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## The destruction of Dutch cities during the Second World War.<sup>1</sup>

### Introduction

Until now, no systematic research has been performed on damage to Dutch cities during the Second World War. Of course the destruction of Rotterdam in May 1940 is well known, but even most inhabitants of the Netherlands are unaware of the fact that in a considerable part of the country almost all cities were slightly or severely damaged.

There seem to be two reasons for this lack of awareness. The first is that the rebuilding of damaged cities coincided with the modernisation of all cities. After the war, in all cities zoning, the separation of urban functions, resulted in locating retail trade and other aspects of the service sector in the city centres at the expense of dwellings and industry, which were transferred to the outer quarters. Therefore most inner cities were restyled and showed the same modern face, so that it was unclear whether this was caused by war or by 'peaceful' interventions.

The second reason is that the history of Dutch cities during the Second World War focuses on individual cities. Almost all cities and even villages have their own stories of this period, mostly written by local people, bearing bombastic titles like 'How Nijmegen suffered' or 'How Groningen fought'. But there is no synthesis. The spatial variable only figures in Dutch general histories of the Second World War when strategic operations are described.<sup>2</sup>

Therefore, to be able to make any analysis of urban damage it was necessary to do close reading of all 30 volumes of the official Dutch history of the Second World War, written by Lou de Jong<sup>3</sup> and, of course, of many monographs on individual cities. This resulted in a rather complete list.<sup>4</sup>

### Periodisation

When we take into account this list of damaged cities, it is possible to distinguish three periods in which most damage occurred. The first period is May 1940 when the Germans attacked the Netherlands. In this period the air attack

<sup>1</sup> First published in M. Körner (ed.) *Stadtzerstörung und Wiederaufbau, Zerstörung durch die Stadtherrschaft, innere Unruhen und Kriege* (Haupt Verlag Bern 2000) Volume 2, 289-301.

<sup>2</sup> See for instance: A. Korthals Altes, *Luchtgevaar. Luchtaanvallen op Nederland 1940-1945* (Amsterdam 1984) which gives a complete survey of the air attacks; Peter A. Veldheer & E. v.d. Weerd, *De slag om de Veluwe 1945* (Arnhem 1981); B. Koning, *Bevrijding van Nederland 1944-1945* (Nijkerk 1960); W. Denis Whitaker & Shelagh Whitaker, *Tug of war* (Ontario 1984).

<sup>3</sup> L. de Jong, *Het Koninkrijk der Nederlanden in de tweede wereldoorlog* (Den Haag 1969).

<sup>4</sup> This list was made by my wife Anje, for which I am very grateful.

on Rotterdam as well as on Middelburg took place. The second period was the autumn of 1944 when the allied forces, coming from Belgium, liberated the south of the Netherlands. This military operation stopped near Arnhem, which proved to be 'one bridge too far'. The third period was the spring of 1945 when the rest of the Netherlands was liberated.

Most damaging of Dutch cities took place along the front lines in these three periods. However, outside these periods some Dutch cities were also severely struck by allied forces carrying out air attacks on strategic targets, and unfortunately also by some stupid mistakes.

### **First period, May 1940**

The core of the Dutch defence system was the New Dutch Inundation line (*Hollandsche Waterlinie*), a system of canals, sluices and pumping engines which could inundate the lower parts of the Netherlands. This was combined with a set of fortifications around the strategic cities of Amsterdam and Utrecht. This defence system concentrated on the western parts of the country, which was the most urbanised one. The defence of larger cities in other parts of the country such as Groningen, Arnhem, Nijmegen, 's-Hertogenbosch, Tilburg, Eindhoven and Maastricht had lower priority. There was, however, a second defence system in the south, the Peel defence system (*Peel-Raamstelling*). Moreover most of these cities were situated along rivers where, in case of attack, bridges could be demolished.

May 1940 witnessed the bankruptcy of the inundation system. The German aeroplanes simply crossed it and dropped their parachutists on the airports near The Hague, the seat of the Dutch government, and on the main airport, Schiphol, near Amsterdam. These attacks failed and the German troops were surrounded by Dutch troops, but in Rotterdam, Dordrecht and near Moerdijk, where large bridges connected the west of the country to the south, the German troops succeeded in occupying strategic bridges.

At the same time the German armies attacked along three lines. In the north they moved very quickly and easy; there were only heavy fights at the head of the Afsluitdijk which connected the north to Holland. In the south the river Maas was crossed and the Peel defence system was easily taken. In the middle there was three days of heavy fighting at the Grebbe Hill (Grebbeberg) near the town of Rhenen, east of the inundation line. Rhenen and the towns of Veenendaal en Wageningen for the most part were demolished.

The Dutch ground troops retreated in the west. To enforce capitulation, on 14 May 1940 the Germans launched an air attack on Rotterdam. Since this was the second city of the Netherlands, the damage in Rotterdam was the largest in an urban setting during the Second World War, in absolute rather than in relative terms. 25,000 houses were demolished as well as 2500 shops, 1200 industrial plants, 70 schools, twenty banking offices, twelve cinemas, four hospitals, two theatres and two railway stations.



The centre of Rotterdam 14 May 1940 (collection Gemeentearchief Rotterdam)

As a result the Dutch army surrendered because, otherwise, Amsterdam, The Hague, Utrecht and Haarlem would have suffered the same fate. An exception was made in the province of Zeeland in the south which French troops tried to defend. Here German air raids damaged the harbour city of Flushing (Vlissingen) and the capital city, Middelburg. The historic centre of Middelburg was completely destroyed. The German press blamed the English for the attacks on this 'Hollandisches Rothenburg'. Zeeland capitulated too.

Apart from the cities and towns mentioned above there was also serious damage in the navy harbour of Den Helder and in IJmuiden, situated at the beginning of the large canal connecting the North Sea to Amsterdam, and in the whole of the Netherlands almost no bridges were intact. Amsterdam and The Hague did not have any serious damage, but in The Hague the construction of the Atlantic Wall soon started, a concrete defence line along the coast against possible British invaders. This caused the evacuation and demolition of whole quarters.

### **Infernal intermezzo**

The second period of systematic damage would occur in 1944. But in the meantime some Dutch cities and towns became targets of British air forces. In 1942, for instance, Geleen was attacked instead of Aachen. Bombing also oc-

curred on strategic industries in Hengelo (Stork metal) and Eindhoven (Philips). In Amsterdam a residential quarter was bombed instead of a shipyard, and in Haarlem the bombs missed the railway station and destroyed a residential quarter. Moreover there were almost constant air attacks on shipyards and harbour installations in Rotterdam, Vlissingen, Den Helder and IJmuiden, places which were easy to reach for the Allied forces and therefore were called 'freshmen's targets'.

In 1943 the Americans joined the RAF. Due to scanty geographical knowledge, their air attacks proved much more inaccurate. Some Dutch cities were bombed by mistake: Enschede, for instance. In February 1944 the 'Big Week' was launched, an American offensive against the German aeroplane industry. Due to the lack of geographical knowledge of some pilots, this offensive proved to be fatal for some cities in the east of the Netherlands near the German border. Instead of Dülmen, near Münster, Enschede was attacked again: almost the whole textile industry, situated in the centre of this city, was demolished. Arnhem was confused with Gogh: the Americans intended to bomb fuel tanks in Gogh but struck the gas factory in Arnhem. The most severe damage was caused in Nijmegen, which was mistaken for the German city of Kleef.<sup>5</sup> The inner city and the railway station with its surrounding area were destroyed, 1270 houses vanished, 1000 were injured and about 800 people died, which was almost as many as in Rotterdam in May 1940.<sup>6</sup> In the autumn of 1944 more destruction followed, which made Nijmegen the relatively most damaged larger city of the Netherlands.

### **Second period. Autumn 1944**

After D-Day the Allied forces reached the south of the Netherlands in September 1944. In Zeeland a complicated front line was created to control the supply routes of the harbour of Antwerp, already conquered by the Allied forces. The small town of Breskens was completely bombed and Axel, Aardenburg and Sluis were damaged by the Allied march. More than 5 million bombs and grenades were thrown on the villages and towns in the southwestern parts of Zeeland. The Allied forces inundated the island of Walcheren, where Middelburg and Vlissingen are located.

In fact all towns and cities in the south of the Netherlands became front cities. To disrupt transport, not only airports but also railway stations were bombed (Roosendaal, 's-Hertogenbosch). Eindhoven was bombed by the Germans to stop the progress of the Allied forces. All the church towers in the middle of the south-eastern province of Limburg were torn down by the Germans to hamper the orientation of the Allied troops. The small towns of Zevenbergen, Heusden

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<sup>5</sup> In a later on published study was found out that there was no mistake. It was a careless bombing by inexperienced pilots after an unsuccessful raid at Gotha. Some pilots indeed thought that Nijmegen was a German town, but others knew better. See: Joost Rosendaal, *Nijmegen '44, verwoesting, verdriet en verwerking* (Nijmegen 2009).

<sup>6</sup> Korthals Altes, *Luchtgevaar*, ch.9, 330.

and Montfoort were severely struck. In Zevenbergen only one house was not damaged. In the middle of Limburg, where the Allied forces progressed very slowly, the larger towns of Venlo and Roermond lost a great part of their houses, factories and public buildings.

The march of the Allied forces stopped at the river Rhine, where operation Market Garden, Montgomery's attempt to cross the Rhine, failed. The city of Arnhem was the victim of this. During the battle of Arnhem this city and its satellite town Oosterbeek were evacuated and for the most part destroyed. Nijmegen, situated south of Arnhem along the river Waal, was liberated but there was still less left of the inner city than after the bombing. The Germans had burnt it down to improve sight.<sup>7</sup>

Between October 1944 and February 1945 the ground troops did not move. Still some cities were damaged, especially by RAF attacks on strategic targets such as Zutphen, Deventer (the bridge across the river IJssel remained intact), Hengelo (city centre), Dordrecht and Amsterdam (bureaus of civil registration) and Utrecht (railway junction and the adjacent academic hospital). Eventually the air attacks diminished because of the battle in Belgium (Bastogne) which diverted the air raids to the south. Moreover, due to a general strike of the Dutch railway employees, the railway stations, for the greater part situated in densely populated quarters, ceased to be strategic targets.

However, a new phenomenon manifested itself, the German V1 and V2 rockets. The V1's were launched from bases in the east of the Netherlands, mainly in the direction of Antwerp. 1800 of them passed over the city of Tilburg; 37 came down there. The efforts of the Allied forces to eliminate the launchers caused the bombing of the towns of Hellendoorn and Rijssen.

The V2's were launched in Wassenaar in the west of the country near The Hague. The bombing of their bases was accompanied by the devastation of a densely populated quarter of The Hague (Bezuidenhout) where 500 people died and 3000 houses were destroyed.

### **Third period. March 1945**

The Allied march to the north and the west of the Netherlands, led by Canadian troops, started in March. They almost surrounded the west of the country, which caused the demolition by the Germans of many strategic elements in cities: for instance what was left of the harbour installations in Rotterdam. The march to the north went rather quickly which reduced the damage. Still, some cities, such as Doetinchem, which until then had remained intact, now were struck. The largest city in the north, Groningen, experienced a real urban guerilla battle, which caused large fires and destruction in the city centre and in some outskirts.<sup>8</sup> Deventer, Zutphen and Enschede were bombed again. For Coevorden it was the first time. In the eastern part of the province of Groningen,

<sup>7</sup> A. Lammerts van Bueren, *Oorlogsrampen over Nijmegen* (Nijmegen 1946).

<sup>8</sup> G.J. Ashworth, *The city as battlefield. The liberation of Groningen, April 1945* (Groningen 1995).

near the German border, heavy fighting caused the demolition of some villages and considerable damage to the towns of Appingedam and Delfzijl.

Eventually the Germans surrendered. The capitulation was signed in a hotel in Wageningen, amidst the ruins dating from the beginning of the war.



The Stoeldraaiersstraat in the centre of Groningen after the explosion of a German car filled with munition on 14 April 1945 (collection Groninger Archieven/author)

### Some analysis

There is not much theory on warfare and the city in contemporary times. As we have seen above, during World War II most damage to Dutch cities was caused by air attacks. An interesting framework in which to consider air attacks is offered by G.J. Ashworth in his *War and the city*.<sup>9</sup> According to Ashworth there are two main motives for air attack: a) strategic, i.e. to eliminate strategic elements such as airports, bridges and factories, and b) tactical, i.e. to demoralise and unnerve the enemy.

The tactical tradition started in 1849 with the bombing of Venice by Radetski. He used bombs attached to balloons. In the Netherlands the attacks on Rotterdam and Middelburg are the only examples fitting this motive. In Germany, however, the RAF operated from the tactical motive starting in 1942, in the attack on Lübeck. The success of these operations was expressed in the number of square acres devastated. The nuclear bombing of Hiroshima and Nagasaki also had this tactical background.

<sup>9</sup> Ashworth, *War and the city* (London 1991), ch.6.

Most air attacks on Dutch cities, therefore, were strategic. Bridges, airports, harbour installations, railway stations and strategic factories were the main targets. But since they, for the most part, were situated nearby or inside cities, residential quarters of these cities were often also hit. Later on in the war, German headquarters, especially of the *Sicherheits Dienst* and offices of the Civil Registration where the deportations of Jewish people were planned, became special targets for precision attacks. In many cases adjacent buildings were also hit, for instance in The Hague/Scheveningen, Amsterdam and Dordrecht.

Therefore cities as such were in most cases not the first goal of the air troops. The attacks were related to specific urban functions, especially the functions of traffic junction, political centre and concentration points of industrial production.

The ground troops in most cases even tried to avoid warfare in the cities. Again according to Ashton this was for five reasons: 1) small operating units; 2) close-range weaponry because of bad visibility; 3) the presence of civilian lives and property; 4) defensive bias (in cities the attack-defence manpower ratio was about 10:1, while in rural areas this was 3:1); and 5) absorption of manpower, because of the fact that many more soldiers and resources were needed.<sup>10</sup>

One could add to this list the fact that it was no use for the armies to conquer a demolished and disorganised city. In any case, even when cities were strategic goals, in the era of the fortified city, it was tradition not to fight in cities. Attackers as well as defenders respected this tradition. Once the walls were crossed or the gates were demolished, the keys of the city were offered to the enemy. It might have been that a residue of this opinion protected many Dutch cities from severe damage.

### Some conclusions

As we have seen now, many Dutch cities and towns were damaged by air attacks. The battle on the ground also caused considerable damage, but urban guerrillas were avoided until it was inevitable, as in the cases of Arnhem and Groningen and some smaller towns along the front lines. Most damage was done to cities situated along the front lines in the beginning and the end of the war, and to cities and towns which had special strategic functions. In fact, Middelburg and the cities that were bombed by mistake were the only exceptions.

One may pose the question of whether Dutch cities were severely hit. Compared to German cities this was not the case, but according to the historiographers of some individual cities it was. Let us consider some facts. Most damage was done in the province of Zeeland where 16.6% of the houses were demolished. In Gelderland this was 10.6%, while in all other Dutch provinces it was less than 10%.<sup>11</sup> Even in Nijmegen 'only' 10.6% of all houses, factories offices, schools and other public buildings were severely damaged, 58.3% were slightly

<sup>10</sup> Ashworth, *War and the city*, ch.5.

<sup>11</sup> De Jong, *Koninkrijk der Nederlanden*, volume 10B, 1443.

damaged, and the rest were not struck at all.<sup>12</sup>

Of the six largest cities of the Netherlands - having, according to the census of 1947, more than 100,000 inhabitants - only Rotterdam was severely damaged. Amsterdam remained rather intact, except for the harbour area. The Hague lost one residential quarter and was cut by the Atlantic Wall. Utrecht had some damage near the railway station, and Groningen lost its centre but the other parts of the city remained rather undamaged.

More damage was done to the 12 cities with 50,000 - 100,000 inhabitants. This was of course the case in Arnhem and Nijmegen, but also in Enschede, Eindhoven and Tilburg, and to a much lesser extent in Dordrecht and Maastricht. On the other hand, Apeldoorn, Hilversum, Delft, Leiden and Schiedam are hardly mentioned in the records on war damage.

Measured in square meters, the most damage occurred in Rotterdam, Arnhem and Nijmegen, but still the greater parts of these cities survived the war. This was also the case in Middelburg. However, some smaller towns like Breskens and Aardenburg almost completely disappeared. In Tiel, near Arnhem and Nijmegen, only five houses out of 3000 remained undamaged. It was there that after the war it took the most work to restore the former urban structure.

So we must conclude that while in many cities, towns and villages there was some war damage, only in a minority were the pre-war urban functions and morphology seriously damaged.

#### **Epilogue. After the war**

The reconstruction of the damaged Dutch cities is an interesting story that can only be outlined in this contribution. This reconstruction was accompanied by a discussion among architects and city planners about whether the past should be reconstructed or a new modern city should be planned. The discussion was dominated by the modernists: architects and planners like C. van Eesteren, J. Bakema, J.H. van den Broek, H.A. Maaskant, J.J.P. Oud and adepts of the Delft school headed by M.J. Granpré Molière, professor at the polytechnic in Delft.

In Rotterdam the modernists won. The city was reconstructed as a modern metropolis, responding to the needs of modern traffic and business.<sup>13</sup> Only the church was carefully rebuilt as well as some old houses along the harbours. Middelburg, however, was reconstructed and in part carefully restored in its old setting, with some adaptations for traffic.<sup>14</sup> In Arnhem the reconstruction took place along modernist lines. Even the demolished church took on a modern concrete appearance.<sup>15</sup> In Nijmegen the rebuilding started in a modernist way. The new railway station, however, was built in Delft style. Since in Nijmegen the reconstruction lagged somewhat behind, a switch occurred in the direction

<sup>12</sup> Calculated from Lammerts van Bueren, *Oorlogsrampen over Nijmegen*, 125-128.

<sup>13</sup> Cor Wagenaar, *Welvaartsstad in wording. De wederopbouw van Rotterdam 1940-1952* (Rotterdam 1992).

<sup>14</sup> M.P. de Bruin, *Ontwikkeling van de volkshuisvesting in Middelburg* (Middelburg 1983).

<sup>15</sup> Bob Roelofs, *Vernieling en vernieuwing. De wederopbouw van Arnhem 1945-1964* (Utrecht 1995).

of reconstructing the past. The waterfront was rebuilt in a more nostalgic way.

In Groningen, initially Granpré Molière was nominated as the supervisor of the reconstruction of the city centre. His plans were rejected and the central square was rebuilt in a modernist way under the strong influence of the architect J.M.Vegter, who also was an important architect in the rebuilding of Arnhem.

Almost every Dutch city that was damaged by the war reflects the controversy between the modernists and the Delft school. The outcome for the most part was determined by the composition of the Municipal Council. Sometimes the church tower was rebuilt as a concrete modern 'Gedächtniskirche'; sometimes the old building was carefully restored. In the medium-sized cities such as Zutphen, Enschede and Hengelo, the railway station was usually built in a modern way, while the surrounding neighbourhood reflected Delft influences. Sometimes, however, the new railway station was built in an historic style, like in Nijmegen, as already has been mentioned, as well as in 's-Hertogenbosch and Vlissingen.

Still the contrast between the damaged and the undamaged cities vanished. The Dutch Railway Company started to replace railway stations in a number of cities where the capacity lagged behind population growth. And, in many cities, slum clearing, the upgrading of quarters and reconstruction in favour of traffic movement took more square meters than the war had. In fact, these developments and the removal of fortifications at the end of the nineteenth century were greater determinants of urban morphology than the Second World War. Rudger Smook, who analysed the transformation processes in 28 larger cities, confirms this. According to his view the fundamental destruction by the war of the old urban tissue only took place in Rotterdam, Arnhem, Nijmegen and Venlo.<sup>16</sup> In all other cities the reconstruction did not change much of the city plan and image, at least not more than in any other city, because through the years the opportunity to upgrade the city centre became the wish of almost every town councillor. In the city of Groningen, for example, this had remarkable consequences. There the modern town hall of white marble, erected after the war, was demolished and replaced by a more nostalgic set of buildings. Visitors may think that no war touched this city.

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<sup>16</sup> Rudger Smook, *Binnensteden veranderen* (Zutphen 1984), 216.

