conditions. Anyone caught out of doors within this plume within the first day after the blast would be likely to receive a lethal radiation exposure.

As Strath's report subsequently concluded: a "hydrogen bomb war would be total war in a sense not hitherto conceived. The entire nation would be the frontline"³³ as just ten 10 MT air-bursts close to the western seaboard would via the agency of the prevailing winds contaminate much of the UK mainland and render "normal" life impossible (and with life and property obliterated by blast and fire on a vast scale). Furthermore, thousands of square miles of agricultural land (and their standing crops) and open water supplies would also be rendered useless.

Thus the harm inflicted by an H-bomb needed to be assessed meteorologically – for it represented an interaction with complex natural atmospheric processes, producing an uncertain, mobile and not at all urban-centric lethality. This fundamentally changed the risk-geography that the civil defence planners would have to grapple with, for now:

"the threat of fallout necessitated a reconceptualization of the British state: now for war planning purposes it had to be imagined as a series of zones of contamination risk mapped by imagined fall-out plumes in a "hyper-real" post-attack topography"³⁴.

The implications were clear (and noted on both sides of the Atlantic) as US Federal Civil Defense Administrator, Val Peterson, in conference with state and city officials in December 1954 had already publicly conceded, in the event of nuclear war "there is no farmer or rancher who may not be right in the middle of the fallout"³⁵, and their ground and crops would be rendered toxic. The most dangerous long-term by-product of an H-bomb explosion would be the Strontium 90 fraction of its radiation, because of its relatively long half-life of 28 years and its propensity to accumulate in the food chain through uptake in plants, and onward through cows and their milk and into human bone.

In 1958, after working upon it in secret for three years, and with the Prime Minister and his Cabinet wavering during that period over what and when to release information to the public about fallout and what could be done about it in terms of civil defence³⁶, the UK Government finally published, *'Home Defence and the Farmer'*, guidance to British farmers on the threats of fallout³⁷. The publication publicly acknowledging that the peril of H-bombs extended far beyond the range of their explosive effects and also (even more tellingly) admitted that (even after those three years of rumination) "knowledge about the effect of fall-out in farms is still incomplete". Couched in the clipped, officious language of the time this admission featured an implicit assurance to the reader that a technocratic solution to

this new problem would be found soon. But this reassurance was hollow, amidst the planners' growing pessimism about their ability to offer salvation. Tellingly, the remainder of the document then instructs the lone farmer on how best to try to protect himself, his crops and livestock by his own efforts – as reflecting civil defence's post Strath lurch to a "self-help" posture, at least as regards civilian protection.

Notably a paragraph in the farmers' finalised guidance strove to encourage peacetime configuration of new farm buildings to incorporate principles that would also assist in the event of nuclear war, thus:

"Even the layout of buildings, yards and roads would help, not only in peace time but in fall-out conditions in war time. A good layout would help the farmer and his men to reduce the time spent out of doors and so minimise the dose of radiation they might receive. So efficient farming is not only in the national interest and the farmers' interest in peace time, but it is a way [also] of preparing for safer farming if another war should occur."

Here we see the civil defence planners acknowledging that the countryside has its built environments too, and that to be persuasive planning for civil defence needs to be linked (somehow) to the exigencies and logics of peace time operations (because the contingencies of war alone are insufficient incentive to change). This urging for spatial efficiency in the development and use of farm buildings also smacks of urbanism's quest for improvement of urban environments through purposive designs. It is a sign of cold war urbanism's penetration into the countryside.

Strath implicitly, and *'Home Defence and the Farmer'* explicitly, signalled that nuclear warfare could no longer be conceptualised in an urban-centric manner. The threat posed by thermonuclear war was not just that of urban destruction, it was now nation-wide, and that this included the countryside that lies between urban centres. In the light of such pronouncements it was clear that planning to address the effects of nuclear war was not solely a matter of urban defence, and there would be a need to develop a system of warning and monitoring that could address this meteorological, dynamic, whole-country situation posed by fallout. Set against this backdrop any neat binary equating "urban" with target and "rural" as safe fell away. Rigid separation of town and country has always been simplistic, but fallout sharply emphasised this. Even before the rise of the H-bomb portions of the countryside were co-opted into the service of urban areas, or targets in their own right, for example as bomber bases. These alone summoned the prospect of 70 nuclear strikes upon the countryside, for in the 1950s the UK Government's publicised policy was to disperse nuclear bombers to over 70 airfields around the country in time of crisis.

Situating cold war ruralism

This article's case study will observe the manner in which Britain's civil defence planners turned their attention to the countryside in the search for a solution to country-wide peril now posed by fallout. In looking at how the UK's cold war planners devised and implemented their programme to build over 1,500 nuclear fallout monitoring posts in response to the challenge of the H-bomb, the case study will show how a cold war ruralism

was forged where the imperatives of cold war urbanism met the tempering forces of the countryside, at least as regards the insertion of the numerous but individually small ROC posts.

As signalled at the start of this article, by the 1950s urbanism was not entirely confined to urban-centres, it had become more universalistic in aspiration. Indeed an early theorist of urbanism, Louis Wirth³⁸ had defined urbanism in 1938 as a mode of living, which whilst typified by the urban density of cities, was not exclusively found there. Wirth's formulation presented urbanism as a condition of modernity, and argued that urbanism's characteristics of mobility, heterogeneity, transitory relationships and acting through groups might be found not only in urban settings, but also beyond the city because urbanism's mode of living has a tendency to act outward upon its periphery drawing the spatially non-urban into urbanism's orbit (and co-opting it into service of the urban). Thereby – where necessary to the interests of modernism and the metropolitan realm – the non-urban becomes infected with urbanist ways and priorities. In a material sense this is what the ROC post project entailed, for at its inception this network was still largely justified as an urban-defence measure. This physical encroachment points to a symbiotic relationship between certain uses of rural land and the sustenance (or defence) of the urban. It also appears to reflect Shirley's³⁹ conceptualisation of the countryside as a continuum within which corridors and outposts of urban-supporting apparatus and modes of living penetrate. Shirley illustrates her argument by reference to roads, but the ROC posts fit the mould too.

This symbiotic connection is nothing new, but it is something that was repeatedly suppressed in conventional representations of the countryside circulating in the mid 1950s. Accordingly, in 1955 pioneering landscape historian W.G. Hoskins could write scathingly of a blighted cold war ruralism in which "Constable's and Gainsborough's sky" was sullied by the atom-bomber and of the "England of the Nissen hut, the 'pre-fab' and the electric fence, of the high barbed wire around some unmentionable devilment"⁴⁰, in doing so implying these to be recent, unnecessary and reversible accretions. Studies to date of the impact of the cold war upon the British countryside have tended to perpetuate this separatist or aesthetic view of the rural. At its simplest the urban is seen as the locus of modern warfare and the countryside a place of retreat from it. This cold war pastoralism is can be found in arts and humanities scholarship that seeks to capture the special (often abandoned) effects of cold war infrastructure upon rural sites⁴¹. These studies hold a latent view that the countryside is being sullied by military encroachment. Meanwhile others have ventured onto rural military sites to examine military-ecological interactions⁴², and once again from the point of view that the military presence is an encroachment, rather than a longstanding – and necessary – feature of the countryside.

Each of these approaches has their virtues, but they also each (in their own ways) perpetuate a view of the impact of the cold war upon the built environment that presents it as qualitatively or quantitatively different in the countryside compared to that in urban centres. They also lose sight of the ubiquity and mundanity of infrastructural-urban incursions into the countryside (for instance reservoir construction, motorways and trunk roads, or electricity pylons), and of the ready absorption of these urban-serving tendrils into

the rural landscape and its standard practices of place management. These studies also tend to foreground the most dramatic military sites (and whether in terms of their architecture or deadly purpose). By eschewing the offensive military sites and the continuation of government bunkers in favour of the physically more modest ROC post network this article therefore is a response to Grant's call for studies of the cold war and its history to balance up previous concerns to unearth and expose the conspiracies and exceptional concrete structures of the secret state by explicating the "hitherto unknown normalcy"⁴³ of the cold war and its impacts upon places.

Planning the ROC's fallout monitoring role

Whilst the largest UK cold war instigated building project (by number of sites at least) the ROC post programme entailed insertion of small, individual concrete chambers into over 1,500 rural localities (often situated – for accessibility – at the edge of playing grounds or arable fields). Taken together these posts formed a national monitoring network, but due to the requirement for them to be spread out grid-like across the face of the country, each individual post was isolated, a modest lone cold war totem each set approximately seven to ten miles distance from its neighbouring posts. As we shall see, for that reason it was quite exposed (both physically and socially) to the pressures of its local and non-cold war focussed circumstances. But briefly before doing so, we must explain how the ROC came to be given its new monitoring role.

The arrival of the H-bomb proved to be timely for the Royal Observer Corps. Established in the inter-war years, the Corps (a volunteer service affiliated to the Royal Air Force) had provided a network of aircraft spotters and plotters during the Second World War, helping to supplement radar particularly regarding inland, low altitude aircraft movements. The ROC was stood down at war's end in 1945, only to be reactivated a few months later as cold war tensions emerged. Stationed in predominantly rural, above-ground look-out posts the ROC had literally watched the skies, the ROC were trained to spot and plot a new generation of aircraft, but the increased speed and altitude of jet aircraft, and the further development of radar technology threatened the relevance of the ROC by the mid 1950s (with the subsequent rise of ballistic missile technology in the late 1950s further undermining this role). Air Ministry records reviewed at the National Archives for this study show that in the early 1950s the ROC limped on as an organisation increasingly in need of something to do. The advent of the H-bomb and its fallout threat, proved to be its salvation, for in 1955 the Strath report called for a national warning and monitoring organisation be established to gather and co-ordinate nuclear blast detection, and for the measurement and the plotting of fallout plumes, as a key response to the H-bomb threat.

In advance of Strath's report, the Home Office had also been trying to work out what to do about fallout. In 1953, it had begun a series of studies to investigate how to record the fall of A-bombs, spread of fires and general conditions on the ground and potential development of 'Regional Observation Posts'⁴⁴ situated around the peripheries of likely target areas. At first they had considered such monitoring to be a task suited to fire brigades as part of the air raid warning system, for the likely zone of effects were thought to be almost exclusively urban in nature. The ROC had been discounted, because its observation

network was largely rural. But the rise of anxieties about how to respond to the H-bomb's fallout saw the ROC's rurality suddenly transformed from a negative into a positive feature.

A Home Office file⁴⁵, titled "ROC as fallout monitors" charts this reversal of fortunes, which begins with the ROC being sent a copy of the account of a two-day workshop aimed at exploring the consequences of fallout, which was held at the Civil Defence Staff College, Sunningdale in February 1955. The civil defence planners' simulation postulated a 10 MT bomb exploding at ground level in the north-west corner of Birmingham. A fallout plume was then calculated to have spread eastwards, reaching Great Yarmouth nine hours after the detonation. The plume was marked via four ellipses – each defined to represent a particular level of radiation exposure hazard.

The narrative for the exercise⁴⁶ notes that "the information on weapon effects at present available [is] sketchy and could not be relied upon", (and furthermore that the exercise's assumption of a single H-bomb detonation did not reflect the reality of multiple targeting). It was noted also that this was the "first study of its kind on the problem of fall-out" and that "there are no plans yet formulated" upon how to respond to this new challenge. This was therefore a simulation through which the planners hoped to learn what to do. Evacuation was shown to be impracticable and thus sheltering from the plume until it changed direction and/or radiation levels subsided was shown to be the most practicable response: thus buildings attained a new significance, offering the prospect of now-vital shelter from fallout even in peripheral areas unlikely to be within the range of a weapon's urban-centric, built environment destroying blast and fire effects. And understanding how the plume and its radioactivity was dynamically changing (and where and for how long to shelter indoors) required a monitoring network that could cover the whole country and which would be resilient enough to survive the nuclear blasts. It became clear that any hope of national survival depended upon knowing how the fallout plumes were behaving and in 1956 the UK Warning & Monitoring Organisation (UKWMO) was established to co-ordinate this role. In May of that year the ROC was identified as the best-suited organisation to take on the monitoring role, as UKWMO's field force.

Tracing cold war ruralism within the implementation of the ROC post programme

The case study now presented considers how the ROC fallout monitoring programme was implemented and in examining this seeks to identify both how civil defence planners projected urbanist methods and concerns onto the British countryside, and how in turn countryside ways came to act back upon that encroachment so as to produce a further diluted UK experience of cold war urbanism: cold war ruralism.

Pruitt⁴⁷ has contended that law's remit within the countryside is necessarily vaguer due to the absence of urban solidarity and its constant reinforcement of discursive systems and conformity to them. Something similar may be said of the writ of the cold war planners: that the countryside was harder to systematise than were the urban centres. Instead implementation of any plans or body of ideas in the sparsely populated countryside is likely to be slower, more approximate and more exposed to the confounding factors of other local priorities and influences. In the following discussion of the physical implementation of the

ROC's new role and construction of the subterranean "protected accommodation" provided to support it, we will encounter examples of these effects and in doing so glimpse cold war ruralism as a set of practices and accommodations, characterised by a certain level of pragmatism.

We will spend most of our time dissecting the roll-out of the ROC posts' protected accommodation, but before doing so can draw some instructive insights from a slightly earlier attempt to modernise the ROC and its sites – a scheme that saw a direct incursion of urbanist building methods into the heart of the countryside.

Upon reactivation of the ROC in January 1947 many of the wartime lookout posts were found to be in a dilapidated condition (these often having been hastily improvised wooden structures assembled by enthusiastic volunteers rather than a co-ordinated national construction programme). Accordingly⁴⁸, early in 1951 the Air Ministry had sought tenders from industry to provide purpose-built accommodation: shelter from elements, and a stable, level platform from which to track passing aircraft. Orlit Ltd were contracted to supply prefabricated shelters, with factory-made precast concrete sections being designed and supplied by Orlit in a manner that suited transport to often remote sites. Orlit had produced thousands of air raid shelters during the Second World War and was by 1951 involved in the prefab (replacement housing) programme in the immediate post war period. In addition to these physical works, the programme also saw the Air Ministry taking steps to legally regularise and/or extend land agreements for existing sites or to relocate sites to more favourable positions.

Thus in this project we see the Air Ministry embracing a centralised, rationalistic "tidying up" of local wartime-era improvisation, both as to procurement and physical construction, very much embracing the "system building" ethos of urbanist high modernism. Orlit commenced construction of the "Orlit Visual Reporting Post" in 1952, with the precast panels then erected by local construction firms – pinning or bolting the precast panels together to form one or other of two standardised configurations: Type A (structure laid directly on the ground) and Type B (platform raised on four 6 feet legs). 413 Orlit posts produced (207 of Type A and 206 of Type B) with construction concluded by 1956 (by which time these structures were already redundant: the ROC's engagement in aircraft tracking already at an end in all but the east coast, and its vulnerable nuclear airbases).

Furthermore, by 1956 attention was already turning to the construction of subterranean protected accommodation at ROC post sites to enable the ROC to take on its blast and fallout monitoring role. The ROC's existing sites would be used wherever possible, and suitable protected accommodation would be installed at them. Nuclear test conducted by the US (at Nevada) and the UK (at the Montebello Islands, in Australia) had shown that shelter underground could act as protection against blast waves and also against fallout. It was therefore decided that the ROC would need underground bunkers (known as protected accommodation) from which to undertake their monitoring and reporting activities.

By May 1956 the Home Office had decided its requirements for the protected accommodation. These would comprise a rectangular concrete box (measuring 19ft x 8ft 6in

x 7ft 6in), divided into a ladder well (leading down 15ft from the post's access hatch), a small toilet compartment and a main room combining working and sleeping accommodation for the four-man crew. The structure would be formed in situ in an excavation and then backfilled and domed with 3 feet of earth. It would be served by manual ventilation, battery powered lighting and a telephone line connecting it to the outside world. The walls, and ceiling would be over 6 inches thick⁴⁹. Thus in good urbanist fashion, the design of the protected accommodation would be standardised (although, unlike the Orlit posts it would not be prefabricated).

The design was trialled and finalised at Farnham, Surrey, with the prototype tested in sealed conditions in September 1956. Meanwhile designs for new radiation protected ROC Group HQs (to whom the individual posts would report their monitoring data, and who would then collate the regional and national pictures through triangulation) were also worked up, but construction works for these didn't start until 1959. The construction of protected accommodation commenced in 1957, with the project eventually completed in 1965. Original plans intended to see 100 posts completed in the first year and 250 per year thereafter but completion rates ultimately scaled back through a combination of funding restrictions and the vagaries of land negotiations and on-site ground conditions.

An early sign of hesitancy regarding the ROC posts and the civil defence commitment towards which they were a contribution was a £5 Million cut inflicted upon the works programme in May 1956 (as part of wider, and far more fundamental civil defence cuts – as civil defence became aligned to the British nuclear deterrent rather than to national recovery or even life-saving aspirations). Indeed the yet-to-be-built protected accommodation only survived these cuts at all because the monitoring function was part of the residual “control” function to which national civil defence planning had contracted, a system based upon attempted perpetuation of regional government structures and the warning of attack (and consequent fallout), for the ROC monitoring would provide an important element of the national deterrent – the ability to know that you have been attacked by your enemy.

The pragmatism at the heart of the implementation of the protected accommodation project has been traced through an examination of the Air Ministry's individual site files for 100 English and Welsh ROC posts at the National Archives. There are approximately 600 such files, with no clear reason explicable as to why files for some ROC post sites remain and others appear to have been destroyed. Some of the files present a coherent longitudinal history of a ROC post site from the late 1930s to the early 1980s, but these are the exception. Most of these files give limited foundational or operational information, and in many cases for only a short fraction of the particular site's establishment. However, in the mundanity of their bureaucratic concerns (and their rarely present sense of impending nuclear war) these files are instructive by what they *don't* tell us – by their silence and their prosaic preoccupations they show us what cold war ruralism looked like, and how for most practical purposes these were treated as just another unremarkable multi-site estate management comprised of rarely visited, rudimentarily points of presence spread across some 1,500 predominantly rural localities.

The files present evidence (checklists, standardised memos and the indicia of lines of reporting information). But different areas and sub-regions appear to have been affected to greater or lesser degrees by such requirements. The files lack a consistency which might suggest an effective central function specifying and then managing to enforce such reporting. At the individual site level even something as basic and surely certain as a site name is shown to be unstable and in flux across the period of many files, and at some even the accuracy of the National Grid Reference (NGR) map referencing of the site is doubted and corrected many years into the site's existence. This is not to say that the ROC's area HQ did not know where the post in question was, but rather it is to say that it knew where it actually was *despite* the official NGR being wrong. The files show that the most likely reason for someone eventually querying the accuracy of the NGR was the attempted visit to the site by someone with no prior, or local, knowledge of it.

It is clear from the files that efforts were also made (in liaison with central government lawyers) to regularise landholdings for ROC post sites in the aftermath of the war. This to an extent shows signs of top-down systematisation, but on closer inspection the focus appears to have been on ensuring that the interest obtained (if leasehold) was no greater than 21 years. There was no apparent attempt to impose a uniformity of annual rent (even though the plot of land taken in each case for the site was the same). Rents therefore were negotiated on an open market basis with the landowner, and on occasion – seemingly at the landowner's instigation although this is not particularly clear from the files – occasionally outright ownership of the plots was taken. None of the files inspected indicated that any powers of requisition or compulsory purchase were ever used to acquire ROC post sites after the 1939-45 period. Indeed there were a number of files pointing to abortive attempts by the Ministry to acquire a site or to renew their rights of occupation there, the ROC post then having been vacated and moved elsewhere in the face of refusal by a landowner to grant or renew those rights.

The Ministry's preference for 21 year leases, rather than ownership in perpetuity at first glance seems rather strange, as it might be taken to imply that the threat of a nuclear war occurring would somehow have disappeared within 21 years. The reality however appears to be found first in the precariousness of the ROC's existence, with the Home Office (as sponsor for the UKWMO) having to battle almost on an annual basis to protect the ROC in the face of the Treasury's thirst for cuts, the Ministry of Defence's ambivalence to anything associated with civil defence and also with a now rather luke-warm Air Ministry, who still had administrative responsibility for the ROC, but whose interest in it was waning as its aircraft-spotting role fell redundant, and the blast and fallout monitoring role imposed by the Home Office upon the ROC came to the fore. It also (and perhaps more importantly) signals this programme's subordination of apocalyptic contingencies to the very present and pressing demands of standard estate management law and practice. Farmers would be aware that 21 years was the maximum duration of lease that could be granted before a greater level of security of tenure would be triggered. The Ministry's approach was therefore working within the bounds of what would appear normal to a farmer in the ordinary course of land dealings: the nuclear dimension simply didn't come into it.

A further sign of surrender to agricultural normalities was the variability of terms found within the agreed wording of leases and freehold conveyances. An extreme example can illustrate this point. A 1953 freehold conveyance for one ROC site purchase indicated that the purchaser (i.e. the Air Ministry) would have the right to bring livestock across the farmer's land and onto the demised property. The prospect of the ROC post's crew manhandling a pig or cow onto their lookout post is a false image. Those provisions had nothing to do with the operation of a site for monitoring the unfurling of cold war apocalypse, instead they were standard prudent terms for the purchaser of an otherwise landlocked portion of farmland to insist upon in normal agricultural circumstances⁵⁰. This suggests that in the minds of both farmers and the Ministry's land agents the prosaic practices and negotiating gambits of the agricultural community would be more to the fore in setting up or regularising ROC post plot ownership than would the exigencies of the end of the world. Indeed the (few) leases and freehold titles traced by this study⁵¹ contained little that was indicative of ROC posts' exceptional contingent purpose, and everything that was characteristic of a generic and unexcited approach to rural land acquisition and estate management.

Cold war ruralism's pragmatism was also reflected in the decision to work with existing sites wherever possible (although some posts were relocated where post-war adjacent development, or adverse ground conditions were found to have rendered the existing sites unsuited to the installation there of the protected accommodation). This attempt to maximise the value of working within an existing provision had its limits however, for as at 1955 the entirety of the UK was not actually covered by the existing network of lookout sites. The citing of the original posts had been dictated by a need to track aircraft coming from the south and the east, as was the case originally with German aircraft in the 1939-45, and Soviet atomic bombers in the early years of the cold war. This left gaps in the western flank of the British Isles (including Northern Ireland), which would need to be filled in order to achieve the uniformly nationwide observational capacity necessitated by the metrological vagaries of drifting fallout clouds. Accordingly, the ROC had to build a presence from scratch in these areas, as Wood has described, this entailed both securing sites and recruiting ROC volunteers, in each case a task requiring the characteristic pragmatism of "tact and native cunning", and with the ROC officer tasked with this living in a:

"single-berth sleeping van [in which he] averaged a complete tyre change every 10,000 miles and three broken springs a year; bad roads, snow, floods and local hospitality were normal occupational hazards...the west highlanders reacted favourably to a polite request but were adamant in the face of direction".⁵²

This hardly fits the impression that we might otherwise have of a powerful, secretive state driving forward as an imperative a no-cost-spared centralised programme of national defence. Instead the impression, from this account, and from the files, is of a workaday, modest and at times impotent bureaucratic process. These posts did not require planning consent (due to a then applicable *general* exemption – not one related to national defence purposes – of state immunity from planning control) and there is accordingly very little

evidence of liaison with local government in the siting and upkeep of these posts. Instead the key determinative relationship appears to have been with the landowner (often a farmer) and establishing and maintaining ROC posts appears to have required considerable effort to keep these landowners happy.

One file in particular emphasises this: a tenant farmer's reply to a request that he vacate a portion of his land in order to make way for a subterranean ROC post, was that he was "only prepared to agree to this if he is given the right for himself and his family...to use the shelter in the event the necessity arising for them to seek protection from radio-active fall out"⁵³. The ensuing internal ROC correspondence saw this question faithfully reported up the ROC's chain of command in pursuit of an official determination of the farmer's request. The eventual refusal was communicated back down that chain and onward to the farmer in surprisingly considerate terms, and with no hint that the request was impertinent. Incidents like this emphasise that the pattern (and balance of power between state and landowner) in roll-out of the ROC post protected accommodation programme shows nothing of the more centralised, and assertive, acquisition of farmland plots that (for example) Hefner⁵⁴ has chronicled in her study of the establishment of the US' Minuteman ballistic missile fields which saw 1,000 individual missile silos installed upon two acre plots spread out across tens of thousands of acres of Great Plains farmland between 1961 and 1967.

Unlike the Orlit posts programme, for the protected accommodation there was no centralised production process – no supply of prefabricated parts – instead the protected accommodation was formed in poured concrete by local contractors, working to issued plans. Once built however, the files show instances of local adaptation to render a particular post better suited to its particular environment: some posts needed remedial works to address groundwater ingress, others needed extra security measures to guard against damage by marauding threats (but usually these were livestock or tractors, and less often scavengers, vandals or anti-nuclear protestors). Adaptation might also be necessary to keep the ROC crews happy: the need to keep these volunteers happy is a theme regularly recurring across the files, there being a fear from ROC officers that disenchantment from these volunteers would lead to there being insufficient staff to effectively man some posts, and thus gaps caused in the coverage of the national system due to failure to adequately address some localised water ingress, aggressive livestock, car parking or site access problem.

This need to keep the some-time occupants of these sentinel structures happy, posed a problem not otherwise faced in equivalent unmanned monitoring networks (e.g. radar transmitters, microwave communication masts or relay stations). And the importance of the strength of a crew's attachment to "its" ROC post should not be under-estimated. The files show that through weekend training exercises, and weekly crew meets these contingent places acted as local club-houses for their crews, with an ensuing sense of attachment to the sociality of performing these places. Whether this familiarity with the peacetime "clubhouse" nature of these chambers acted to support an appreciation of their apocalyptic purpose, or actually served to subvert it (and make ROC participation a pastime in its own

terms rather than a primary commitment to national defence in extremis) was ultimately never tested.

Through local engagement by their ROC local volunteers and the Air Ministry's occasional interactions with the bemused farmers who owned the fields that these small bunkers lay beneath, these posts and their unremarkable surface features became an obscure and half-acknowledged part of their locality. ROC posts tended not to be hidden away in the "depths" of the countryside, it was a requirement of ROC post siting (relevant both to their 1939-45 and cold war purpose) that they be located within ready access of those who manned them. Accordingly most posts were sited close to roads, and their presence indicated by a gate. Through this combination of their physical presence and the connection to local volunteers, these posts could never be secret as such. However, in the mundane form of their surface features, they could easily be mistaken for buried agricultural silos or water storage tanks, and this fortuitously lent them an easily unnoticeable appearance of just another piece of rural infrastructure.

Conclusion

UK studies of the cold war's impact upon urban planning have tended to focus upon urbanism's contribution to the cold war's ideological contest, wherein "postwar urban planning became a battlefield in the cold war – a way to contain and secure cities against the threat of communism, and [to] offer a capitalist vision of the urban future..."⁵⁵. Such scholarship has tended to elide the "war" element of the cold war, and thereby side-stepped examination of the cold war's planning-led response to the prospect of an all-out "hot war" conflict using city-destroying weapons of unprecedented power. This article has therefore sought to draw upon the North American cold war urbanism scholarship as a route by which to explore the UK experience of planning for, and/or building for, the impact of nuclear war upon the built environment.

In doing so this article has sought to develop five key propositions about the UK's experience of cold war urbanism – at least in so far as it can be witnessed through the ROC post protected accommodation scheme: first, that the cold war's impact upon the built environment should not be assumed to be exclusively urban. Secondly, that cold war urbanism was characterised by two components: plan-making and bunker-building, and that in any national account of the strength or weakness of its cold war urbanism needs to comprise an assessment of each element and thirdly, that any analysis of cold war urbanism should include a concern to identify who – which professionals or other actors – were actually implicated in its plan-making and building. Thus the analysis presented here has shown how the UK's relatively weak experience of cold war urbanism was predominantly rural in its footprint, that it did feature plan-making, but that that plan-making was almost exclusively done by central government civil defence planners rather than urban planners or architects. Furthermore, it has shown that in the UK relatively little of that plan-making resulted in any actual bunker-building.

In considering a rare instance of actual cold war inspired bunker-building in the UK, the case study has also shown that in seeking to extend their reach into the countryside the UK's civil

defence planners had to adapt their cold war imperatives to local ways and priorities in order to get their project accomplished and maintained. This suggests the fourth conclusion: that the formation of cold war urbanism in any national or project-related should be investigated as a potentially interpenetrating process, one which might be (as was the case with the protected accommodation project) as much exposed to the prospect of non-cold war priorities shaping its form, as of cold war needs shaping the practice of urban (or rural) planning and development.

The case study's analysis of the ROC bunker-building project has explained why that programme went ahead at a time when almost all other UK civil defence related efforts were being abandoned due to a combination of financial constraint and despair in the face of the revelation of the extent of the UK's vulnerability, as a small densely populated island, to thermonuclear attack. The dawn of the H-bomb (and the problem of fallout posed by it) marked the end of any hope of meaningfully providing a comprehensive plan for national recovery, or even co-ordinated life-saving. Instead, all the British state felt able to commit to in terms of civil defence after 1956 was the establishment of the ROC post warning and monitoring network and the construction of continuity of government bunkers (Regional Seats of Government and the ROC's Sector HQs to which the ROC posts would have reported their data). And this would be achieved – as regards the ROC post element at least – via a pragmatic and modest repurposing of an existing national observation and warning network, achieved in a way that very much aspired to work within the grain of existing systems, utilising existing systems of law and land management in order to build and sustain the network and characterised by a work-a-day calmness that seems alien to the peril being modelled by the civil defence planners.

The ROC files show how a desire for a national warning and monitoring system arising from planning-directed efforts to anticipate and prepare for the ultimate contingency, translated at local level into something more approximated and subordinated often to more pressing rural concerns and realities. The files show little sense of urgency to get the network established, and little mention of nuclear anxieties. Instead the paperwork portrays the project as just another multi-site infrastructural roll-out, or adaptation. At the level of implementation the character and problems of these sites were the problems of small land possessions or wayleaves held in support of infrastructural purposes in remote fields. The establishment and maintenance of the ROC post network at the height of the cold war presents then as just another set of mundane rural land administration problems, with the solutions guided by standard country ways of doing. This remarkably understated calm banality at the heart of the UK's civil defence system, and the work-a-day tone of its implementers recalls Wakeman's depiction of the reality gap between theorists and implementers:

“while the planning avant-garde may have circulated a high urbanist discourse, it was diluted and transformed by a myriad of local practitioners who applied their own innovations, their own shambolic objects and rituals, and the technologies and material culture of their everyday lives.”⁵⁶

This then was what cold war ruralism looked like. Instigated by the fundamental existential contingencies of nuclear war the ROC post programme diluted those abstractions, rendering them down into a familiarised and do-able ticking-over. Within this apocalyptic contingencies were subsumed within the mundane demands of the here-and-now, and its cows, farmers and mud. But cold war ruralism was not fundamentally a different way of doing than cold war urbanism, but rather a different intensity of the same thing. Thus the pragmatism shown to have been to the fore in cold war ruralism proved to be broadly effective as an adaptive strategy to achieve its civil defence aims (the roll out and manning of the ROC posts as a nationwide monitoring and reporting network), albeit through adoption of local, ad hoc and approximate methods. By 1965 the full network of underground monitoring posts had been built and were manned by the volunteers of the ROC. In that sense at least the pragmatic strategy had worked.

However in 1968, only three years later, nearly half of the ROC posts (691) would suddenly be closed, as a consequence of the final abandonment of the UK civil defence system, in the face of a further financial crisis and the ensuing search for cuts. This brings us to our fifth and final point of conclusion: that attempts in the 1950s to address the ultimate contingency of nuclear war (particularly after the rise of the H-bomb) revealed the limits of positive planning and of the forecasting and forward-planning instincts otherwise in ascendancy in the post-war era. As Jeff Hughes puts it: “in constructing their imaginary space of the thermonuclear apocalypse and after, the planners literally reached the limits of language – not just the indescribable, but also the *unthinkable*”⁵⁷. The costs brought to the surface by such attempts to plan for nuclear war also exceeded the limits of affordability. The sheer scale of what would have been necessary – and in 1955 Strath had concluded that the only chance of substantive survival lay in “the transformation of the physical and social architecture of the country”⁵⁸ – simply lay beyond reach.

1968, coincidentally also marked the moment at which positive planning lost its confident grip upon urban and regional planning: as that year also saw the ascendancy of negative planning, with the 1968 Town & Country Planning Act declaring local plans to no longer be templates for public sector-led provisioning but instead re-designating them as guides for the scrutiny of private-sector led development. But it is perhaps more telling for the purposes of tracing the limits of the UK’s cold war urbanism to note that 1968 also saw the Home Office, following up in the wake of the civil defence cuts, emphasising to local authorities by Government Circular that their obligations to continue planning for civil defence under the Civil Defence Act 1948 remained extant. In doing so the Home Office sought to make clear that future civil defence activity should now:

“consist primarily of planning how to raise the level of preparations should the circumstances demand it...rather than of making physical preparations against the contingency of an imminent war”⁵⁹.

In short: plan, but don’t build. This returns us to the fundamental fault line within cold war urbanism – one acknowledged in the North American studies, and certainly borne out in the case of this UK study – the gap between plan-making and the cold war related implementation or control of any actual development. As this article has shown, in the UK

context plan-making was hard enough, but proceeding to actual bunker-building was considerably harder still.

¹ See for example: Jennifer S. Light, *From Warfare to Welfare: Defense Intellectuals and Urban Problems in Cold War America* (Baltimore: John Hopkins University Press, 2005); David Monteyne, *Fallout Shelter: Designing for Civil Defense in the Cold War* (Minneapolis: University of Minnesota Press, 2011) and Andrew Burtch *Give Me Shelter: The Failure of Canada's Cold War Civil Defence* (Vancouver: University of British Columbia Press, 2012).

² A notable exception here being Gretchen Hefner's *The Missile Next Door: The Minuteman in the American Heartland* (London, UK: Harvard University Press, 2012).

³ Christopher Klemek, *The Transatlantic Collapse of Urban Renewal: Postwar Urbanism from New York to Berlin* (London, UK: University of Chicago Press, 2012).

⁴ Ralph Lapp *Must We Hide?* (Cambridge, UK: Cambridge University Press, 1949), 141-2.

⁵ Kathleen Tobin, "The Reduction of Urban Vulnerability: Revisiting 1950s American Suburbanization as Civil Defence", *Cold War History* 2, no. 2 (2002): 1-32.

⁶ Matthew Farish, *The Contours of America's Cold War* (Minneapolis: University of Minnesota Press, 2010).

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⁴³ Grant, *After the Bomb*, x.

⁴⁴ As noted in NA, HO 338/100, "ROC Protected Accommodation".

⁴⁵ NA, HO322/126 (and a corresponding Air Ministry file: AIR2/14448).

⁴⁶ In the document "Radioactive Fall-Out Study Held at the Civil Defence Staff College on 22nd – 24th February 1954: NARRATIVE" in NA, HO 338/100, "ROC Protected Accommodation" (NB: the surrounding paperwork shows this document to have been misdated, and actually produced for an exercise 22nd to 24th February 1955).

⁴⁷ Lisa R. Pruitt, "The Rural Landscape: Space Takes Law Takes Space" in *The Expanding Spaces of Law: A Timely Legal Geography*, eds. Iruv Braverman, Nicholas Blomley, David Deane & Alexandre Kedar, 190-214 (Stanford: Stanford University Press, 2014).

⁴⁸ And see Bob Clarke, "An Early cold war Structure in Wiltshire", *Wiltshire Archaeological & Natural History Magazine*, 107 (2014): 241-246 for a more detailed examination of one Orlit ROC post site and its national context.

⁴⁹ See Mark Dalton, *The Royal Observer Corps Underground Monitoring Posts* (Monkton Farleigh: Folly Books, 2011) for further details on the design and construction of the protected accommodation.

⁵⁰ This provision was incorporated within HM Land Registry Title No. DY254697 (Hartington, Derbyshire).

⁵¹ Sadly none were found in the Air Ministry estate management files, and only a handful of examples could be traced via the HM Land Registry and landowner archives.

⁵² Derek Wood, *Attack Warning Red: The Royal Observer Corps and the Defence of Britain 1925 to 1992* (Portsmouth: Carmichael and Sweet, 1992) both quotes 224.

⁵³ As summarised by Superintending Engineer L.C. Morris, in a memorandum to superior ROC HQ staff dated 4th February 1960 in NA: AIR2/19428 (Avebury ROC post).

⁵⁴ Hefner, *The Missile Next Door*.

⁵⁵ Rosemary Wakeman, "Rethinking Postwar Planning History", *Planning Perspectives* 29, no. 2 (2014): 153-163 at 157.

⁵⁶ Rosemary Wakeman, "Rethinking Postwar Planning History", 155.

⁵⁷ Hughes, *The Strath Report*, 258 (emphasis in original).

⁵⁸ Hughes, *The Strath Report*, 258.

⁵⁹ Home Office Civil Defence Circular 2/1969, 11.3.1969