The V-Weapons Offensive: Its impact upon the Allied War Effort and some Reflections upon the Contemporary Implications of Weapons of Mass Effect

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Hitler's use of the V-weapons was intended to change the course of the war. While it succeeded in bringing terror, it failed to have a decisive effect in the outcome of the war. The weapons caused significant psychological impact, which in turn affected strategic considerations. Arguably the greatest impact was reflected in the significant diversion of resources necessary to counter the threat. Modern conflicts and periods of tension have highlighted that there are many parallels with current implications associated with WME. Specifically, the psychological impact of WME will continue to dominate strategic considerations and decision making, including in meeting the various challenges associated with countering the modern complex threat.

"Who can think without horror of what another widespread war would mean, waged as it would be with all the new weapons of mass destruction"[1]

The Times, 28 December 1937

Introduction

Between June 1944 and March 1945, Germany launched 15,500 V-1 'flying bombs' and V-2 rockets at targets in England and Europe.[2] While the V-weapons offensive did not succeed in meeting Hitler's aspiration of altering the course of the war by attacking the morale of the population,[3] this belies their broader effectiveness as weapons that delivered significant strategic influence. The Germans' overall strategy for the use of the weapons was incoherent and included disagreement as to whether they should be used against the civilian population or as weapons to strike at military targets.[4] Nonetheless, the indiscriminate nature of the weapons resulted in an impact that outweighed their capabilities as military weapons. This effect was magnified by the threat that they might be used to deliver chemical and biological agents.

The broader impact and influence of the V-weapons has endured beyond WWII. As the forerunners to cruise and ballistic missiles, the V-1 and V-2 marked the introduction of the use of missiles and rockets to deliver strategic influence and as such have provided a template for the contemporary implications of weapons of mass effect (WME). British Doctrine defines WME as "weapons capable of a high order of effect…beyond the traditional lethal domain".[5] By definition therefore, WME include all previous weapons that could be categorised as weapons of mass destruction (WMD), such as nuclear, chemical, biological and radiological. A key area of difference, however, is the emphasis on the ability of WME to deliver psychological effect and therefore their ability to influence the cognitive domain as well as the lethal. In assessing the implications of modern WME, the paper will consider cruise and ballistic missiles with the potential to deliver traditional WMD warheads. As observed by former US Secretary of Defense William Perry, such weapons in the hands of rogue or 3rd world states could "constitute the greatest single danger to…world security."[6] While recognising their overall importance in the debate, the paper does not specifically consider implications of the threat posed by nuclear weapons, or the unique nature of the evolving implications posed by cyber warfare as a potential WME.

By examining historical analysis of the V-weapon offensive, the paper shows that the psychological impact of the threat posed by the weapons had a major influence on strategic thinking and had a tangible impact through the diversion of resources to counter the threat. It will conclude, however, that this did not have a decisive effect on the outcome of the war. Extrapolation from more recent campaigns highlights many parallels between the impact caused by the V-weapons and the implications of modern WME, particularly in terms of strategic considerations. Finally, the paper will argue that the implications associated with allocating assets to counter today's threat is likely to be more complex and challenging than at any previous time due to pressures and imperatives caused by resource and fiscal constraints.

Psychological Impact

Although Hitler did not succeed in his objective of destroying the will and undermining the support of the English population, the fear caused by his 'Vengeance' weapons undoubtedly affected morale and had a psychological effect that impacted allied considerations for the remainder of the war. The first V-1 landed in London on 13 June 1944; this was followed by the first V-2 on 8 September 1944. Between June 1944 and April 1945, more than 8,600 V-1 and V-2 weapons attacked England;[7] nearly 1.5 million people had evacuated London by September 1944, and by the end of the war 24,165 had been killed or seriously injured by the V-weapons.[8] Although the V-1 and V-2 both brought terror and fear, they did so in different ways. The V-1 was an inherently inaccurate weapon which was used indiscriminately by the Germans. The fear this engendered was enhanced by the fact that its distinctive droning noise became silent once the engine cut, giving a terrifying notice of the destruction that was to follow. Although more accurate, the V-2 was silent and therefore gave no notice prior to impact. While this may have engendered a "fatalistic attitude",[9] the V-2 also marked a shift in the way civilians could be targeted; Coblentz describes this effect as "the introduction of chaos… into human affairs."[10]

There was strong concern that the psychological impact of prolonged exposure to the V-weapon attacks would lead to a loss of public support with calls for the British Government to seek a peaceful settlement of the war. A further consideration concerned the impact that the V-weapon offensive had on the morale of those soldiers engaged in Normandy who were distracted and worried for the welfare of their loved ones at home in England.[11] Deliberate efforts were taken to mitigate this risk, including through the use of the press. This was reflected in an article in *The Times* in June 1944, which suggested, "The aim of these nuisance raids is no doubt to shake the morale of the British public, which has never been stronger than today."[12] This was one example of the leadership and authorities playing down the level of fear and the psychological effect of the V-weapons as a way of maintaining the support of the people.

But there is plenty of evidence to suggest that the V-weapons did have a significant effect on the morale of the population. Johnson highlights the level of fear the V-weapons caused by quoting a London resident, "The flying bombs were the terror of our lives…we sat under the table with our hearts in our mouths until the dreadful explosion came."[13] Furthermore, the overall psychological effect and impact on morale was formally recorded by Squadron Leader Herbert Bates in a 1945 (although not released until 1994) study for the Air Ministry which stated, "The toll of death, injury and damage to property from the flying bomb attacks was greater than anyone imagined".[14] He went on to add, "In reality it did a great deal to morale."[15] Although not used, it was also believed that the V-weapons had the potential to deliver chemical and biological agents. It is likely, therefore, that passive defence measures, would have increased the psychological effect and level of fear of the weapons, particularly amongst members of the public who had long ceased to carry their gas masks with them at all times, confident that the much-feared threat of gas warfare had passed. This threat also affected the political and military leadership who were immensely relieved to discover that the V-weapons used against England did not carry chemical and biological weapons.[16] The attacks

also caused a mass exodus of workers from London; those that remained were terrified and exhausted, and stayed away from work to deal with damage to their own properties.[17] As a consequence, it is estimated that the V-weapon offensive resulted in war production in London being reduced by 25%.[18] Despite this reduction in capacity however, it is unlikely that the attacks would have materially affected the war effort because of the proximity of the end of the war in 1944-45; moreover, the attacks would not have affected the industrial effort of the other Allied powers.

More recent events have shown that WME are likely to be used by an adversary as a weapon of strategic influence by capitalising on the fear and psychological impact that the asymmetric use of such weapons would cause. Pastel and Ritchie describe these weapons as "effective agents of terror",[19] and this would be borne out by the devastating effect of Iraq's use of chemical weapons in its war with Iran in 1980-1988 which caused over 30,000 casualties.[20] The psychological effect of Saddam's use of WME during this war was significant. As well as witnessing the horror, the impact on morale caused by publishing the medical effects of the chemical weapons was such that volunteers for Iran's Revolutionary Guard fell by one third; moreover, the fear that Saddam's Scuds would be used to deliver chemical weapons during the 'War of the Cities' also reportedly resulted in up to one half of Tehran's population evacuating the city.[21]

Domenici argues, however, that chemical and biological weapons do not have to be used to cause fear and have a psychological effect; rather, their potential use could be sufficient.[22] This was very much the case with Saddam's use of Scud missiles in 1991 which was intended to alter the course of the war through their psychological impact.[23] Although he did not use chemical and biological weapons on this occasion, the threat that they might be used had a strong psychological effect on Israelis and resulted in gas masks being issued to the civilian population. By the same token, though, the warnings issued to Saddam by letter from President George HW Bush and then face-to-face by Secretary of State Baker to Tariq Aziz over possible Iraqi use of WMD also had a clear psychological effect. Baker spoke of the American public demanding 'revenge' and of the United States having the means to exact such vengeance, hinting that the US would aim for the eradication of Saddam's regime rather than merely his eviction from Kuwait, while Bush's letter spoke of Iraq paying 'a terrible price' were WMD to be employed.[24]

Therefore, through delivering psychological impact, WME have proven to be effective weapons that could be used by a potential adversary to achieve asymmetric advantage by attacking civilian targets. The extent to which the V-weapons, and the threat that they could carry chemical and biological agents, affected the strategic considerations of the Allied leadership will now be explored, alongside related contemporary strategic implications.

Impact on Strategic Considerations

In order to minimise the risk of the V-weapons being effective in targeting civilians, the highest

political priority was placed on pre-empting and neutralising the V-weapon threat before the first weapon could be launched; as King and Kutta argue, it would have been unacceptable for the civilian population to suffer again as they had during the Blitz.[25] The V-weapon threat was exacerbated by reports of Hitler's chemical and biological programme. This became an imperative in strategic decision making as the Allies embarked on a massive programme for developing their own chemical and biological weapons because they had to "prepare for the worst".[26] Although intended for retaliation, Churchill's serious consideration of the pre-emptive use of these weapons to counter Hitler's threat highlights the influence that the V-weapons had on strategic decision making.[27]

The imperative to counter the V-weapon threat also adversely influenced strategic planning decisions. For some time, Montgomery had been unsuccessful in securing Eisenhower's support for Operation Market Garden. As the V-2 threat became clearer, Montgomery re-submitted the plan to include the opportunity to neutralise the rocket threat. Not only did Eisenhower agree to the plan, but he allocated it the highest priority.[28] This was ultimately a flawed decision as the operation was a failure. D'Este describes Eisenhower's decision to agree to the Market Garden plan as one made "more from a sense of…pressure to overrun and put out of commission Hitler's V-weapon sites in Holland than from a solid military foundation."[29] Therefore, although the primary objective of Market Garden was not the V-weapons, it became the decisive imperative. The urgency of the requirement to neutralise the V-weapon threat therefore clouded military judgement and was the influencing factor that led to Eisenhower agreeing to the ill-fated plan.

The threat of the V-weapons also brought to the fore national imperatives and considerations within the Allies, with the inevitable potential for friction. In evaluating the most appropriate means to counter the V-weapon threat, the US proposed that a joint US/British committee should replace the British Air Ministry in having responsibility for countering the threat. This was refused by the British leadership in unambiguous terms on the grounds that it was the British people that were under threat, and therefore they would lead with the response.[30] The US was also seen to follow national interests with regard to the threat. For example, a key driver behind US support for the UK allocating a priority to the V-2 was that they believed that the rockets had the range to target mainland US.[31] Intelligence sharing also became a source of friction. A report raised by a war committee established in Washington to evaluate the implications of the rocket threat highlighted discontent over a lack of intelligence sharing; it stated that the committee was "strongly impressed by the hesitancy of British leaders to reveal the true nature of the danger."[32] Although these frictions were an issue, there is little evidence to suggest that they had a major impact on either the cohesion of the strategic alliance, or the overall war effort.

In any future conflict, our strategic centre of gravity is likely to be the cohesion of a coalition, with support of the people a critical requirement. Therefore, the need to act to minimise the psychological impact will be just as much of an imperative in contemporary considerations as it was during the V-weapon campaign, as shown by the coalition imperative to keep Israel out

of the Iraq war in 1991. Recent events in Syria have also highlighted that WME will continue to be exploited by potential adversaries to introduce frictions in creating and maintaining cohesion within a coalition. In 2012 a Syrian Foreign Ministry spokesman stated that although his government had no intention of using chemical weapons, it might consider doing so if "Syria faces external aggression".[33] The intent behind this statement was to use WME to introduce uncertainty into the minds of potential coalition partners, and thus make creating coalitions more difficult, a point reinforced by Dominici in his discussion regarding the coalition in Iraq in 2003.[34] The discovery of a WME threat during an operation could also present strategic challenges. National imperatives would then determine how a coalition partner responded, potentially leading to a withdrawal of support or military contribution.[35] The implications that WME presents for a coalition could therefore be significant, with particular emphasis on the imperative to ensure that its cohesion is not undermined.

Ranger and Wiencek argue that the presence of WME will be a key factor that complicates strategic decision making,[36] and this will include challenges associated with deterrence and potential responses. While the Allies' chemical and biological programme may have deterred Hitler from use of his programme, a combination of ethical considerations, and adherence to *jus in bello* principles and treaty obligations quite rightly precludes this from being an appropriate form of modern deterrence for the West. Credible messaging, therefore, could be extremely important. President Obama's statement in 2012, aimed at deterring Syria from using WME, caused much debate and could potentially have wider strategic implications; in this instance the US did not follow through with a specific response despite the warning that, "…a red line for us is we start seeing… chemical weapons moving around or being utilized... That would change my equation."[37] The decision to go to war with Iraq in 2003 also highlights the challenges that WME presents concerning intervention. The decision was taken because of the perceived need to counter the threat of Iraq's WMD; however the belief that Saddam had this capability at his disposal was based on ambiguous intelligence linking a chemical and biological threat with ballistic missiles.[38] As with the experience of Market Garden, history shows that the imperative to counter this perceived threat clouded political and strategic level judgement and decision making. These examples highlight that the potential presence of WME could continue to have a significant, and sometimes detrimental, impact on strategic considerations.

Although the threat of the V-weapons did have an effect on strategic thinking for the Allied leaders in WWII, there is no evidence to suggest that this had a major impact on the overall Allied effort. Experience from more recent case studies would indicate that the imperative to counter the threat of WME could continue to lead to strategic challenges. The paper will now explore the resource implications associated with countering the V-weapon threat, and its contemporary parallels.

Impact on Resources

There is a strong argument that the greatest impact the V-1 and V-2 weapons had on the overall

war effort was in the level of resources that were diverted to counter the threat. As Collier identified, "The great question was whether a substantial part of the Allied bomber effort should be switched from the battle in Normandy or the bombing of Germany to the rather daunting task of knocking out … sites".[39] The majority of these resources were allocated to Operation Crossbow, the Allied effort to coordinate pre-emptive aspects of dealing with the V-weapon threat; this included the intelligence gathering contribution and offensive strikes against the range of targets associated with the V-weapons. There was general agreement amongst the Allied leaders that air power would be the key to countering the launch of the V-1 and V-2 weapons; this was predicated on the fact that the Germans still had control of continental Europe in 1943.[40] But this could only be achieved if sorties were diverted from other missions. From 17 August 1943, when the RAF conducted the initial raid against the Peenemunde rocket development complex, in excess of 6,000 bomber missions were diverted to pre-emptively attack Crossbow targets before the V-weapon offensive started in June 1944; in January 1944 alone, 38% of all missions were assigned to meet Crossbow requirements.[41] This would reinforce Joseph Angell's observation of the challenge as "a diversionary problem of the first magnitude."[42]

With such a high percentage of missions diverted to counter the V-weapon threat, it was inevitable that such action would lead to frictions. Specifically, during the period 1943-1945, Operation Crossbow was competing with Operations Pointblank and Overlord for the same resources. Particular issues of concern were raised by both Air Chief Marshal Harris and Lieutenant General Spaatz who didn't want resources diverted from Pointblank, the offensive bombing campaign over Germany, to the defensive Crossbow campaign.[43] Central to this disagreement was a failure of the operational commanders to grasp the political imperative to neutralise the V-weapon threat and minimise any possible risk of losing the support of the population. Eisenhower, however, did understand the political imperative and with overall command for all bombing assets, he prioritised Crossbow missions over all other missions, except those that met, in his words, "the urgent requirements of the battle".[44] This was supported by Churchill. As the diversion of sorties to Crossbow became an enduring friction, Churchill personally intervened in July 1944 when he declared that "Subject to the overriding needs of the Battle of France, all Britain's available resources must be used to try to counter the flying bombs."[45]

While the two V-weapons presented very different challenges in terms of counter-measures and the associated resources that needed to be allocated, their collective "randomness" added to the resource burden necessary to counter the threat.[46] The nature of the V-2 rocket was such that it could not be defended against once airborne; therefore, destroying the launch sites became a critical requirement. The V-1 on the other hand could be intercepted with responsibility delegated to the Air Defence of Great Britain. Again, significant resource was required for the associated three lines of defence: multiple squadrons of fighters including Tempests, Spitfires and Meteors provided the first line of defence; the second line was provided by anti-aircraft guns; and the third line by barrage balloons.[47]

Despite Harris' claim in July 1944 that diverting resources to Crossbow had contributed to undermining most of Bomber Command's efforts over the preceding 3 years,[48] there is insufficient evidence to suggest that it delayed the outcome of the war, particularly considering the numbers of aircraft available to the Allies. The conclusion reached by the United States Strategic Bombing Survey is that the diversion of resources had an insignificant impact overall on the Allied war effort.[49] Kipphut reinforces this, and points to the fact that the Crossbow missions successfully delayed the use of the V-weapons by 3-6 months, which was long enough to enable the Normandy landings to take place as scheduled.[50] There is also an argument that Hitler's persistence with the V-weapons, and his obsession with the V-2 in particular, had a positive impact on the Allied war effort. In order to pursue the V-2, Hitler ordered that all available resources should be allocated to the programme. This resulted in the cancellation of projects such as the *Wasserfall* anti-aircraft programme with the resultant effect that there was no need for dedicated suppression of enemy air defence missions because allied bombers encountered significantly less German defences during their bombing raids.[51] While the V-weapon campaign was successful in meeting Hitler's objective of diverting resources, this did not have a decisive effect and did not have the desired impact of altering the course of the war. In particular, it came too late to delay the Normandy offensive.

It is likely that one of the most significant contemporary implications raised by WME would also be associated with the allocation of resources to counter the threat. The significant level of resource diverted to counter the threat of Scuds being launched at Israel in 1991, 1,500 strike sorties, mirrored that allocated to counter the V-weapon threat.[52] But Kipphut makes the point that future challenges will be greater because the threat is likely to comprise more technologically advanced ballistic and cruise missiles.[53] A mass of resource alone will no longer be sufficient (or indeed be available) to counter this threat, which will result in the need for a more sophisticated approach and a prioritisation of assets.

The threat that these weapons could carry chemical and biological (and nuclear) warheads is an additional imperative in the requirement for comprehensive defences. But countering the threat of these WME needs to go much deeper, and according to a senior Pentagon official, should comprise a layered approach, including prevention, and active defence, both of which will have implications for resource allocation.[54] While prevention will require international community enforcement of regulations and treaties, rogue states may not necessarily pay much heed to this. Iraq openly flaunted its disregard for the international community's efforts during the Iran-Iraq war, with Syria threatening to do the same in 2013. Another facet of prevention therefore, is the possibility of offensive pre-emptive strikes. But pre-emptive strikes would not be acceptable in all instances, and, as discussed above, would the appropriate resources exist for a successful campaign?[55]

Amongst the range of counter-measures available, it is possible that defensive measures could be the most complex. Ballistic missile defence systems are at the forefront of these considerations. Given the challenges associated with developing a comprehensive defensive

system, it is no surprise that the US is fostering a network of close partnerships including with NATO, Japan and Israel.[56] But at a time of restraint in defence spending, prioritisation in the allocation of scarce resource will be essential and will not be without friction. For example, the US announced in March 2013 that it would divert its missile defence efforts from Europe to the US west coast to counter the developing North Korean ballistic missile threat, but this could only be achieved by cancelling its proposals to deploy a similar capability in Europe.[57] Therefore, while the contemporary threat posed by WME has also been shown to require the diversion of resources, the future challenges are likely to be more complex with the potential for greater friction internally and amongst partners in determining the most effective means of allocating appropriate resources to counter the threat.

Conclusion

The paper has shown that the V-weapons did not, as Hitler had hoped, impact on the Allied war effort sufficiently to alter the course of the war. They did, however, have a significant effect which extended beyond military considerations. As terror weapons, and underpinned by the belief that they could be used to deliver chemical and biological agents, the psychological impact they had on both the population and war leaders had a major influence on strategic considerations throughout the later stages of the war, particularly with regard to the diversion of resources. Paradoxically, and rather than limiting their effectiveness, the inaccuracy and indiscriminate nature of the V-weapons reinforced their potential categorisation as original weapons of mass effect.

Analysis has also shown that there are many parallels with contemporary implications of WME. In particular, evidence suggests that the psychological impact of these weapons could remain significant in influencing strategic considerations, especially those associated with protecting the centre of gravity. Not all historians, however, agree with the paper's thesis regarding the legacy of the V-weapons as WME. For example, Neufeld argues that "The ballistic missile wasn't an effective weapon until you put a nuclear warhead on top of it – and suddenly it became a super weapon".[58] But this misses the point regarding cognitive influence. Masters supports this view by arguing that while ballistic missiles may still not necessarily be very accurate, their greatest impact will be in the psychological domain by targeting populous regions.[59]

Finally, the statement quoted from *The Times* that introduces this paper is as valid today as it was in 1937. But even if a contemporary war is not 'waged' with WME, the threat posed by missiles with the capability to carry such warheads, even if not used, will ensure strategic influence by having psychological impact. The imperative to mitigate this impact will therefore remain strong and the enduring challenge will be associated with decisions regarding how to counter a possible WME threat. This is reflected in the fact that many senior interlocutors have recently highlighted the need for the UK and NATO to give serious consideration to robust ballistic missile defence measures.[60] As the UK begins to refine its thinking on SDSR15 considerations, investment in a missile defence capability may be a key outcome that mirrors the priority placed on cyber defence considerations in SDSR10. While it is impossible to predict

whether this will be a key outcome, and at what cost, it can be predicted with a degree of certainty that prioritising such a decision will not be without its difficulties.

Notes

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[23] Kipphut, "Theatre Missile Defense," 36.
[24] See Kenneth B Payne 'On Nuclear Deterrence and Assurance' in Anthony C Cain (ed), *Deterrence in the Twenty-First Century: Proceedings* (Maxwell: Air University Press, 2010), 86 and Baker's testimony to the Senate Foreign Relations Committee, 19 May 2010, in which he offered his views on the effect the warning had: **http://www.foreign.senate.gov/imo/media/doc/BakerTestimony100519p.pdf** (accessed 4 April 2014).
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[42] Goldstein, "Pinpricks", 87.
[43] Ibid.
[44] Story, *Third World Traps and Pitfalls*, 10.
[45] Goldstein, "Pinpricks", 89.
[46] King and Kutta, *Impact*, 317.
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[48] Henry Probert, *Bomber Harris: His Life and Times* (London: Greenhill Books, 2001), 296.
[49] United States Strategic Bombing Survey, *V-Weapons* (Crossbow) Campaign, 36.
[50] Kipphut, "Theatre Missile Defense," 39.
[51] Johnson, *V1 V2*, 164.
[52] Goldstein, "Pinpricks", 101.
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