In Time of War: the Emergency Repair of London's Dwellings Damaged by Vengeance Weapons during the Second World War

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Abstract

In the latter part of the Second World War, from June 1944 to March 1945, London experienced vengeance "V" weapon attacks launched from Nazi-occupied Europe. The catastrophic damage caused by the flying bombs and rockets in London caused many residents to lose their homes. This could have been devastating to the morale of the city's population at a critical time in the war. Although many homes were destroyed outright a large number were capable of being given "first aid" repairs and made habitable in a short amount of time. To negate this problem the UK construction industry was charged with dealing with this problem. This paper investigates the British Construction Industry's timely response in providing repairs to dwellings in London damaged by vengeance weapons during the Second World War. Historical research methods are used to bring meaning to this unique historic disaster response. The specific events are identified and analyzed using both secondary historic data published after the end of the war and primary historic data held in the National Archive, the London Metropolitan Archive, Camden Local Studies and Archives Centre and the Imperial War Museum. Primary data is mainly in the form of contemporary government reports and meeting minutes. To complement the historical data and to illustrate the damage caused by the vengeance weapons, an individual V weapon incident in the Charlotte Street Conservation Area in the London Borough of Camden was surveyed and analyzed. Results show the construction industry, guided and assisted by government agencies responded rapidly. Workman from all over the country were recruited and brought into London to carry out the repairs. They were provided with adequate housing and welfare. Specific materials were identified, appropriated and made available to the industry. The results also show the quickness and success of the response was due to many of the special conditions existing in "Time of War". The study concludes the British Construction Industry responded well to this manmade disaster and while comparisons can be made to similar disaster responses such as Hurricane Katrina; one should always be aware of the special circumstances existing during wartime.

Keywords: world war II, disaster response, London, construction, repairs

1. Introduction

Destruction due to war is a common result which devastates the people of the land on which the conflict takes place. The rapid increase in technology during the 20th century created a new dynamic to war: attack by air. The ability for the enemy to kill and destroy property and materials with little or no warning began as war was taken to the air. In the context of modern war, bombing causes death and destruction; however, buildings have the ability to be repaired and reused.

In the latter stages of the Second World War, Nazi Germany built a range of guided missiles called vengeance weapons, or commonly referred to as "V" weapons. The first V1 attack on Great Britain occurred shortly after 4:00 A.M. on June 13, 1944 in London: only seven days after D-day (King & Kutta, 1998). The V1 weapon, also known as flying bomb, was a pilotless weapon which was sensitively fused and exploded on impact to cause damage by blast (HO 192/1636, 1944). The V1 was basically an 'area weapon' aimed at the centres of population; however, although London was the target for the weapons, many fell short and landed south of London (Saunders, 2005). The heaviest V1 attack began during the night of the 15/16th of June and continued to the end of August (National Archives, Kew [NA] HO 192/1636, 1944). Although the main V1 offensive was over by September 1, 1944, V1s continued to hit London until the end of March 1945.

On September 8, 1944 the first V2 long-range rocket hit Chiswick. The V2 was a ballistic missile with 2,000 lb. warheads, which caused larger craters and damaged even more subterranean utility services than the V1s. However, the V2s surface blast effect was generally less. (Saunders, 2005). The V1 and V2 bombing campaign against London was intended to demoralize the population. The people of London made every attempt to be tough and laugh off the dangers they faced, even giving the V1 the nickname *Doodlebug* (King and Kutta, 1998).

From the damages caused by the Blitz earlier in the war, it was apparent the Government needed to strengthen the existing emergency repair organization (Kohan, 1952). The plan in action during the Blitz to help the homeless due to air raids revealed the inadequacy of the plan both practically and in terms of morale (Creaton, 1998). The Ministry of Reconstruction was created in the midst of the war to provide the critical attention needed to take care of the damages from the air raids of the Blitz, future V1 and V2 attacks, and rebuild after the war ended (Kohan, 1952).

After the damages of the Blitz, the Government Ministries acknowledged the need to collaborate in order to accomplish the goal of repairing the damaged houses in addition to the affected population. The various government ministries (Reconstruction, Health, Labour, and Works) all joined forces to initiate the solution to the overwhelming need for labour, materials, and time. The duties of the noted Ministries included keeping in touch with local authorities for their needs, making detailed arrangements to enable contractors to use their own labour and plant, and allocating the limited quantities of materials to the places where they were most required (Kohan, 1952).

With the amount of damage caused by the vengeance weapons, the government was required to implement a recovery system to make the necessary repairs to London's damaged buildings and

dwellings in order for London civilians to be unaffected as possible. By the end of September 1944, the Minister of Reconstruction, Lord Woolton, commenced a campaign to bring London back to at least the condition it was in before the flying bomb attacks began in June (Kohan, 1952). In a press conference held to address the dwelling damage in London on September 15, 1944, Lord Woolton made the following statement:

For people to be deprived of their homes is a dreadful thing, and the fortitude and the discretion with which they have borne it without complaint is beyond praise…We shall conduct this attack [on the damaged houses] as a military operation. (NA CAB 124/471, 1944)

The role of the construction industry during this time of warfare played an essential part in maintaining civilian morale. The British government's goal was to first alleviate, and if possible remove, the suffering of persons as a result of the damage from the air raids (Kohan, 1952). Lord Woolton's emphasis on "giving tolerable living conditions for the winter" to the civilians was one form of the realism created by warfare. Throughout the conference held on September 15, 1944, Lord Woolton praised the morale of London constantly (NA CAB 124/471, 1944).

Lord Woolton announced that with the organization of the government ministries the majority of the damage created by the V1 flying bombs at that point was capable of being dealt with. By handing the air raid damage in a manner of emergency responses, the quality of the work was not the most important aspect of the repairs. Lord Woolton addressed this issue and requested patience from not only the citizens of London, but also the press covering the V1 bombings with regards to not focusing on the negative attributes of the craftsmen at work (NA CAB 124/471, 1944).

The aim of this paper is to investigate the war time government authorities and the construction industry response to the vast amounts of damage, particularly to houses, caused by Hitler's vengeance weapons Analyzing the government's coordination of resources while operating under the unique circumstances that existed during World War II allow for an opportunity to investigate a historically significant emergency repair strategy.

2. M ethodology

Since the purpose of the research is to investigate the war time government authorities and the construction industry response to the damage caused by Hitler's vengeance weapons, it was critical to obtain data that covered these events. The main source of data for this paper was original, historic documents for which are considered primary sources. The reason for needing such primary sources was due to the lack of specific secondary material currently published on the subject.

The research data was compiled from the UK National Archive in Kew, the Imperial War Museum, London Metropolitan Archive, and Camden Local Studies and Archives Centre. Various government agencies contributed documents to each of the archives utilized in the study. Because of the interlocking of activities during the war of separate departments, the records of some departments

provide useful information on the activities of others, particularly where there was some kind of coordination through joint bodies (Cantwell, 1998).

The need for the data gathered was to form a collection organized by subject in relation to the overall research goal of providing an account of the construction industry's role in the emergency repair work for the V1 and V2 air raid campaigns on London. By exploiting the different filing systems in the listed archives, the ability to find the information was possible. By looking for specific keywords throughout each resource, it was possible to separate the information into the two themes of the investigation: the damage caused by the V1 and V2 attacks, and how the damage was repaired.

3. Results

The administration of the repair effort was shared among several government ministries, local authorities, public utilities and commercial undertakings but the burden of administering the repair of dwellings fell mainly on local authorities (Kohan, 1952). The results of the investigation will focus on two themes; the damage caused by the V1 and V2 attacks and and how the damage was repaired. This will serve to illustrate the extent of the task and how the various authorities and the construction industry responded to the task.

3.1 Damage caused by the V1 and V2 attacks

The scale of the bomb damage to the London dwellings from the V1 and V2 weapons is critical in understanding the amount of logistical attention required to provide relief to the affected areas of London. To gain a better understanding of the damage caused two investigations were carried out; identify the damage caused by an individual incident and the scale of the damage across the whole of London at the end of 1944.

3.1.1 V1 flying bomb on Whitfield street, London borough of Camden

The analysis of an individual vengeance weapon incident will serve to illustrate the extent of damage caused by one weapon. A V1 flying bomb fell on Whitfield Street, midway between Goodge Street and Windmill Street in the Borough of St. Pancras at approximately 12:50 PM on June 19, 1944 (NA HO 198/80, 1944). The Bomb Census report written the day of the incident included the following statement in the damage notes: *"[V1] fell on old brick and timber properties at rear of Tottenham Court Road Police Station. Damage extensive and severe but impossible to assess at time of investigation. Street filled with debris and rescue work in progress. Casualties feared heavy- many trapped."* (NA HO 198/180, 1944). The Situation Report at 6:00 PM on June 20th, the following day, reported on many concurring incidents around London. For Whitfield Street, the Situation report claimed 21 had been killed, 79 injured seriously, 146 injured slightly, and about 8 people were still missing at that time. On June 21, 1944 an updated Situation Report was published at 6:00 PM stating *"Four further bodies recovered, three missing. Rescue work still proceeding."* (NA HO 198/180, 1944). The minutes of the St. Pancras Borough Council ARP committee of June 20, 1944 provide a

vivid account of the activities in the borough that followed this attack and two others nearby. The ARP controller reported that heavy and light rescue parties were on the scene within minutes and that the heavy equipment such as cranes and skips was available shortly after. Immediate first aid repairs were carried out on hundreds of houses by the Ministry of Works Flying Squad and the council's workforce (Camden Local Studies and Archives Centre, 1944).

During the Second World War the London County Council's Architects Department produced hand coloured Ordnance Survey maps to show the category of damage that occurred to buildings as the result of bombing. The various colours indicate the severity of the damage: Black- total destruction; Purple- damaged beyond repair; Dark Red- seriously damaged (doubtful if repairable); Light Red- seriously damaged, but repairable at cost; Orange- general blast damage, not structural; Yellow- blast damage, minor in nature (Saunders, 2005). In addition various government reports also categorize damage into five distinct classifications: "A" - demolished or destroyed; "B" – demolition necessary or damaged beyond repair"; "Cb" – seriously damaged and uninhabitable; "Ca"- seriously damaged but still usable and "D" – slightly damaged. Although different classification systems were used, interpretation of the bomb damage maps and primary source material make it easy to identify the extent of damage that occurred following the events of June 19, 1944. The minutes of the St. Pancras Borough Council ARP committee of July 4, 1944 give an update on the aftermath of the June 19 incident and give us a clearer picture of the damage and loss inflicted. Casualties from the attack had risen to 35 dead, 76 seriously injured and 163 slightly injured. The attack had caused 200 people to become homeless and many of these were accommodated in the council's rest centre. The damage to property was also reported. Table 1 gives a breakdown of the damage to property caused by the flying bomb at Whitfield Street. It is interesting to note that the vast majority of the properties that were damaged were still considered habitable. It is these properties that would be afforded repairs (Camden Local Studies and Archives Centre, 1944).

Table1. Damage to properties in Whitfield Street

Provisional Classification				
Uninhabitable			*Habitable*	
"A"	*"B"*	*"Cb"*	*"Ca"*	*"D"*
Demolished	*Demolition necessary*	*Seriously damaged and uninhabitable*	*Seriously damaged but still usable*	*Slightly damaged*
12	*8*	*17*	*18*	*168*

3.1.2 The scale of the damage across the whole of London at the end of 1944

Table one gives an indication of the damaged caused by one flying bomb; but what of London as a whole? The War Cabinet was receiving constant updates on the amount of damage caused by the vengeance weapons and the government's response to repairing houses. The local authorities' estimates of the number of houses damaged between June 13th, and December 29th, 1944 for the whole of the London region gives a snapshot of the situation during the last winter of the war (table 2).

Table2. Damage to properties in the London region between June 13 & December 29, 1944

Provisional Classification				
Uninhabitable			*Habitable*	
"A"	*"B"*	*"Cb"*	*"Ca"*	*"D"*
Demolished	*Demolition necessary*	*Seriously damaged and uninhabitable*	*Seriously damaged but still usable*	*Slightly damaged*
9234	*15784*	*81018*	*54161*	*958673*

Table 2 shows that by the end of 1944 just over one million homes had been damaged but were still capable of being repaired. The government had set a target of making 719,300 of these houses "tolerably comfortable" during the winter. By the end of 1944, 298,937 or about 42% of the target houses had achieved this target (NA CAB 141/135). By the target date of March 31, 1945 close to 800,000 houses had been repaired (Kohan, 1952).

3.2 Repairing the damage caused by V1 and V2 attacks

To make economical use of materials and labour certain measure were adopted: a standard for repairs; gathering of intelligence on the damage to property and the availability of labour and materials; organization of the builders' merchants to regulate materials; and regulatory control of the labour supply. The repairs that were required to damaged houses were categorized into "first-aid" repairs which were carried out almost immediately after the attack and were sometimes performed by the Ministry of Works "Special Repair Service". These repairs were considered a "field dressing" and were intended to make the property weather-tight. The repairs indentified in table 2 and described below are considered "second stage" repairs and were intended to create "tolerable conditions in which the weather is kept out and the warmth kept in" (Kohan,1952).

The key to defining how the repairs were to be conducted can be traced to a speech made by the Minister for Reconstruction, Lord Woolton on September 15, 1944. In that speech he identifies the need to repair as many of the bomb damaged houses to provide "tolerable living conditions for the winter" (NA CAB 124/471, 1944). Since many building materials were in high demand during the war, the government had to make policies for what was appropriate to be repaired and what was not. In a statement to the House of Commons in December 1944 Duncan Sandys, the Minister of Works, identified problems with the materials being used for repair work. First, the standard of repair varied between local authorities. In some areas non-essential work was being carried out using up scare materials and labour. Second, some local authorities were using materials of the highest quality when substitute materials were available (London war-damage repairs; Mr. Sandy's statement in the commons, 1944).

New standards and material policies were addressed in the London Repairs Bulletin-Issue No.1 issued by the London Repairs Executive in January of 1945 (NA CAB 123/5, 1945). Local authorities were

told that no rooms not essential for the use of the family or families living in a house were to be repaired. No decoration or painting should be carried out unless essential for the protection of work done. The use of substitute and salvaged materials was also strongly encouraged. Wherever possible, old slates were to be used in repairs to roofs. If, however, there was an insufficient supply of old slates, all patching was to be carried out with the larger sizes of new slates. If no slates were available then the material options were asbestos sheeting, black corrugated iron sheets, concrete tiles, or reinforced felt. Insulation board, hardboard and partition blocks were recommended to replace the use of plasterboard that was in short supply. Finish plaster was also in short supply. The replacement of doors and windows also involved the use of temporary "war-time standard doors" and the use of "emergency windows" with expandable frames. In addition, 50% of replacement glazing could be done with clear sheet glass the remainder was to be done with "R" glass. The London Repairs Executives produced a pamphlet called "Mending your home" to pass out to homeowners as the repairs were being made. This leaflet reinforced the aim of the repairs was to make the house "tolerably comfortable" as quickly as possible and also explained why substitute materials were being used (NA CAB 123/5, 1944-1945).

Up until December 1944 contractors and local authorities were free to buy materials from any builders merchants in London or outside. This had led to materials being transported long distances and in some instances stockpiled (London war-damage repairs; Mr. Sandy's statement in the commons, 1944). Many materials were in short supply most notably plasterboard, hard wall plaster, slates and glass. To allocate these materials fairly the Assistant Director of Emergency Works for London gave each local authority the amount of scarce materials available to them, and the details of the builders' merchants they could obtain them from on a weekly basis. Other building materials could be obtained through local merchants (NA CAB 123/5, 1944-1945).

The Ministry of Works had come into existence in October 1940 in order to take over the organization of civil works and building and the general control of all building work. By October 1941 the Central Council for Works and Building within the ministry had established four aims for the construction industry (Kohan, 1952):

1. To secure that (while the demand for construction persisted) every efficient contractor, so far as possible, be continuously employed on the right kind of work and in the right district, with the minimum transport of men and plant.

2. To help the smaller contractors to maintain their independence by making sure they obtained a fair share of the essential work.

3. To ensure that in case of emergency adequate management and labour could be made rapidly available to deal with first-aid repairs in all areas, and especially in target areas.

4. To secure accurate information of the capacity of all the contractors in the region, both for the purpose of the better selection of contractors and sub-contractors, and for the use of the Regional Commissioners and of the fighting services in the event of invasion or other emergency.

In order to fulfil these aims the government required from October 1, 1941 all builders to be registered with the Ministry of Works in order to obtain information about each builders' personnel. In addition, the Ministry of Labour had the power under the Defence (General) Regulation to schedule sites and undertakings where essential construction work was being carried out. This created additional restrictions on certain employees who could not be dismissed or leave without the permission of a government official. Workers on scheduled sites were paid a guaranteed wage but were also subject to strict rules on absenteeism, lateness and disobedience of orders (Kohan, 1952).

The Defence (General) Regulation had also been used to restrict all private building not essential for the war effort and to make the most economical use of labour and materials for any civil building that was required. A tentative order of priority for building and construction listed 21 construction activities which listed first-aid air-raid repairs to the military machine as the top priority and first-aid air-raid damage repairs to houses as the fifth activity on the priority list (Kohan, 1952). By early October the government had placed further restrictions on private construction basically stopping all private non-essential construction work in London. Sir Malcolm Eve, the chairman of the War Damage Commission and the government official overseeing the repair effort reported to the press that "in London no work shall be permitted which is not absolutely essential" (London Repairs: Sir Malcolm Eve's statement, 1944).. With these restrictions in place the construction industry could focus on work essential for the war effort and any repair work resulting from bombing.

To keep abreast of a constantly changing situation an Intelligence Section staffed by the Ministry of Works operated twenty-four hours a day. Its function was to gather and issue information on vengeance weapon incidents and the resources that were available to repair the damage. The information gathered by the Intelligence Section allowed the authorities to make the best decisions on using the scarce resources of labour and materials and direct them to the areas where they were most needed (Kohan, 1952).

The problem of securing enough labour to carry out the repairs was a significant one. War creates huge demands on a nation's labour supply. The armed services required mainly young healthy men for fighting the war; these were just the people that the construction industry also required. The Schedule of Reserved Occupations was introduced in 1939 to ensure "workpeople possessing skill or experience that is required for the maintenance of necessary production or essential services are not accepted for services in H.M. Forces or for whole-time service in the Civil Defence Service". This meant that men above the age of reservation could not be called up or accepted for service in the armed forces and in some cases men in certain trades could not be accepted into the armed forces even if they volunteered (Great Britain, 1939). A typical repair squad contained carpenters, plumbers, plasterers, bricklayers, slaters, painters, glaziers and labourers (Kohan, 1952). Of these trades the restrictions on plumbers and bricklayers was the most restrictive. Men in these trades had an age of reservation of 18 and could not volunteer for the armed services except if they were over 23 and volunteered in their trade capacity. Carpenters, slaters and plasterers had an age of reservation of 25; painters and glaziers 30 (Great Britain, 1939). The Schedule of Reserved Occupations was later amended to also include labourers (Kohan, 1952).

When the flying bomb attacks began in June, 1944 it was reported that the labour force employed on repairing war damage from earlier raids in the London Civil Defence Region was about 21,000 (Kohan, 1952). By September of 1944, Lord Woolton was able to report "We have 83,000 men engaged on the work of repairing war damage of all sorts in the London area. We need more. Especially we need more craftsmen…" (NA CAB 124/471, 1944). By December of the same year, the number had almost reached 129,000. The increase in workers was credited to several sources: 44,500 men from the provinces; 27,100 by the Ministry of Labour (4,000 of which were a result of responding to an appeal done by the Ministry of Labour); 14,300 by the Ministry of Works (Kohan, 1952). Labour organizations like the National Federation of Building Trades Operatives played an important role in recruiting workers by issuing recruitment materials with a stirring call to arms;

"We are the shook troops of the civilian army- the 'commandos' of industry. The word 'impossible' must not exist for us. Upon us depends the health, happiness and future well-being of countless thousands of our fellow men, women, and children. Londoners have been promised that everything humanly possible will be done to complete the great bulk or the essential repairs by the early spring. They are looking to us with eager hope for guarantees that this promise will be kept. Can we let them down? We know <u>YOUR</u> answer." (NA CAB 123/6, 1945).

Local authorities looked to their own areas first to locate labour and would then seek assistance from neighbouring authorities and the government for additional labour. The government would initially direct labour to the areas where most damage had occurred, but due to the indiscriminate nature of the vengeance weapons, these areas changed. This involved re-distributing labour around London. In accomplishing this, the authorities first re-located the labour brought in from the provinces and only moving local contractors from their own areas when necessary. Due to the large number of workers moving into London from the provinces there was a need to house and feed them. By January 1945, 25,000 of the estimated 130,000 construction workers were housed in 240 hostels and camps throughout London. Day to day welfare amenities were primarily the responsibility of employers and consisted of mid-day meals, hot drinks, laundry and washing facilities (Kohan, 1952).

4. Conclusion

Individual vengeance weapons caused considerable damage where they landed and this was repeated all over London as these weapons fell indiscriminately. The vast amount of devastation caused by these weapons caused considerable pressure on the government at a critical time in the war following the Normandy landings. Even though the damage was extensive the majority of the houses damaged were capable of being repaired and made habitable. The government set a target to make the majority of the damaged houses "tolerably comfortable" by the end of March 1945. The construction industry working in harmony with the various government agencies was able to meet and exceed this target.

The success of this endeavour was achieved by a number of factors. First of all the damage created by the vengeance weapons was identified and categorized into five distinct categories. This allowed the authorities to quickly identify those dwellings that could be made habitable. Secondly, the quality of the repairs carried out on the dwellings was of a lesser quality than would be expected in peace time

and made the best use of scarce materials. In addition the government conducted the repair of the dwellings as if it were a military operation, even going so far as having an intelligence section that constantly monitored the status of the damage inflicted by the weapons and the resources available to make good the repairs. Through both voluntary agreements and strict regulations the government was able to control the supply of materials and labour and direct them to the most affected areas. The government was also able to provide the welfare facilities to support a large workforce.

There is no doubt that the emergency repair of the houses damaged by the vengeance weapons was a success as the target set by the government agencies was exceeded. The reason the undertaking was successful was the government was able to put in place a number of measures that rigidly controlled the construction industry. Many of these measures placed severe restrictions on individuals and may have only be possible to enforce in time of war.

References

Camden Local Studies and Archives Centre. (1944). *Minutes of A.R.P Committee, June 20 & July 4, 1944.* London: St. Pancras Borough Council.

Cantwell, John D. (1993). *The Second World War: A Guide to Documents in the Public Record Office*. London: Her Majesty's Stationery Office.

Creaton, Heather. (1998). *Sources for the History of London 1939-45: A Guide and Bibliography*. London: British Records Association.

Great Britain. (1939). Schedule of reserved occupations: Revision May, 1940. London: H.M.S.O.

King, Benjamin & Kutta, Timothy, J. (1998). *Impact*. New York: Sarpedon.

Kohan, C. M. (1952). In Hancock, W. Keith (Ed.). *Works and Buildings, History of the Second World War United Kingdom Civil Series.* London: Her Majesty's Stationery Office.

London Repairs: Sir Malcolm Eve's statement (1944, October 6). *The Builder*, pp. 273.

London war-damage repairs; Mr. Sandy's statement in the commons (1944, December 22). *The Builder*, pp. 497-8.

National Archive UK, Kew. (1944). *Conference Held with Representatives of the Press by the Minister of Reconstruction, the Minister of Health and the Minister of Works and Buildings on Friday, 15th September, 1944* (CAB 124/471). London: Cabinet Office.

National Archive UK, Kew. (1944). *Flying Bombs: Analysis of Damage Caused*. (HO 192/1636). London: Home Office.

National Archive UK, Kew. (1944). *London Civil Defence Region: Situation Reports* (HO 198/180). London: Home Office.

National Archive UK, Kew. (1944). *Repair of Flying Bomb Damage Report* (CAB 124/471). London: Cabinet Office.

National Archive UK, Kew. (1944-1945). *London Repairs Executive Bulletin- Issue 1* (CAB 123/5). London: Cabinet Office.

National Archives UK, Kew. (1945). *Message to the workman issued by the National Federation of Building Trades Operatives* (CAB 123/5). London: Cabinet Office.

National Archive UK, Kew. (1944). *Local Authorities' estimates of the number of houses (dwellings) damaged and repaired (made comfortable)* (CAB 141/135). London: Cabinet Office.

Saunders, Ann (ed). (2005). *The London County Council Bomb Damage Maps 1939-1945.* London: London Topographical Society.