Interview with Richard Overy

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Airpower has been used in armed conflicts since World War I. Aircraft have been deployed in support of the army on the ground and the navy on the surface. However, the twentieth century, with two World Wars, has also seen aerial bombardment of cities that fell outside the traditional use of airpower. During World War II, as part of the ideology of "total war", cities were deliberately selected as targets of such attacks with the purpose of undermining the morale of the enemy's population and "winning the war". Nowadays, although the deliberate bombing of entire cities is prohibited, it is still believed that aerial bombardment can produce certain political dividends for belligerents. In this interview, Richard Overy provides a historical perspective on the evolution of aerial bombardment since the World Wars, and puts in context the use of airpower in contemporary armed conflicts.

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At some point between World War I (WWI) and World War II (WWII), bombing cities or bombing civilians became "acceptable". How did bombing become an option for the parties to the conflict as a militarily rational thing to do?

Between the wars, the general view was that bombing cities was not acceptable. However, States had in fact begun to resort to such practices already in WWI: the Germans had bombed British cities and Paris in 1917–1918; the Royal Air Force (RAF) had started to bomb German cities in 1918. The assumption was that a total war between the major powers required all the resources of society. Therefore, it was permissible to attack those members of the enemy society who were engaged in making the war possible, such as war workers, transport workers, and so on.

The other element between the wars was the decision to use aircraft for policing the empires. Aircraft were used by the French and the British. They were not only cheap, but they enabled the parties to bomb tribal villages and insurgents within the empire, who were seen as "semi-civilized" and therefore outside the law that applied to "civilized" peoples. Indeed, the RAF manual describes these as operations against semi-civilized peoples. So, at the time, it was considered that there was no need to obey international law when bombing people in the empire.

And, I think, it is interesting to note that the idea of empire policing fed back into Europe. If a State wanted to achieve a political end and to undermine the morale of the enemy, bombing was a very good way of doing it. I believe this led to the eventual idea in WWII that if you bombed the enemy cities, you would undermine the morale of the workforce and possibly bring about the enemy's surrender – a political dividend.

Had earlier bombings during WWI indeed undermined the morale of the population?

At the end of WWI, those air forces that had fought primarily in support of land armies were mainly on the losing side. On the winning side, the British and the Americans in WWI came to the conclusion that the morale of the enemy's population had been a legitimate target and that morale *had* indeed been undermined by the impact of bombing. I believe that this was a completely exaggerated claim, given the tiny amount of bombing that was used during WWI – a few hundred tonnes. Nevertheless, it became enshrined in British strategy, with the dictum that the moral impact of bombing is always ten times greater than the material impact.

The same idea ran through the 1920s and the 1930s when the British thought about the possibility of bombing in future wars; it was believed that one could undermine the war willingness of the enemies from the air, defeat them by

bombing their cities and bring them to the conference table. It was argued that, in the end, this was a more *humane* way of waging warfare than the kind of warfare that had been waged in WWI.

Do you see any continuities in history in the way we have thought about the ultimate objective of bombing?

Well, I think two themes run through the twentieth century. The first one is the idea of cooperation between the military services: aircraft helping armies and navies to win battles. Throughout the twentieth century, there have been prominent airmen who have thought that it is the best way one can use aircraft: in support of ground forces or in support of the navy. The other idea running through the century was that bombing civilians is unendurable, and that if you bomb them "enough", the enemy is bound to give up.

WWII is one example, but an even better example is Vietnam. Notably, the American Air Force dropped more bombs in Vietnam than in WWII, in the belief that if they kept on dropping bombs and napalm, then somehow, this would prevent North Vietnam from taking over South Vietnam, or even bring about North Vietnam's collapse and open the way for a "democratic" Vietnam. This did not work, and Vietnam became a communist State. I think, of all the examples of the twentieth century, this is probably the most striking one. Huge quantities of bombs were dropped on a developing society, in the expectation that it would produce some kind of political dividend. And in the end, the dividend went to the enemy.

One can see that strand of thought – the idea that the very fact of bombing will produce some kind of a political dividend – running right through the conflicts of the last thirty or forty years. And yet, time and again, the dividend does not emerge. Iraq was bombed and in the end, there have been ten years of insurgency and civil war. Libya was bombed and now there is a situation in Libya which is the exact opposite of what the West wanted. We have been bombing Islamic State Group for several months already, and the organization has not given up; it is growing in strength as the bombing goes on. Not only that, but the bombing of Syria simply fuels the desire of Islamic State Group to get back at Western countries, and this makes the possibility of terror probable, rather than possible.

These two strands have competed right across the century. The only occasion in recent years that I can think of where aircraft were used exclusively in their military role – in support of the army and the navy – was the battle for the Falklands. This was a classic and traditional use of air power. There was not a great deal of it, but it was extremely useful in terms of winning that military campaign. That seems to me to be a classic example of where aircraft can be used intelligently to achieve a military outcome. Through so much of the second half of the century, however, we have seen aircraft and aircrew being wasted, and civilians being killed, while the final consequences were not what the power carrying out the bombing wanted.

In your work, you make a distinction between, on the one hand, the traditional or tactical use of air forces, and on the other, the expression of "total war" by bombing of civilians. Could you elaborate more on the relationship between the two scenarios?

The distinction between tactical and strategic air power is a rather artificial one. It was made in the 1930s and 1940s, when people started thinking about how to distinguish between supporting the army on the ground and the navy at sea, and undertaking independent bombing operations. The idea was that independent bombing operations matched the image of total war much more effectively, because if it was argued that civilians were all contributing to the war effort – as workers, as transport workers, as seamen, etc. – then it was perfectly legitimate to regard them as a target.

And that was being argued by people in Britain in the 1930s; RAF officers who knew perfectly well that the deliberate targeting of civilians was contrary to international law argued for this. For them, total war was total war; it provided States with a kind of "moral tranquilizer", through which they did not have to worry about conventional morality because the imperative of total war made bombing necessary and therefore legitimate.

One would imagine that Hitler's Germany would share very much the same view of total war. However, the German armed forces were brought up on a different tradition. They were brought up with the argument that the whole purpose of having military services is to defeat the military services of the enemy; so on this basis, the whole purpose of an air force was to defeat the enemy's air force. The German air force bombed with really great reluctance; it was not what they had been prepared to do and they did not regard it as strategically useful. They certainly did not regard the bombing of civilians as either legitimate or likely to be effective. For most of WWII, and with the exception of the Blitz on Britain, the German air force supported the army; very seldom the navy. And that was how they saw the role of air power.

During WWII, the British and the Americans both bombed cities knowing full well there would be high civilian casualties. The RAF bombed civilians deliberately; it was the only air force to do so. But in fact, the most successful examples of the Allied air power in WWII were in support of the army and the navy (for example, in North Africa and Italy): combined operations and amphibious operations or the invasion of Normandy and the support for ground forces all the way through to Germany.

Tactical air power became very sophisticated during WWII, and it has become even more sophisticated over the following seventy years. It does seem to me that tactical airpower is really what aircraft are for: it is in order to be able to achieve a military outcome, usually in combination with the other services. The Second Iraq War in 2003 was a classic example of the deployment of sea power, air power and land power together, to achieve a military outcome.

Throughout the century, airmen have been seduced by the notion that they can achieve an outcome that the other services cannot, that they have a strategy which is unique to the air, and that in order to demonstrate how different that strategy is, one has to find a different kind of target. These targets have almost always involved civilian casualties. And for much of the twentieth century, that was indeed the case. Civilian casualties were huge in WWII, and large in the Korean War and the Vietnam War.

How did this reality change over time?

Well, of course, today States cannot do whatever they want. Now they are very careful and anxious every time there are civilian casualties, because our sensibilities have changed – not military but public sensibilities. I think what is interesting about the contrast over the seventy years is that in WWII, the people being bombed did not think, "Oh, this is terror bombing", or "This is illegal, why are they doing it?" They tended to think, "This is total war, this is what we expected to happen, and it is not actually quite as bad as we had thought; we can survive this." That was the reality on both sides. In Germany, it was understood that in total war, bombing was likely to happen; some Germans even thought that they deserved the bombing, that it was in some sense a punishment for German aggression and anti-Semitism.

Yet, seventy years later we have a high degree of public consciousness about bombing. Bombing is very visible and every time there are heavy civilian casualties, there is an international outcry, protest, etc. All countries that are now in a position to undertake heavy air strikes know perfectly well that they are under the spotlight internationally and that they have to be very careful about what they do, what they hit. States are very aware of the political consequences of indiscriminate attack. And that is because now we do not think of war as total war – we do not imagine waging it now.

Coming back to the bombing in WWII, do you think the air raids of the Allies on German territories differed from those conducted on friendly or occupied territories? Did the level of precision of these bombings differ?

When it comes to the question of the accuracy of bombing in WWII, this is a relative concept. When the British were bombing German cities, accuracy meant concentrating as many bombs as possible on the city centre; the RAF was disappointed when bombs dropped in the countryside, as they often did. So "accuracy" could be a very flexible term. But when it came to bombing targets in France, in the Netherlands or in Belgium, there were different instructions for the crews: they had to use far fewer incendiaries, for example, because they did not want to create large fires. There was a great deal more low-level bombing. In fact, some of the bombing operations were carried out by Mosquito aircraft, capable of

a much greater level of precision than other aircraft. Having said that, the RAF's and the American air force's bombing of friendly targets killed huge numbers of civilians – 60,000 in France, as many as in Britain – and they regarded this as a necessity of war; if they wanted to expel the Germans from France, the French population would have to pay that price.

The sad thing is that, in many cases, the same thing could have been achieved by using tactical air power, fighter-bombers and other weapons with higher levels of precision. Or the British and Americans could simply have relied much more on ground forces. In France, probably the most outrageous examples of excessive and inaccurate bombing were the raids on Royan near Bordeaux towards the end of the war, where they dropped 4,000 tonnes of bombs on a tiny town. This raid was larger than any single attack on a British target during the Blitz. It obliterated 90% of the town. One journalist reported that not even one blade of grass remained. And all because the nearby German garrison had not surrendered. But this was completely disproportionate and was really poor judgement on the Allied side. It was a clear violation of all the restrictions they had tried to impose on themselves when it came to bombing friendly populations. The problem is, once you have the technology, once you are in a hurry to finish the war, once you have a home population that wants the war to be over, you just reach for the bomber.

Armed conflicts still rage in cities today. We have seen it in Syria, in Yemen, in Afghanistan. Compared to the examples from WWII that you've just discussed, how would you describe the impact of bombing on cities today?

Well, if we are talking about WWII, it is a completely different phenomenon. We are in fact talking about thousands of aircraft dropping hundreds of thousands of tonnes of bombs, high explosives and incendiaries, on cities. Nothing quite like that has happened since. Almost a million people were killed by strategic bombing in WWII. If we just think about that figure, it is a phenomenal fact.

I think in the 1930s everybody thought that if you bombed a city heavily, it would collapse, that everybody would leave the city, that there would be mass starvation, disease, and so on, and the war would be over quickly. People had a very fanciful view of the city, but in fact, the cities proved remarkably resilient. Even in cases where the bombing was heavy and persistent – the bombing of Berlin, or the bombing of Chongqing in China by the Japanese – cities tended not to collapse completely. And there were good reasons why that was the case; partly because it is, in the end, difficult to destroy an entire city. A good example is Cologne, which was bombed more than 250 times. 450,000 people lived there at the beginning of the war. By the end of the war, there were still 45,000 people living in Cologne, many of them living in cellars and basements, etc. However, productive work was still going on in the industrial zones around Cologne.

The expression that was used at the time was the question, "How do you kill a city?" The RAF in particular were interested in this idea, although they felt at the end of the war that they had not really been successful in doing that. The terrible thing about it, of course, was not just the idea of damaging the urban area, but that the idea was to kill civilians and demoralize those who remained. Civilians became a deliberate object of attack, the idea being that you would reduce the number of workers available, that factories would find that productivity would collapse because the workers would not come to work, etc. But in fact, the opposite happened. German war production continued to expand through years of bombing.

Is this concept of "killing a city" helpful in understanding the bombing of Hiroshima and Nagasaki? Do you think that this was the objective?

The two atomic attacks were different, because they were experimental. Two cities were chosen, which had not yet been bombed. The idea was to see what the bomb would do to them. Of course, the bomb created massive urban destruction, but it also left the cities radioactive, so that they could not function properly in the immediate aftermath of an atomic attack. The idea was that if the war had not ended in Europe, the atomic bomb would have been dropped on German cities and that would have killed those cities, of course. Whether the Americans or the British would ever have authorized that is a different question and a very hard one to judge.

Later on in the late 1950s, the British defence ministry set up a special committee called the JIGSAW Committee, which was asked to re-examine this very question: how do you kill a city? It had to work out how many nuclear bombs had to be dropped to achieve this result. Notably, the model they used was the bombing of Hamburg and the extent to which the effects of these attacks actually undermined the function of the city. Hamburg itself never collapsed, of course – it continued to produce goods, workers continued to work, and people gradually came back, despite the bombing. So the Committee had to calculate how many atomic bombs would have to be dropped on Hamburg to make sure that the city was effectively "killed".

Presumably in the 1960s, the United States, Britain and the Soviet Union all had nuclear stockpiles large enough to be able to achieve the massive destruction of all urban areas in any of those countries. But that never happened. In the end, nuclear weapons did not change the nature of warfare. Instead, they created conditions which made it unthinkable that the United States or the Soviet Union would ever use these weapons against each other or against the enemy's allies.

But the existence of nuclear weapons also shifted the focus onto different forms of conventional warfare. Under the shadow of the Cold War, we saw endless civil wars, insurgencies, "small" frontier conflicts, asymmetric wars of one kind or another, etc. The nature of warfare did change, but it did not change the way one might have expected. The Cold War produced a stand-off between great

powers, but small conflicts continued across the world, waged with conventional weapons, and with low risk of escalation.

Speaking of the resilience of the populations under the bombs, could you give us some examples of how people coped with the bombings during WWII? How did they adapt to the reality of regular bomb raids and the disruption of normal life?

If we want to explain the resilience of cities, particularly in WWII, there are two things that are worth mentioning. First, States recognized the need to provide the resources to keep cities going, so they needed to work out adequate systems of welfare, first aid, feeding, the restoration of fresh water, etc. The priority was to make sure that they could draw these resources from unbombed areas and focus efforts on the city that had been bombed. This system was most advanced in Britain and Germany, where bombing occurred across the whole war period.

Second, European citizens proved capable of a great deal of self-organization and self-discipline. It was not just the State that assumed responsibility; people themselves volunteered in huge numbers for civil defence organizations. The local population did all they could to help, so that the number of casualties might be reduced as far as possible.

So, the fact of resilience is partly to do with State initiatives, but also a great deal to do with the capacity of modern populations to help themselves. And I think this is a factor that most people underestimated a lot in the context of WWII. You can see examples of this later on in history: the regular shelling of Sarajevo, for example. This was why Sarajevo survived, despite everything.

While trying to explain the resilience of populations, one also has to mention a strong psychological pressure to somehow restore normalcy under conditions of disaster or violence. In the case of Germany and Britain, people would go back to houses that were heavily damaged so they could live in the basement or the cellar; they *wanted* to live in a place which they knew. But it varied even during WWII from area to area. In places where there was a weak sense of community, or where there were links between the rural and urban populations, that made it easy for the urban population to disappear into the countryside. It happened in Japan, where the response in the summer of 1945 was to go to the countryside: eight or nine million people left the cities and went to the countryside. It also happened in Italy: when the bombing started, people fled from the cities and went to the countryside because there were still strong rural–urban bonds. Whereas in Germany and Britain that was not really the case; these were very urbanized societies, and so people who stayed on, they saw the urban area as their place – the place they had to protect.

Finally, when we talk about resilience in terms of economic geography, it is worth pointing out that the war made much less of an impact on German cities, for example, than one would think from the level of destruction that was imposed on them. Studies of heavily bombed German cities have demonstrated that, despite

massive physical damage – perhaps the loss of 40% to 50% of the urban area – the return of the population and the re-establishment of pre-war levels of production was remarkably rapid in the 1950s and the 1960s. And that is true for other examples, too. In the German case, it was extreme because around half of the inner urban area was destroyed, and yet by the 1950s and 1960s, these are cities that are once again functioning cities with a high level of production. This too was a result of the combination of efforts of local communities to restore or renew familiar urban space and government priorities for reconstruction.

How was the question of "killing" an entire city seen from the perspective of international law at the time?

When we talk about international law in the 1930s in relation to bombing, most people refer to the Hague Rules of Air Warfare drawn up in 1923. These instruments were not formally ratified by the states concerned, but they were generally regarded as having the force of international law. Both in Britain and in Germany, it was generally agreed that bombing civilians from the air was a violation of the existing international law.

The problem came in WWII. With the commitment to bombing in Britain, the legal concerns were set aside. The argument was that the Germans were so terrible – they had violated so many international agreements – that international law did not count when attacking them; so if you killed German civilians in the course of bombing attacks, that would not be regarded as illegitimate. It is very interesting to note what language was used to describe the Germans on the British side – they were referred to as "barbarians". I think that was not an accidental use of language; it was designed to foster the view that the Germans were barbarous and therefore outside the law, like the so-called "semi-civilized" peoples of empire. And that narrative was used throughout the war.

The German view was that they were bombed first, as indeed they were, by the RAF, and that their bombing – undertaken systematically from September 1940 through May 1941 – was retaliation and therefore allowed under international law. And in fact, almost all German bombing of Britain – the Blitz, the Baedeker raids, the V1, the V2 – were all couched in terms of retaliation against bombing carried out by the British.

Moral expediency, I think, came to govern the way in which one saw bombing as somehow *outside* conventional international law. Later on, during the Cold War, nuclear weapons were also seen, in some sense, to stand outside international law. The 1977 Additional Protocols [to the Geneva Conventions], designed to outlaw bombing of civilians, were only going to be ratified by the United States and Britain if nuclear weapons were excluded from the provisions. This was of course absurd, because it meant the most destructive weapon available to mankind was the one weapon you could not effectively control.

One might say that international justice after WWII was also blind when it came to aerial bombing – the Nuremburg and Tokyo trials never addressed it. What do you think were the factors that contributed to this outcome?

Well, at the end of WWII, the situation was interesting because both the British and the Americans thought that they would add the bombing to the indictment of the major German war criminals. However, the British Foreign Office very quickly said that it could not possibly do so, as then the Germans would have been able to argue before the tribunals that both the British and the Americans had done exactly the same. So they decided it was better not to make that part of the indictment.

There was certainly an understanding that their bombing had been outside the law. And, of course, the Geneva Conventions of 1949 and the United Nations Genocide Convention represented a recognition that much of what had happened in WWII was a clear violation of international law. But because bombing was regarded as necessary to achieve Allied victory, any moral ambiguity surrounding it was suppressed. When the moral issue was raised, the argument was always that there was no formal requirement in international law during the war that prohibited bombing non-military targets.

WWII involved the bombing of schools, churches, hospitals and so on. Today, we still hear about bombing of civilians and civilian property in conflicts around the world. The recent bombing of the Kunduz hospital has caused a major public outcry. How have our perceptions changed of what is permissible in war over this century?

Even in WWII, bombing of schools, churches and hospitals did tend to produce firmer protests than simply the bombing of ports or industries. However, because bombing was so inaccurate, there was no way of avoiding hitting churches, hospitals and other civilian objects. And this happened on both sides. Again, the basic rationale was the rhetoric of total war: the enemy is completely unscrupulous and has no morality. So neither side was surprised if schools or hospitals were bombed, though in reality the bombing of schools and hospitals was by chance, not by design.

Nowadays, every time a school or a hospital is hit, whether it is in Palestine or in Afghanistan or elsewhere, we are rightly outraged by what happens, first because the paradigm of total war is no longer our reference point, and second because the expectation is that current "smart weapons" have been developed precisely to avoid civilian damage. Rightly, we want to protest that military necessity does not justify high levels of civilian casualty. Over the past seventy years, popular sensibility about bombing has changed substantially.

Looking at some of today's confrontations, do you think that some of the ideas of "total war" that were pertinent during WWII may still be present in contemporary warfare?

I think that today, if we look at the fight against Islamic State Group, for instance, we have to look at the choice of language. One can see that again, as in the past, there is an attempt to paint these people as medieval, primitive, barbarous, somehow outside the conventions of modern combat. That may justify excessive retaliation of one kind or another. What is in common with bombing throughout the century is the effort made to create an abstract language that strips the humanity from the enemy and turns the target into a kind of metaphor – like the "Nazi system" or the "German war machine".

There was an interesting case in WWII where the British Air Ministry was producing a directive that talked about bombing industrial populations. The staff officer who read this document sent it back and said, "No, you cannot say we are bombing industrial populations; you have to say we are bombing industrial centres, because 'centres' is an abstract concept, while populations are people."

One can find that in later conflicts, the nature of the military target or the nature of the aim is expressed in abstract political or military terms, but never in terms of actually killing people. RAF commanders knew what they were doing and in private were prepared to admit that killing Germans was a prime objective. But they would not say that in public; the intention was veiled by an abstract language of centres and systems. The people who did the planning of the technology, who designed the incendiary bombs, who tested bombs on models of German houses – their language was also incredibly abstract. It was just about a scientific problem, about how to solve it. There was no explicit recognition that when you bomb a residential house, it might have a person in it.

Do air raids dehumanize the enemy (or the victims) due to the lack of face-to-face interaction in contemporary battlefields?

In a sense, they do. One does not know who the victims are or which civilians might be hit, so one talks about "surgical" air strikes. The language, again, is very abstract.

But I think that public awareness of the cost of bombing produces regular protests across the Western world. And I think this is very important. Like the hospital recently bombed in Afghanistan, it is very important that the media are not hesitant in highlighting the human face of bombing and what it actually means. Media have to do it independently of government, of course. I remember during the bombing of Baghdad during the last Iraq War in 2003, there were journalists on the ground who wanted to report what was actually happening: the deaths of civilians and the extent of civilian damage, etc. And there was a lot of debate in Britain and the United States about whether this was permissible. This

was a serious issue: we had to unseat Saddam Hussein, and these people were not being patriotic.

It is very important that there are people on the ground who are willing to say, "Well, you know, bombing is not just surgical strikes, it is not just the report of a bombing operation; it is dead people, and here are some pictures of dead people." It is strange how seldom you see pictures of people actually killed by bombing. Images of the bombing dead were censored for the media during WWII. Even today, when a civilian target is hit and this results in civilian casualties, it is rare to see those casualties on your television screen. It is very important to give war a human face. What can seem abstract or remote becomes real and shocking, something that might prompt protest.

In light of our discussion so far, what do you make of the use of drones nowadays? Is the use of drones a continuation of the idea that air power in and of itself can make a unique contribution or have a unique impact? Is it a reflection of something else?

I think drones are also part of this "fantasy" about the nature of air power, the idea that with the press of a button, you can now hit targets that are going to produce a political outcome which is favourable to you. It does not seem to me that drone warfare is going to produce such outcomes. Perhaps the old-fashioned conclusion is in fact valid in this context – that to achieve your objective, you will in the end need to have troops on the ground. The success in overturning Saddam Hussein in 2003 was due to the eventual decision to have troops on the ground to achieve that goal. The actual consequences, of course, were disastrous. But the deployment of air power in support of military operations is, first of all, legitimate in terms of international law, and secondly, much more likely to produce effective consequences in military terms because it is directed at the enemy's armed forces in the field and not at an amorphous target such as morale or the economic network.

Yet another issue when it comes to drone warfare is that time and again, the wrong target is hit and civilians are killed. The evolution of smart weapons is a fact, but smart weapons are much smarter when they are being used against enemy armour or enemy airfields, and not in areas with large concentrations of civilians.

In the recent counter-insurgency campaigns in Afghanistan and Iraq, it seemed for a while that the main approach was "boots on the ground" and winning the hearts and minds of local populations. Is it possible to speak of a shift today towards achieving aerial domination without necessarily involving conventional armed forces on the ground?

The answer for the twenty-first century is that operations on the ground seem to have been, on the whole, disastrous. They have produced widespread political

protests, uncertainty about the outcome, and of course, in the case of Iraq, long-term insurgency. So there is a sense that air strikes will be more economical, that there will be less cost in terms of casualty to the powers using air power, and that if it is surgical enough, if it can be focused enough on key targets, then a campaign of air strikes will produce some kind of political dividend.

Bombing in northern Iraq and Syria today does seem like going right back to the 1920s – going back to Iraq in the 1920s, when the RAF began experimenting with bombing tribal areas where there was insurgency, using aircraft because it was cheaper and easier to organize but also in the belief that aircraft were more likely to achieve the political end required. And if we are thinking about lessons learnt from the past, there is a bizarre symmetry here between the development of early counter-insurgency bombing in the 1920s and the way in which we think about counter-insurgency bombing today.

In the case of Iraq in the 1920s, it seems to have been reasonably successful, because back then air power was a novelty and the people being bombed were terrified of the effect of the bombing. But seventy, eighty years later, Islamic State Group, for example, knows what to expect. They know how to cope with bombing, how to disperse their forces and how to camouflage what they are doing. This is an unconventional military organization, difficult to undermine by the use of air power. But that is where we are: we are back with trying to use independent air power to achieve a political aim.

If you had to summarize, what are the big lessons we have learnt and what are some of the lessons we have not yet learnt from the history of bombing?

One clear lesson from WWII is that deliberate bombing of civilians in the hope that it will produce political collapse, social crisis and economic decline was proved wrong. It has been proved wrong a number of times over, in subsequent major bombing campaigns. It took a long time before that message really sank in.

It is interesting to note that in the immediate post-WWII period, the RAF set up a series of research programmes to evaluate the effects of area bombing. They recognized that they had not damaged the economy as seriously as had been hoped and they had not demoralized the enemy population to the extent that had been expected – in other words, that the campaign had not really been a strategic success. Whereas the Americans, who began the war insisting on precision bombing in Europe and ended it with the firebombing of Japanese cities, decided that the latter was more effective and opted for heavy and relatively indiscriminate bombing of enemy areas. By the time we get to the Korean War, the Americans already had in place a strategy of saturation bombing, like the bombing of Japanese cities, which they carried on all the way through Vietnam and Cambodia.

The other lesson from WWII was that tactical air power had been enormously important in explaining victory for one side or the other. Multipurpose tactical aircraft proved to be the wave of the future. By the 1960s

and 1970s, that was the technology that air forces preferred and now planned for. The United States still had the heavy bomber, and it was still dropping huge quantities of bombs in Vietnam, but the multipurpose fighter-bomber, which was already emerging at the end of WWII, has become really the main form of armament for air forces since.

So, there were lessons both learnt and unlearnt. The air forces we have now are what air commanders really wanted in WWII but did not have yet; at the time, they did not have the technology capable of achieving what aircraft can achieve today.

How do you see the future evolution of warfare?

I believe that in recent decades, two things have gone hand in hand: the development of technologies that permit more surgical strikes, and the development of the world's public opinion, which is increasingly hostile to the idea of undertaking air strikes involving threats to civilians. These two developments reinforce each other.

But when it comes to thinking about the future, there are a number of important considerations. One is that we do not know what the power constellation will be in forty or fifty years' time. If we think about the twentieth century, power constellations changed with extraordinary rapidity. Power shifts in the future will produce political tensions or conflicts, even open military conflicts, that we cannot really predict. I also think historians are not good at predicting. The one thing we can say fairly safely is that the twenty-first century is not going to be a century of peace.

When it comes to the technology, the problem is that the high-grade technology which you need for modern air power is extremely expensive. It is subject to a constant process of development. And if we are realistic, only a very small handful of States can actually afford the cost of maintaining that technology, the United States principally. If new political players come into the picture, it is unlikely that they will be able to afford the technology or the research and development programmes which are necessary to maintain it.

So, we may well reach a point – a kind of equilibrium – where we know what the technology is and what it is capable of doing, but we are not able to move really very much beyond that. In the end, much more emphasis will be placed on trying to reach political solutions, trying to use psychological warfare (which is the fashionable thing now), trying to bring pressure to bear on potential aggressors and so on. Maintaining high-tech wars over the next forty or fifty years will just become extremely difficult to do.

Paradoxically, while there are serious problems and costs in sustaining high-technology warfare, asymmetric warfare can still be conducted with relatively primitive weaponry. Kalashnikovs and roadside bombs still work well today in contexts where low-level military power is projected to achieve rather different political ends. So I think that we will likely see an increased stalemate

for the major State actors as they sustain expensive military forces they cannot easily deploy, while at the same time an increasing resort to insurgency and terror, where the level of technology is relatively primitive.

Where do you fit the response to terrorism in your analysis of the future evolution of warfare?

Most terrorism has arisen as a result of civil wars or insurgencies in which the major Western States have intervened. I think if we are thinking about fifty years' time, we may be facing a situation where Western powers have adopted an increasingly hands-off position in order to reduce the risk of terrorism to their populations and allow the civil wars or the insurgencies to work their own way out.

I think the West has an extraordinary optimism about its capacity to deal with societies about which it knows very little, where it has little appreciation of profound cultural differences and assumes that somehow or other, political or military initiatives will produce a society that is acceptable to Western values. But as long as those ambitions remain, we will have the problem of international terrorism.

But I think the response of the West to Islamic State Group is quite interesting: it has not been immediately "Let's get several armoured divisions on the ground, let's wipe Islamic State Group out", which a coalition of States could have done very easily. It has been, instead, to think about public opinion, to think about the limits of what can be done, and perhaps in the end, to accept in a post-imperial age that the Middle East cannot be forced into a model which suits Western interests.