

THE NIJMEGEN BOMBARDMENT ON 22 FEBRUARY 1944:  
A FAUX PAS OR THE PRICE OF LIBERATION?

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JORIS ADRIANUS CORNELIS VAN ESCH,  
MAJOR, ROYAL NETHERLANDS ARMY  
M.S., Middlesex University, London, United Kingdom, 2002  
Graduate Royal Military Academy, Breda, The Netherlands, 1997

Fort Leavenworth, Kansas  
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Name of Candidate: Major Joris A.C. van Esch

Thesis Title: The Nijmegen Bombardment on 22 February 1944: A Faux Pas or the Price of Liberation?

Approved by:

\_\_\_\_\_, Thesis Committee Chair  
John M. Curatola, Ph.D

\_\_\_\_\_, Member  
Stephen A. Bourque, Ph.D

\_\_\_\_\_, Member  
Michael E. Weaver, M.A.

Accepted this 11th day of June 2010 by:

\_\_\_\_\_, Director, Graduate Degree Programs  
Robert F. Baumann, Ph.D.

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

## ABSTRACT

THE NIJMEGEN BOMBARDMENT ON 22 FEBRUARY 1944: A FAUX PAS OR THE PRICE OF LIBERATION?, by Joris A.C. van Esch, 126 pages.

A steadfast misbelief in precision bombing evolved into the leading concept for US Army Air Force during the Second World War. This concept envisioned the destruction of the German industrial and economic system as the swiftest path to victory. However, the belief in survivability of bombers through self defense proved incorrect, and the Allies realized that the Luftwaffe had to be defeated first, by attacking the German aircraft industry. On 22 February 1944, Eighth Air Force conducted a mission as part of this offensive. During this mission, the bombers were recalled because of severe weather. On the return trip, the airmen decided not to abandon the mission outright, but to attack targets of opportunity. Because of navigational errors a section of 446 Bombardment Group misidentified the Dutch city Nijmegen as in Germany, and bombed it. Due to aiming errors, the greater part of the bombs missed the designated marshalling yards by a kilometer, and hit the city center instead. The bombardment caused chaos on the ground. It surprised the citizens, ignorant by earlier faulty alarms, and damage caused great difficulties for the provision of aid relief. As a result, the bombardment killed about 800 citizens and destroyed the historic city center.

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## ACRONYMS

ACTS	Army Air Service Tactical School
AWPD-1	Air War Planning Document 1
CBO	Combined Bomber Offensive
LBD	Luchtbeschermingsdienst [Civil Air Protection]
RAF	Royal Air Force
US	United States
USAAF	United States Army Air Force

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## CHAPTER 1

### INTRODUCTION

#### Introducing a Footnote in History

On 22 February 1944, the United States (US) Eighth Air Force conducted a mission to bomb the German aircraft factory at Gotha, as part of Operation Argument, the offensive against the German aircraft production. During this mission, the bombers were recalled because the weather above the target area was not conducive to the doctrine of daylight precision bombing. On the return trip to England, the formation decided to attack targets of opportunity in Nazi-Germany. However, they bombed the Dutch city of Nijmegen, close to the German-Dutch border. Furthermore, instead of hitting the rail yard in Nijmegen, the bombs fell on the city center, killing about 800 Dutch citizens. Major General James Hodges, Commander of the 2nd Bombardment Division of the US Eighth Air Force later reported this bombardment as “at least a faux pas.”<sup>1</sup>

Despite the number of casualties, the bombardment of Nijmegen ended up as a footnote in history. Most authoritative books on the history of the US Army Air Force (USAAF) hardly mention the bombardment. The official combat chronology of the USAAF only tacitly mentions “154 Heavy Bombers attack various Targets of Opportunity (Nijmegen, Arnhem and Enschede), 6 aircraft are lost.”<sup>2</sup> One of the authoritative books about the Eighth Air Force by Gerald Astor does not discuss this bombardment specifically, but Operation Argument and Big Week are discussed extensively.<sup>3</sup> One of the planners of the American concept of strategic air warfare in the Second World War, Haywood Hansell, describes 22 February 1944 as: “the Eighth put forth another maximum effort. However, adverse weather plagued the Eighth and . . .

(they) had to abandon their primary targets.”<sup>4</sup> Finally, one of the best known histories of the Eighth Air Force by Roger Freeman mentions briefly “one of the targets of opportunity brought also tragedy. A B-24 group bombed Nijmegen in error for a German town and caused 850 Dutch civilian casualties.”<sup>5</sup> So why did this bombardment become a footnote in history? This question can be approached from three different angles: the Eighth Air Force’s perspective, the history of Nijmegen in the Second World War, and the civilian perspective.

From the perspective of the Eighth Air Force it is quite natural and reasonable that the Nijmegen bombardment was overlooked. The air war above Europe during the Second World War was not only a grueling and bitter battle; it was also complicated and extensive. For instance, during the weeks Operation Argument took place, Allied air forces launched 3,800 bomber sorties, dropping 10,000 tons of bombs. Casualties were high, as the Eighth Air Force lost 137 bombers. The Fifteenth Air Force lost 89 bombers and about 2,600 Allied airmen were killed.<sup>6</sup> In comparison to these numbers the small group of fourteen bombers that attacked Nijmegen is easily overlooked, regardless the devastating consequences. Furthermore, reliable assessments about the number of casualties and the damage were not readily available for the Eighth Air Force. Neither free news media nor independent reports existed in occupied countries. Despite how tragic and terrible the bombardment was, this attack was considered by the Allied Forces as an unavoidable mistake or even an expectable consequence of a terrible, total war.

Finally, the bombardment was not an episode to be proud of. Only the 446th Heavy Bombardment Group’s history described the bombardment as a “tragic flight.”<sup>7</sup> Especially after the war, the official Eighth Air Force history extols a heroic battle, where

it almost wins the war by itself. Such a history provides little room for discussing the usefulness and necessity of strategic bombing, let alone such history discusses a relatively small bombardment.<sup>8</sup>

The second reason why this bombardment was overlooked is the complicated and tragic history of the city itself during the last year of the Second World War. The bombardment was one of four major battles which struck Nijmegen during 1944. Seven months after the devastating bombardment in February 1944, Nijmegen added a new chapter to the dramatic year. During Operation Market Garden the city was on the frontline again for more than six months. The US 82nd Airborne Division conducted an airborne landing to seize the bridges across the Waal River. After three days of fierce fighting, the bridge was captured and the city was liberated by American soldiers. However, German soldiers set fire to hundreds of houses in a desperate attempt to defend the city, and the fierce fighting killed hundreds of civilians and further destroyed the city.<sup>9</sup>

Although successful in Nijmegen, Operation Market Garden failed at the city of Arnhem, only fifteen kilometers north. It was “the proverbial bridge too far.”<sup>10</sup> However, the Allies successfully occupied the area just north of Nijmegen. For the Germans, this removed the strategic necessity to recapture the bridges across the river Waal. Therefore, the German regional commander, Field Marshall Walter Model decided to deny the Allies the use of the bridges. As a result, the fierce shelling and bombardment of both the bridges and Nijmegen by the Wehrmacht and Luftwaffe caused significant casualties during October and November 1944.<sup>11</sup>

Finally, Nijmegen became the scene of battle for a fourth time. At the end of January 1945, the Allies again initiated an offensive. After recovering from the Battle of the Bulge, the Allies launched Operation Veritable to regain the initiative and seize the German Rhineland. Nijmegen was the starting point of this operation. Almost 470,000 soldiers, most British and Canadian, formed the biggest concentration of Allied troops in the Second World War on the Western front. As expected, the Germans reacted on the attack, and the city was shelled and bombed again.

Although exact numbers are not available, the number of civilians killed in those three operations probably exceeds the number of civilians killed during the bombing on 22 February 1944. According to the city's official figures, the total infrastructural damage of 182 days on the frontline is 1,400 destroyed houses, 900 with severe damage and 2,300 with light damage.<sup>12</sup> Figure 1 illustrates the ruins in the city a few days after the bombardment of 22 February 1944.



Figure 1. Ruins in Nijmegen after the Bombardment, February 1944.  
*Source:* Alfons Brinkhuis, *De Fatale Aanval, 22 Februari 1944: Opzet of Vergissing? De Waarheid over de Mysterieuze Amerikaanse Bombardementen op Nijmegen, Arnhem, Enschede en Deventer* [The fatal attack: Intention or mistake? The truth about the mysterious bombardments] (Weesp, The Netherlands: Van Hoorn, 1984), 107.

The civilian perspective is a third explanation why this bombardment received little attention. First, the surviving inhabitants of Nijmegen had mixed emotions, because it was obviously a bombardment by Allied friends. Therefore, the Nazi-propaganda quickly tried to exploit this attack (as seen in figure 2). Such an event does not easily evolve into a heroic story people discuss. More likely, people tend to forget or even suppress it. Subsequently, it will fall into oblivion. To illustrate the contrary: the history of the heroic river Waal crossing in September 1944 (also in Nijmegen) by the US Army's 504th Parachute Regiment is both famous and well known.



Figure 2. Nazi propaganda

Source: Joost Roosendaal, *Nijmegen '44: Verwoesting, Verdriet en Verwerking* [Nijmegen 1944: Devastation, distress and acceptance] (Nijmegen, Netherlands: Vantilt, 2009), 90.

Note: The Nazi propaganda reacted as swift as an arrow to the bombardment: already three days later this suggestive poster was posted [Translation: “with friends like that, who needs enemies; Nijmegen, Enschede, Arnhem.”].

Second, for years the inhabitants of Nijmegen were also uncertain why the bombardment happened: both the cause and the responsibility were unclear. Although the Dutch Government in exile officially protested to the Allied Supreme Command, they never received the results of the inquiry completed by the Eighth Air Force, nor continued their protest. The reason for this, was that the government was hesitant to risk

affronting the Americans.<sup>13</sup> Additionally the Eighth Air Force's inquiry was not released publicly, but was put away safely in the National Archives in Washington. For decades, conspiracy theories and tall stories were told in Nijmegen. Some people made wrong causal connections in between the February bombardment and Operation Market Garden. Others suggested that the Allies tried to bomb the German headquarters in the city.<sup>14</sup>

All these uncertainties and conspiracy theories raised lingering questions about what really happened at Nijmegen and why. Furthermore, people embarked on the post-war reconstruction of the city. The country was devastated and the inhabitants focused their energy to rebuild the city and its economy. Of course there were commemorations, but investigations and research into the bombardment were very limited. Eventually, the first comprehensive book about the bombardment was only published in 1984 by Alfons Brinkhuis.<sup>15</sup> Additionally, as the survivors pass away, several books with their personal reminiscences have been published.<sup>16</sup> These accounts brought increased speculation and rumors of the details of the bombardment again. These rumors, uncertainty and questions caused the local authority to commission new research projects twice: the first by a free lance researcher in 2005 and the second to be conducted by the University of Nijmegen in 2007, of which Joost Roosendaal's book is the extensive account.<sup>17</sup>

### Research Question and Design

Having this historic background in mind, the central research question of this thesis is: What factors led to the bombardment of Nijmegen and what happened on 22 February 1944? To answer this question, there are five research questions, respectively:

1. What was the foundation of the USAAF thought with regard to strategic bombing prior to the Second World War?

2. What were the most important events which led to The Big Week?
3. Why and did the Eighth Air Force bomb Nijmegen?
4. How was the bombardment executed?
5. What were the consequences of the bombardment?

This thesis will approach the events thematically, rather than a chronological description. Chapter 2 will discuss the air perspective prior to the Second World War, including the birth and evolution of air power and the advent of the USAAF. This answers the first research question. Chapter 3 discusses the air war in the Second World War on the three different levels of war: strategic, operational and tactical. This chapter answers the second research question. Chapters 2 and 3 together provide the relevant historical context for the Nijmegen bombardment. Chapter 4 answers the third, fourth and part of the fifth research question. It analyzes the events which happened on 22 February 1944 in detail, from the airmen's perspective. Thereafter, chapter 5 will describe the human perspective of those bombed: What happened in the city and what were the people's experiences. This answers the remainder of the fifth research question. Finally, chapter 6 answers the central research question of this thesis.

#### Sources and Limitations

This research is based on both primary and secondary sources. The National Archives in Washington yielded many primary sources, like the original mission orders, the official reports of the mission and the mission critique of 22 February 1944. All these documents enabled a very detailed reconstruction of the events.

After the Second World War a great deal of research focused on the strategic air campaign. Possibly because of the devastating consequences, the legality, morality and

results are still discussed extensively nowadays. This thesis however, will focus on the factors that led to a specific bombardment on 22 February 1944. Therefore, the legal and moral aspects of strategic bombing, are not discussed extensively. Also, the thesis focuses on this one specific event and therefore it will not to judge the effectiveness or consequences of strategic bombing campaign in general.

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<sup>1</sup>Harold E. Jansen, *The History of The 446th Bomb Group (H)* (Rijswijk, The Netherlands: Elmar, 1989), 56.

<sup>2</sup>United States Air Force, USAAF Historical Division, *The Army Air Forces In World War II: Volume Three; Europe: Argument To V-E Day; January 1944 to May 1944*, ed. Wesley Frank Craven and James Lee Cate (Chicago: University of Chicago Press, 1948-19058), 277.

<sup>3</sup>Gerald Astor, *The Mighty Eighth: The Air War in Europe as Told by the Men Who Fought It* (New York: D.I. Fine Books, 1997), 202-204.

<sup>4</sup>Haywood S. Hansell, *The Air Plan That Defeated Hitler* (Atlanta: Higgins-McArthur/Longino & Porter, 1972), 181.

<sup>5</sup>Roger A. Freeman, *The Mighty Eighth: Units, Men and Machines; a History of the U.S. 8th Air Force* (New York: Jane's, 1986), 109.

<sup>6</sup>Hansell, 182; Glenn B. Infield, *Big Week: The Classic Story of the Crucial Air Battle of WWII* (Washington, DC: Brassey's, 1993), 112.

<sup>7</sup>Jansen, *The History of The 446th Bomb Group (H)*, 56.

<sup>8</sup>See for example: AAF Office of Information Services, *Highlights of the Army Air Forces: World War II* (New York, 1947); Hansell.

<sup>9</sup>Joost Roosendaal, *Nijmegen '44: Verwoesting, Verdriet en Verwerking* [Nijmegen 1944: Devastation, distress and acceptance] (Nijmegen, The Netherlands: Vantilt, 2009), 132.

<sup>10</sup>William I. Hitchcock, *The Bitter Road to Freedom: A New History of the Liberation of Europe* (New York: Free Press, 2008), 72.

<sup>11</sup>Roosendaal, 134-136.

<sup>12</sup>*Ibid.*, 143.

<sup>13</sup>Ibid., 69.

<sup>14</sup>Alfons Brinkhuis, *De Fatale Aanval, 22 Februari 1944: Opzet of Vergissing? De Waarheid over de Mysterieuze Amerikaanse Bombardementen op Nijmegen, Arnhem, Enschede en Deventer* [The fatal attack: Intention or mistake? The truth about the mysterious bombardments] (Weesp, The Netherlands: Van Hoorn, 1984), 7.

<sup>15</sup>Ibid. Although Brinkhuis was an amateur historian, his book was recommended by the most eminent Dutch historian Lou de Jong, author of the official Dutch history of the Second World War.

<sup>16</sup>See for example: Bart Jansen, *De pijn die blijft: Ooggetuigenverslagen van het Bombardement van Nijmegen 22 Februari 1944* [Eyewitness reports of the Nijmegen bombardment] (Nijmegen, The Netherlands: Boom, 2005).

<sup>17</sup>Roosendaal, 69.

## CHAPTER 2

### THE AIR PERSPECTIVE PRIOR TO THE SECOND WORLD WAR

#### The Birth of Air Power

Orville and Wilbur Wright intended their invention of the airplane to be “a contribution to international communications, trade and goodwill.”<sup>1</sup> But when they made their first attempt to sell a plane, they soon contacted the US War Department to bring their flight machine to the attention of military planners. As they described it: “for great practical use in various ways, one of which is scouting and carrying messages in the time of war.”<sup>2</sup> Eventually, this led to the US Army’s introduction of the first military airplanes in 1909. Soon, the Army created accompanying doctrine. The task of the aero squadron was to operate in advance of the independent cavalry, in order to locate the enemy and to keep track of his movements.<sup>3</sup>

The Italians were however the first to implement air platforms in combat when they sent nine airplanes and two dirigibles to Libya for service in their war against the Turks in 1911. Additionally, aircraft played a minor role in the Balkan Wars of 1912-13. However, it was the First World War where air power matured.<sup>4</sup> The war served as a catalyst for the rapid development of aircraft, weapons, and their use in combat. The existing limitations in range, speed, lifting capacity and safety of the early aircraft were overcome quickly and the aircraft became an important weapon of war.<sup>5</sup>

The armies which fought the First World War developed a new form of combined arms tactics and operations; a truly new modern style of warfare.<sup>6</sup> It was a remarkable revolution in military affairs, but also a “bloody process of mutual education,” where all the belligerents had to learn the dynamics of this new style of warfare.<sup>7</sup> This military

revolution encompassed the introduction of the three-dimensional conflict through artillery indirect fire, and also the foundation of planning at the three levels of war; the tactical, operational and strategic level.<sup>8</sup> Air power was a new and significant element in this revolution of military affairs, but it was not the decisive factor. As David MacIsaac describes it in an authoritative book about military strategy: “air power was still in its infancy, having played an occasionally spectacular, increasingly important, but nonetheless largely unessential part in the outcome [of the First World War].”<sup>9</sup> Nevertheless, the First World War glamorized air war. On both sides much publicity went to successful fighter pilots. This was done in an attempt to create heroes to still national pessimism.<sup>10</sup> The importance of these fighter pilots and their aircraft was overstated, as their mission was largely defined by achieving local air superiority only.<sup>11</sup>

However, during the First World War the first bombers with significant payloads appeared. They were generally used for tactical bombing: enemy troops, positions and equipment. These missions were usually conducted within a small distance from the front line. Later in the war, attention turned to attacking the rear-area.

The first-ever dirigible aerial bombardment of a city occurred 19 January 1915. Two German Zeppelins raided London with the intention of breaking British morale. This raid caused fear and consternation among the British, but certainly did not play a strategic role by knocking Great Britain out of the war.<sup>12</sup> Another example of strategic bombing in the First World War was the French bombing of the steel facilities of the Saar, Luxembourg.<sup>13</sup> Both these bombardments, along with many others, produced little material damage and caused only temporary effects and local panic. In contrast with those results, both the German attacks on London and the Allied attacks on Germany

evolved into “crucial reference points” in discussing air strategy and air warfare doctrine after the First World War.<sup>14</sup> However the British Royal Air Force (RAF) even bluntly claimed that “their effects could hardly be overestimated,” these first attempts of strategic bombing only hinted at the possible future usefulness of such attacks.<sup>15</sup>

Due to the late entry of the US in the First World War in 1917, the US Air service activities in the First World War were very limited: the Armistice had come before aviation had proven itself. General William Mitchell, the future USAAF deputy commander and active as a pilot in the First World War, wrote in his memoirs: “I was sure that if the war lasted, air power would decide it.”<sup>16</sup>

According to two eminent military historians, MacGregor Knox and Williamson Murray, the First World War offered two air power lessons. The first lesson was that air superiority was essential for all air operations. The second lesson of the air war in the First World War was that “finding and hitting targets under anything other than perfect daylight visibility posed intractable challenges.”<sup>17</sup> The Second World War not only proved the accuracy of these lessons, but also showed that they had not been learned. Both the British and the Americans were unwilling to acknowledge the necessity of air superiority and were persistent in their faith in the survivability of great formations of self-defending bombers, in spite of heavy losses.<sup>18</sup>

### Strategic Bombing as a Panacea

Besides the high-speed development of both aircraft and the accompanying doctrine, the experiences of the First World War worked in favor of the development of strategic bombing in another way as well.<sup>19</sup> For four years the belligerents experienced the inconceivable horrors of the war. Nine million soldiers were killed in the

predominantly static stalemate of trench warfare. Consequently, all belligerents studied how to avoid those bloody, indecisive collisions along a static front.

In the years after the First World War, three major air power theorists offered an alternative to this stalemate. These three theorists were the Italian General Giulio Douhet, the Chief of Staff of the world's first independent Air Force, the British General Sir Hugh Trenchard, and the American General William Mitchell. All three claimed that air power could restore decisiveness to warfare and that wars could be won in a shorter time.

According to them, air power could produce “a much swifter and hence in the end more humane decision.”<sup>20</sup> These theorists introduced the belief that air power would dominate future wars. Their doctrines claimed that “the swift, deep, surgically precise stroke at just the right objective--what Von Clausewitz called the enemy's center of gravity--would ensure its rapid collapse.”<sup>21</sup> Furthermore, they contended that “bomber aircraft alone could decide the outcome” of future wars.<sup>22</sup> Without going more deeply into the countless analyses of these three theorists, the main point, which both politicians and the military drew from these theories, is the idea of dominance of airpower through offensive action.<sup>23</sup> Oversimplified, based on these theories politicians and the military assumed that “civilian morale would be weak, national infrastructure vulnerable in the face of strikes from the air, to the extent that offensive airpower, or even strategic bombing, would dominate future conflicts.”<sup>24</sup> Extrapolated, one could even say these air theorists believed bombers could become one of the instruments of national power in itself; bombers as a panacea for winning wars with considerably less casualties and without the bloodshed the nations experienced in the First World War. Arguably, these theories were concerned less with choices for the employment of air forces, than with the acceptance of a fundamental

theory of warfare. As MacIsaac describes, the theorists were “postulating the fundamental power of a particular weapon--the aircraft--as the predominant instrument of war.”<sup>25</sup>

In his classical book *On War*, the German military theorist Carl von Clausewitz frequently stressed the limitations and disappointments that can be expected from artificial war constructs like this, because they typically not include the irrational ingredients such as chance and blind fury that come with human involvement. As the following quote of Von Clausewitz illustrates, the concept of strategic bombing developed prior to the Second World War, ignored Von Clausewitz’ axiom of the unchangeable nature of war.

War is more than a true chameleon that slightly adapts its characteristics to the given case. As a total phenomenon its dominant tendencies always make war paradoxical trinity – composed of primordial violence, hatred, and enmity, which are to be regarded as a blind natural force; of the play of chance and probability within which the creative spirit is free to roam; and of its element of subordination, as an instrument of policy, which makes it subject to reason alone.<sup>26</sup>

Moreover, there were two other causes in favor of the concept of strategic bombing. First, bombing was relatively cheap in comparison with employing ground forces. This was an important argument during the economic crisis in the 1930s. Second, the concept of strategic bombing was for the US Army Air Corps the best piece of evidence for an independent air force.<sup>27</sup>

All together, offensive strategic bombing was the concept both politicians and the military were willing to embrace, and that is why it evolved into the leading air power concept in the Interwar period.<sup>28</sup> The belief is best illustrated by the ringing phrase the then former and future British prime minister Stanley Baldwin coined during a debate in

the British House of Commons in 1935 and which followed him for the rest of his career: “The bomber will always get through.”<sup>29</sup>

### USAAF in the Interwar Period

The US Air Army Service came out of the First World War in great shape. It had numerous planes, trained pilots and more important, it was full of ideas. While the rest of the Army “slowly rotted away in penury” because of post-war budgetary constraints, the Army Air Service prospered, as it was “the particular pet of the Congress, the one new military toy the institution wanted to encourage.”<sup>30</sup>

Simultaneously there was a huge civil aviation boom during the 1920s. This boom launched both enthusiasm and accompanying technical innovation. Numerous record setting flights took place, including the famous flight across the Atlantic Ocean by Charles Lindbergh in May 1927.<sup>31</sup> To overcome such long distances, these record flights resulted in the rapid development of civil aircraft and engine technology. This matched military requirements, which gave the US a significant technological advantage over its later opponents.<sup>32</sup>

During the interwar period General Mitchell inspired and influenced the Army Air Service with his visionary thoughts. While a controversial figure, he argued for the Air Service’s total independence from the Army. He saw that the primary role for this independent air force was strategic bombing.<sup>33</sup> Furthermore, he argued air power equal to sea power and land power. His struggle finally evolved in a personal crusade.<sup>34</sup> Mitchell became an outspoken critic of the national defense strategy, searched for support from Congress, and clashed with the established elements of the government. Eventually President Coolidge ordered Mitchell to be court-martialed in which the General was

found guilty of insubordination.<sup>35</sup> Notably, the Army court-martialed Mitchell only because of his statements about the “criminal disregard of air power by the US government,” and not because of his advocacy of airpower.<sup>36</sup> Mitchell resigned in 1926, but kept influencing the Air Service and the public until his death in 1936.

Established in 1920 by the US Air Army Service, the Army Air Service Tactical School (ACTS) developed and taught air power doctrine from the ideas and concepts originally developed by Douhet and Mitchell. There, the increasing capabilities of aircraft opened “new vistas of air power that the ACTS instructors desired to exploit.”<sup>37</sup> During the 1920s and 1930s the ACTS not only continuously advocated the concept of unaccompanied bombers and strategic bombing, but more important, the concept of air power itself. Moreover, the influential thinkers at the ACTS in the 1920s and 1930s became the leading Army Air Force generals in the Second World War.<sup>38</sup> The 1930 doctrine, compiled by the ACTS stated that “victory is practically assured to the commander whose air force has gained and can maintain control of the air.”<sup>39</sup>

In 1935, Major Carl Spaatz, Chief of the Air Corps Training and Operations Division and commanding the USAAF in Europe in 1944, defined the concept even further. He wrote: “the principal and all important mission of air power . . . is the attack on those vital objectives in a nation’s economic structure which will tend to paralyze that nation’s ability to wage war and thus contribute directly to the ultimate objective of war, namely the disintegration of the hostile will to resist.”<sup>40</sup>

According to Murray, the doctrinal innovation at ACTS crystallized into four interlocking assumptions or even beliefs which provided the *raison d’etre* of strategic bombing.<sup>41</sup> The first was that vital targets in the enemy’s war economy existed, could be

identified, and were vulnerable to precision bombing. Second, it was believed that bomber fleets unescorted by fighters could fight their way through German air defenses without suffering unacceptable losses. The third assumption was that the bombers, once there, could achieve enough accuracy to destroy the targets. The final assumption Murray identified was that the bomber force could achieve sufficient intensity of attack against entire target systems vital to German war production that the Germans could not avoid their collapse or find alternatives.<sup>42</sup>

But wars are not won with ideas and doctrine only; one needs the right weapon systems as well. During the interwar period the different generations of aircraft succeeded each other every few years. In the early 1930s bombing aircraft like the Martin B-10 were developed. These not only could fly long distances, but could defend themselves against enemy aircraft attacks and even fight local air superiority as well.

This aircraft development turned out to be a “judicious balancing act” of competing characteristics, like speed, range, altitude and defensive armament.<sup>43</sup> Eventually, this balancing act led to the development of a fast, long-range, high-altitude, self-defending bomber. In 1935, the B-17 became the personification of this concept. As Murray describes it: “it was all the bomber men wanted: fast, high flying, heavily armed, quite easy to control, and capable of carrying eight tons of bombs over greater distances than any other bomber.”<sup>44</sup>

Additionally, another piece of equipment was developed that enabled the possibility of strategic, precision bombing, namely the ability to put bombs precisely on target. The development and improvement of a reliable bombsight to accomplish this took more than ten years. The search led to the development of the complicated and

sophisticated Norden bombsight.<sup>45</sup> Its availability and accuracy stimulated both the doctrine and emphasis on high altitude, precision, daylight bombing.”<sup>46</sup> Before the Second World War, this highly guarded secret Norden system was even referred to as “America’s great defensive weapon.”<sup>47</sup>

Although there was no lack of thought, new doctrines and visions, and advanced equipment in the 1930s, the Air Corps “remained weak and undertrained.”<sup>48</sup> It possessed only twelve strategic bombers and several hundred tactical bombers of dubious utility.<sup>49</sup> It took the threat of a new war to overcome this. At the end of 1938, President Roosevelt planned to expand the Army Air Corps with ten thousand new airplanes, initially as a “powerful deterrent effect on Germany, Italy and Japan.”<sup>50</sup> Rapidly this plan was superseded before completion and only in 1941 did the US Congress appropriate 6,5 billion dollars for the construction of 15,000 new airplanes.<sup>51</sup>

The start of the Second World War in 1939 and the official declaration of war by the US with Germany and Japan in December 1941 is a well known story. As a result, the US military conducted a miraculous transformation in a race against time. It involved the entire economy and expanded a very small military to a global military power in only three years.<sup>52</sup> This enormous effort laid the foundation of the Allied bomber campaign in the Second World War.<sup>53</sup>

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<sup>1</sup>Wilbur and Orville Wright, to Hon R.M. Nevin, US Congress, letter, 18 January 1905, in Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force* (Maxwell Air Force Base, AL: Air University Press, 1989), 1, 15.

<sup>2</sup>Ibid.

<sup>3</sup>Futrell, 17.

<sup>4</sup>Charles Griffith, *The Quest ; Haywood Hansell and American Strategic Bombing in World War II* (Maxwell Air Force Base, AL: Air University Press, 1999), 4.

<sup>5</sup>David MacIsaac, “Voices From the Central Blue: The Air Power Theorists” in *Makers of Modern Strategy*, ed. Peter Paret (Princeton: Princeton University Press, 1986), 628.

<sup>6</sup>Jonathan B. A. Bailey, “The First World War and the Birth of Modern Warfare,” in *The Dynamics of Military Revolution, 1300-2050*, ed. MacGregor Knox and Williamson Murray (Cambridge, UK: Cambridge University Press, 2001), 132.

<sup>7</sup>*Ibid.*, 152.

<sup>8</sup>*Ibid.*, 132.

<sup>9</sup>MacIsaac, 629.

<sup>10</sup>Alan Stephens, “The True Believers: Airpower between the Wars,” in *The War in the Air*, ed. Alan Stephens (Maxwell AFB, AL: Air University Press, 2001), 1.

<sup>11</sup>Jonathan M. House, *Toward Combined Arms Warfare* (Fort Leavenworth, KS: Combat Studies Institute Press, 1984), 28.

<sup>12</sup>Griffith, 6-8.

<sup>13</sup>*Ibid.*, 8.

<sup>14</sup>Richard J. Overy, “Strategic Bombardment Before 1939, Doctrine, Planning and Operations,” in *Case Studies in Strategic Bombardment*, ed. R. Cargill Hall (Washington DC: Air Force History and Museums Program, 1998), 25.

<sup>15</sup>*Ibid.* In most cases reconnaissance was the critical contribution of airpower in the First World War. House, *Toward Combined Arms Warfare*, 28.

<sup>16</sup>Futrell, 27.

<sup>17</sup>MacGregor Knox and Williamson Murray, ed., “The Future Behind Us,” in *The Dynamics of Military Revolution, 1300-2050* (Cambridge, UK: Cambridge University Press, 2001), 183.

<sup>18</sup>*Ibid.*

<sup>19</sup>Griffith, 9.

<sup>20</sup>Bailey, 633.

<sup>21</sup>Lee Kennett, *The First Air War, 1914-1918* (New York: Free Press, 1991), 221. Quoted in Griffith, 9.

<sup>22</sup>Stephens, 2.

<sup>23</sup>Ibid., 3.

<sup>24</sup>Ibid.

<sup>25</sup>MacIsaac, 629.

<sup>26</sup>Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret. (Princeton: Princeton University Press, 1976), 89.

<sup>27</sup>Griffith, 15.

<sup>28</sup>United States Strategic Bombing Survey, *Over-all Report (European War)*. (Washington, DC: Government Printing Office, 1945), 3.

<sup>29</sup>Stewart Halsey Ross, *Strategic Bombing by the United States in World War II : the Myths and the Facts* (Jefferson, NC: McFarland & Company, 2003), 60.

<sup>30</sup>Eric Hammel, *The Road to Big Week: The Struggle for Daylight Air Supremacy Over Western Europe July 1942 – February 1944* (Pacifica: Pacifica Military History, 2009), 3.

<sup>31</sup>Ibid., 4.

<sup>32</sup>Williamson Murray, “Strategic Bombing: The British, American, and German experiences,” in *Military Innovation in the Interwar Period*, ed. Williamson Murray and Allan R. Millet (New York: Cambridge University Press, 1996), 140.

<sup>33</sup>Ibid., 11.

<sup>34</sup>Hansell, 6-8.

<sup>35</sup>Hammel, 10.

<sup>36</sup>Murray, “Strategic Bombing,” 107.

<sup>37</sup>Futrell, *Ideas, Concepts, Doctrine*, 64.

<sup>38</sup>Ira C. Eaker, Carl Spaatz, Curtis E. LeMay, Haywood S. Hansell, Jr., and Claire E. Chenault went all through ACTS. Murray, “Strategic Bombing,” 124.

<sup>39</sup>Ibid., 65.

<sup>40</sup>Hammel, 21.

<sup>41</sup>Murray, "Strategic Bombing," 125.

<sup>42</sup>*Ibid.*, 127.

<sup>43</sup>*Ibid.*, 24.

<sup>44</sup>*Ibid.*, 27.

<sup>45</sup>Albert L.Pardini, *The Legendary Secret Norden Bombsight* (Atglen, PA: Schiffer Military History, 1999), ix.

<sup>46</sup>Astor, 8.

<sup>47</sup>Ross, 33.

<sup>48</sup>Hammel, 19.

<sup>49</sup>*Ibid.*, 48.

<sup>50</sup>*Ibid.*, 55.

<sup>51</sup>*Ibid.*, 106.

<sup>52</sup>Murray, "Strategic Bombing," 108.

<sup>53</sup>*Ibid.*, 138.

## CHAPTER 3

### THE BUILD-UP TO BIG WEEK--THE AIR WAR IN 1943 AND 1944

#### The Strategic Level of War

To understand the strategic situation concerning the air war in the beginning of 1944, one should go back to January 1941. At that time, the American, British and Canadian military leaders held formal military staff meetings to discuss their war strategy, later referred to as ABC-1.<sup>1</sup> They developed an agreement which considered the European area to be the decisive theater and also included a possible role for the US in a sustained air offensive against German military power.<sup>2</sup> After political approval, the outline of this plan was integrated into Rainbow No. 5, the code name for the overall plan for the war, which envisioned Great Britain and the US standing against Germany, Italy and Japan.<sup>3</sup> Based on the axiom that armies fight armies and air forces fight air forces, this document guided the planning and war efforts in the first years of the war.<sup>4</sup>

Subsequently, Air War-Planning Document-1 (AWPD-1) was developed in August 1941. AWPD-1 not only supported the pre-war doctrine taught at the ACTS, it was the most important Allied overarching strategic plan guiding the air war in the Second World War. The principal objective of AWPD-1 was according to Haywood Hansell, one of its authors: “the waging of an unremitting air offensive against the war supporting structures of Germany.”<sup>5</sup> The plan encompassed the disruption of the German electric power grid, the transportation system, and oil and petroleum systems. Some of these targets were far beyond the range of the existing escort fighters. This implied that the defeat of the Luftwaffe, or at least the neutralization of the German fighter force, became the intermediate objective of “overriding importance.”<sup>6</sup> But neither the defensive

firepower of the bombers nor attacking the well protected air bases of the Luftwaffe were estimated to be decisive to accomplish this intermediate objective. And very soon, as Hansell describes, it became clear that: “the German Air Force could only be defeated by the destruction of the manufacturing facilities necessary for the building of its aircraft and engines, by the elimination or curtailment of its fuel supplies, and by air to air attrition.”<sup>7</sup> The successor of AWPDP-1, Air War-Planning Document-42, was dictated by the political-strategic developments, but was in essence a reaffirmation of the original plan.<sup>8</sup> To conclude, AWPDP-1 had vast proportions: the plan called for the USAAF to build a force of no less than 2,164,916 men and 68,416 aircraft to fight the air war.<sup>9</sup>

While the Second World War unfolded globally, the Casablanca conference in January 1943 refined and determined the Allied grand strategy. Then, President Roosevelt and Prime Minister Churchill issued the Casablanca Directive. It stated that the primary objective of the Allied forces in Europe was: “To bring about the progressive destruction and dislocation of the German military, industrial and economic system and the undermining of the morale of the German people to a point where their capacity for armed resistance is fatally weakened.”<sup>10</sup>

Furthermore, the Casablanca directive also endorsed a “sustained and unremitting air offensive” against Germany.<sup>11</sup> This included the presumption that the time necessary for strategic air offensive could be used in preparation for the invasion of the continent, planned in the spring of 1944.<sup>12</sup> Therefore, the directive was amended a few months later. To clarify the objective stated above the following sentence was added: “This is construed as a meaning so weakened as to permit initiation of final combined operations on the Continent.”<sup>13</sup> However, this amendment raised doubts about the strategic purpose

of the bomber offensive: was either the morale of the German people the primary objective, or was the military, industrial and economic system the path to fatal weakening? This question remained unsolved during the following years and was the source of a certain amount of controversy in designing the air campaign, not only between the British and American air forces, but also between the air planners and ground planners.<sup>14</sup>

Finally, after extensive planning and based on the Casablanca Directive, the Combined Bomber Offensive (CBO), with the code name “Pointblank” was agreed upon in May 1943. It laid out the five types of targets in the following order of priority: German submarine construction yards, German’s aircrafts industry, transportation, oil plants and fifth other targets in the enemy war industry.<sup>15</sup> The CBO was designed to be a combined effort of the British and American air forces, but in reality it was definitely not a closely integrated one: American bombers attacked key installations with their own doctrine of daylight precision bombing, while British RAF planes had a policy of bombing centers of populations and industrial areas by night. The British effort was designed to be complementary, but as the official history of the US Air Forces describes it diplomatically, both air forces “seldom achieved more than a general combination of effort.”<sup>16</sup>

### The Operational Level of War

From 1939 to 1942, the RAF had experienced that it was too dangerous to perform daylight bombardments. As a result, they had switched to night operations, hitting larger area targets instead of precision bombing.<sup>17</sup> In the beginning of the CBO, these so-called morale-bombardments of the RAF mainly hit German cities. One of the

most well-known and disputable missions was the most devastating single city attack on Hamburg, on 27 July 1943. This bombardment destroyed one third of the city and caused at least 50,000 dead.<sup>18</sup>

The USAAF was however convinced about the correctness of their doctrine of daylight precision bombing and about the superior capabilities of its equipment. Therefore, they consciously decided to neglect these British lessons when entering the air war in 1943.<sup>19</sup> This apparent difference, the British area bombardments at night and the American precision bombardment during the day, continued until the end of the Second World War.

In the beginning of their involvement, the USAAF focused their daylight bombardments on the German industry. However, already in the second part of 1943 they had discovered that the Luftwaffe and its supporting industry were able to recover from combat losses and bombardments very quickly.<sup>20</sup> After the war, The Strategic Bombing Survey showed that the German war aircraft production peaked as late as in the summer of 1944.<sup>21</sup> Because the self defense capabilities of the bombers were not sufficient to defeat or shake off the German fighters, the American bomber units experienced heavy losses almost every mission.

The problem was that the vital targets laid beyond the range of the fighter escorts. Once the fighters had to turn back to England, the German fighters engaged the American bombers. This problem was solved only until the arrival of the long range fighter escort with external auxiliary fuel tanks, at the end of 1943. Meanwhile, the Luftwaffe not only adopted their tactics very quickly to the attacking bombers, they switched their main

effort more and more against the American daylight bombers rather than the night-raiding RAF aircraft in the second half of 1943.<sup>22</sup>

In retrospective, the culmination point of the American tactic of (partly) unescorted bombers was probably the failure of the Schweinfurt-Regensburg mission on 17 August 1943. In this mission heavy bombers attempted to raid aircraft factories deep in German and the Eighth Air Force lost sixty bombers.<sup>23</sup> After this mission, later called “Black Thursday,” the Eighth Air Force did not go on missions into Germany for over five weeks.

After “Black Thursday,” the USAAF started to realize that they could not sustain this loss rate. Consequently, they focused on “easier and safer assignments of bombing . . . in France, Belgium and Holland, where the fighters could accompany the bombers all the way to the target and back.”<sup>24</sup> However, it took several other disastrous missions until even the first half of October 1943, with the loss of 148 bombers and crews in six days, to convince the Eighth Air Force leadership that their self-defense theory was “a complete failure.”<sup>25</sup> Knox and Murray describe this failure as the unwillingness to learn the first air power lesson of the First World War discussed previously; that all air operations require air superiority. According to them, the faith in the survivability of great formations of self-defending bombers led “repeatedly to avoidable disasters like Schweinfurt and to loss rates that no military organization could sustain for long.”<sup>26</sup>

To overcome the crisis, General Arnold, the Commanding General of the USAAF, decided to change the strategy and to attempt an all-out attack on the German aircraft industry to defeat the Luftwaffe. Secondly, American ground planners preparing the invasion had also assessed that the threat of the Luftwaffe had to be removed before

Operation Overlord could take place.<sup>27</sup> Remarkably, General Spaatz privately regarded Pointblank earlier “not as a prerequisite to Overlord, but as perfectly feasible alternative . . . as a possibility of eventually bombing out of the war.”<sup>28</sup> By this, he showed himself as a genuine inheritor of the ideas of General Mitchell and the ideas developed at the ACTS. Moreover, this proves the USAAF was loathe to support the bombing of Normandy, as it compelled them into a tactical or operational role, rather than strategic. The assessment of the ground planners implied that at the end of December 1943 the initial intermediate objective of AWPD-1 evolved into the primary target. As a result of that, only one of the five original Pointblank targets remained. Then, the defeat of the Luftwaffe became the most immediate and by far most important task.<sup>29</sup>

The code name for Arnolds plan was Operation Argument. It outlined a series of coordinated bombardments by both the Eighth and Fifteenth US Air Forces (based in Italy) against ten to twenty aircraft factories located in central and southern Germany.<sup>30</sup> Military historian Eric Hammel uses a concise and striking description of Operation Argument: “a continuous seven-day knockout punch.”<sup>31</sup> In his authoritative book about the air war in the Second World War, military historian Donald Miller analyzes the strategy of Operation Argument in a similar way: “Argument was nothing less than the annihilation of the Luftwaffe. The strategy: bait them and kill them. Send in the bombers –the bait- to destroy the aircraft factories and then massacre the planes and pilots that came up to defend them.”<sup>32</sup> In current terms, one could describe Operation Argument as the shaping operation for Operation Overlord. Because of this significance, the vast dimensions and the results attributed to this week of coordinated attacks, Operation Argument was named or dubbed “The Big Week” after the Second World War.<sup>33</sup>

Operation Argument required at least a full week of clear weather over most of central Europe. Although the plan was originally developed in November 1943, the operation had to be rescheduled several times because of the weather conditions.<sup>34</sup> To the frustration of the air force commanders, favorable conditions did not arrive until February 1944.<sup>35</sup> As Operation Overlord and especially Normandy D-Day approached, the allied air forces were running out of time, increasing the pressure to launch Operation Argument before 1 March 1944. In the words of General Spaatz, commanding the USAAF in Europe on 8 February 1944:

The destruction of the German fighter production had become a matter of such urgency, that General Spaatz and General Anderson were willing to take more than ordinary risks in order to complete the task, including the risk of exceptional losses that might result from missions staged under conditions of adverse base weather.<sup>36</sup>

Under this pressure Operation Argument had to start, although according to both the weather forecast of the Eighth and Ninth Air Force the weather was not conducive to the mission.<sup>37</sup> But although the weather forecast on February 19 was terrible, the senior air commanders decided to launch the operation.<sup>38</sup> Finally, in the words of Hansell, “the long-awaited opportunity to strike a lethal blow” had come.<sup>39</sup>

### The Tactical and Technical Level of War

During the Second World War, the Eighth Air Force spent considerable efforts in analyzing all kinds of information. Even to current standards, they had a respectable system of gathering, analyzing and publishing lessons learned. Typically, these reports were intended for use by both the operational units and the ACTS. The extensive Tactical Development Report is a good example of this lessons learned system.<sup>40</sup> Based on these types of extensive reports, military historian Roger Freeman compiled a comprehensive

and detailed overview of the tactics used by the Eighth Air Force.<sup>41</sup> For the sake of brevity, only the two elements most relevant to discuss the Nijmegen bombardment are discussed here: the aiming issues with precision bombing and the “drop on lead-method.”

As discussed previously, the availability and accuracy of the sophisticated Norden Bombsight Mark V enhanced the development of high altitude, daylight precision bombing.<sup>42</sup> Experiments with this bombsight before the Second World War, led to the popular legend of “pickle-barrel” accuracy, which was the belief that USAAF aircraft equipped with the Norden bombsight could “drop their bombs into a pickle barrel.”<sup>43</sup> This legend of precision bombing originated from tests above a lake at Murco, California in the 1930s, which showed that bombers, four miles high, were repeatedly able to drop bombs within fifty feet of a practice target.<sup>44</sup>

During the war, despite the belief in pickle-barrel accuracy, the USAAF remarkably defined the target area as “a circle having a radius of 1000 feet around the aiming point of attack.”<sup>45</sup> Even with this literally broad definition of targets, only twenty percent of the bombs fell within this range in the beginning of 1944.<sup>46</sup> Although the accuracy of bombing slightly improved during the war, the expected precision was far from achieved. Figure 3 shows precision bombing improved, but never achieved the standards expected after the Murco lake tests.

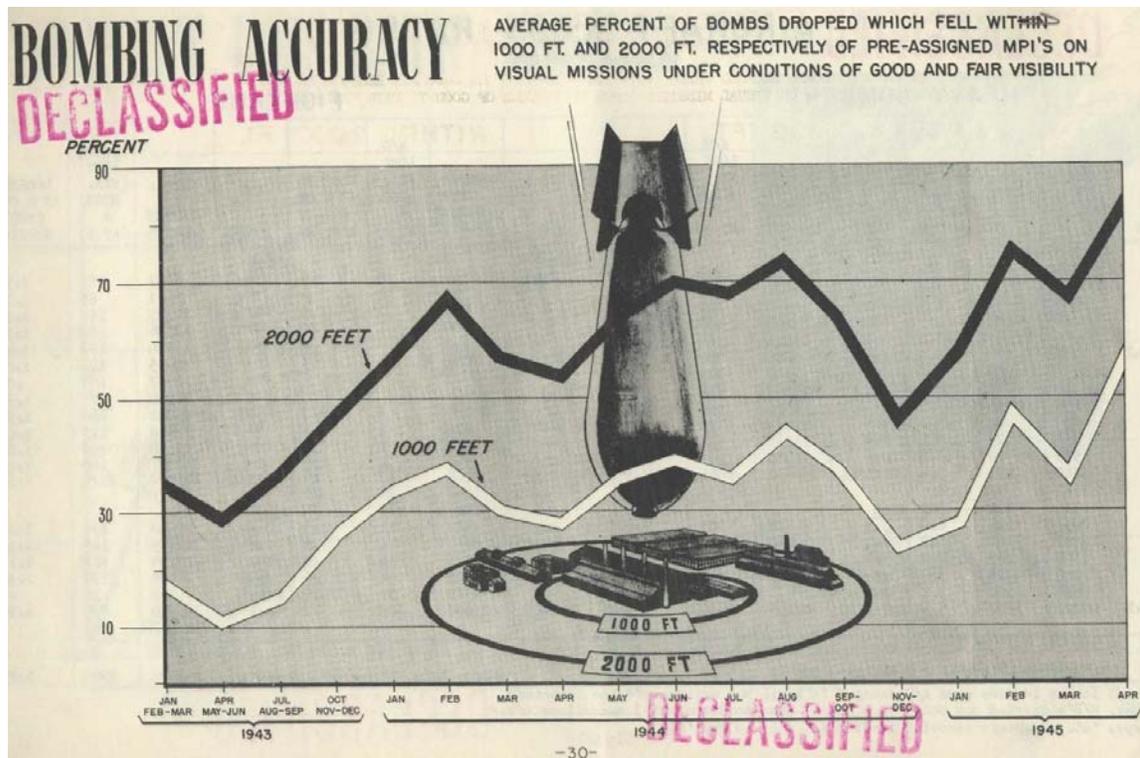


Figure 3. Precision bombing in the Second World War.

Source: Statistical Summary of Eighth Air Force Operations, 17 August 1942-8 May 1945, Box 5678, 8th Air Force, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD), 6. Declassified by authority of National Archives, no. NND745005, 18 December 2009.

Note: The graph shows the increase of the average percent of bombs dropped which fell within the defined target area.

Related with aiming, there are three reasons for this failure of the legend of pickle-barrel accuracy or even the concept of precision bombing. First, the target range tests were held under ideal circumstances: a well-marked target and ideal visibility.<sup>47</sup> In reality, under heavy battle conditions and with the frequent bad weather and low visibility in northwestern Europe, this high degree of accuracy was never achieved.<sup>48</sup>

Second and most frequent cause of inaccurate bombing because of the lack of precision was human error.<sup>49</sup> Freeman's book about the Eighth Air Force tactics points

out the inability to identify the target in time as the most common error.<sup>50</sup> Reasons for this inability were clouds covering the targets, describe as the “no see, no hit” paradigm, and also navigation without the necessary detail.<sup>51</sup> One probable other explanation of this error is the limited amount of training and lack of extensive experience of the bombardiers. It was inevitable that the swift expansion of the US Eighth Air Force from 1942 to 1944 led to a decrease in the average amount of training and skills of bomb crews, and bombardiers in particular.

The third cause which prevented the desired bombing accuracy was an overestimation of the technical capabilities, and more specific the specific features of the Norden bombsight (figure 4). Basically, the bombsight was an automatic speed and distance computer that determined where to release the bombs in order to hit the target. The bombardier in the nose of the aircraft had to enter altitude, airspeed, and other information into the bombsight. Then, he tracked the target through a telescope that fed both ground speed and drift information into a computer. The bombsight and autopilot then kept the bomber on course and released the bombs at the right moment.<sup>52</sup> In theory, and only when properly used, the Norden was superior to any bombsight in existence and could let a bomber strike a target with great precision.<sup>53</sup>

The Norden bombsight required however a very complex set-up, in which the bombs release point was predetermined and calculated by formula. This information had to be preset in the bombsight prior to a specific mission, based on detailed information about the target and the local weather conditions. This calculation and set-up could only be done for the planned, primary and secondary targets. However, when the bombers could not get to these targets and decided to bomb targets of opportunity, the bombardier

had to calculate and change the bombsight manually during the flight. This required reliable and precise information about altitude and airspeed, which took about five minutes of observing the aircraft's instruments.<sup>54</sup> Under combat circumstances, this proved to be an almost insuperable challenge.<sup>55</sup> Therefore, the bombardier had the option to use the different aiming and bombing technique "Pilot Direction Indicator." This implied switching off the aircraft's autopilot and guidance by the Norden Bombsight, to get manual control of the aircraft instead. This method was less complex, but far less accurate as well.<sup>56</sup>



Figure 4. Norden Bombsight MK XV, M9-B

*Source:* Smithsonian Air and Space Museum, Washington DC, <http://www.nasm.si.edu/collections/artifact.cfm?id=A19640003000> (accessed 26 February 2010).

In addition to this, according to Pardini's extensive book about the history of the Norden Bombsight, there was another problem.<sup>57</sup> The mass production of the bombsight at the end of 1943 caused significant quality problems. In the rush to increase production, some required technical tolerances were relaxed by different subcontractors. Therefore, not all Norden bombsights functioned according to their specifications and required precision in February 1944.<sup>58</sup> The USAAF leadership quickly realized the implications of this. On the same day as the Nijmegen bombardment, 22 February 1944, the Chief Engineering Division of the 2nd Air Force wrote a report to the Chief of the Bureau of Ordnance US Army, that this "could be susceptible to public criticism and also might be a morale factor on the bombardier using the famed pickle barrel bombsight."<sup>59</sup> Furthermore, it turned out that almost eighty percent of the Norden Bombsights did not meet specifications, with an error six times greater than allowed. But as the USAAF had already more than 40,000 Norden bombsights in use, it was "too late to make changes."<sup>60</sup>

Finally, the Summary Report of The US Strategic Bombing Survey analyzed extensively which limiting factors effected the precision bombing. In September 1945, they published a long and comprehensive list of causes. The survey proves and expands the three fore mentioned causes:

Target obscuration by clouds, fog, smoke screens and industrial haze, enemy fighter opposition which necessitated defensive bombing formations, thus restricting freedom of maneuver, antiaircraft artillery defenses, demanding minimum time exposure of the attacking force in order to keep losses down, and finally, time limitations on combat crew training.<sup>61</sup>

Furthermore, the survey also showed that definition of precision bombing used by USAAF in the Second World War was very broad compared to both the belief in pickle-barrel accuracy and to current standards: "If the specific target was, for example a

marshalling yard . . . such a raid had the practical effect of an area raid against that city, but on the basis of the declared intention of the attackers it would go into the air force records as a precision attack on the transportation system.”<sup>62</sup>

From mid 1943, the Eighth Air Force experimented with different types of radar bombing like Oboe and H2X, in an attempt to improve both the accuracy and also to reduce weather limitations.<sup>63</sup> However, the capabilities of these systems were limited: it only worked for targets which could be easily identified on the radar screen, such as docks.<sup>64</sup> The overall results of these systems remained poor for the rest of the war.<sup>65</sup>

Besides the problems with the aiming and the bombsight, the tactic of flying in large bomber formations is a second important factor which influenced the desired accuracy of the precision bombardments.<sup>66</sup> The fact is that this tactic had an undesired and significant side effect: the inevitability to use the drop-on lead bombing. As Freeman describes extensively, very large formations of bombers were probably the most typical element of bombing operations in the Second World War.<sup>67</sup> This American tactic of increasingly large formations was introduced as a defensive response to enemy fighters encountered during daylight bombing missions. Basically, it was an attempt to mass the common firepower of the bombers' guns, because individually bombers could not match Luftwaffe fighters.<sup>68</sup> Other reasons to fly in these formations were safety, control, and bomb strike patterns.<sup>69</sup> In response to emerging threats and to increase the bombers' survivability, the Eighth Air Force continued to develop and experiment with all different kind of formations until the end of the Second World War.<sup>70</sup>

However, prior to the Second World War, both theory and assumptions about precision bombing (and bombardier training and manuals as well) were based on the

principle of each aircraft using its bombsight and sighting for range individually. Already the very first combat experiences of the USAAF in September 1942 caused this concept to change. The aircrews quickly discovered that even slight maneuvering in a formation during the bomb run could easily lead to collisions within the formation.<sup>71</sup> As a result, the bombing technique had to change, in which only the lead aircraft sighted for both range and deflection. The rest of the formation watched the lead bomber to drop and released manually immediately afterwards. In fact, this tactic eliminated the necessity to have bombardiers and bombsights in the following planes.<sup>72</sup> Obviously, this system depended on fast human reaction of the following aircraft. With a typical airspeed of 160 knots, only one second delay or reaction time to drop the bombs meant a difference of eighty meters. In an attempt to reduce this delay, the bombs of the lead plane were painted in bright colors or equipped with smoke flares. At the end of the war, even radio triggering was used.<sup>73</sup>

In early 1944, units of the Eight Air Force typically flew in a thirty-six plane formation. According to Freeman, this combat box was 1,170 feet wide and about 800 feet deep.<sup>74</sup> As a consequence and under ideal circumstances, this implied the bomb pattern of the formation was about the same size. This severely enlarged bomb pattern still fits within the theoretical 1,000 feet definition of a target area discussed above. However, it is clear that the decision to fly in combat formation, and because of that to use the drop on lead system for bombing, in essence meant abandoning the doctrine and idea of precision bombing as developed and promoted prior to the Second World War.<sup>75</sup> Or as Ross describes it: “the combat-box sacrificed bombing accuracy for the enhanced safety of the plane and its crew.”<sup>76</sup>

To sum up the tactical and technical level of war, one could draw a similar conclusion as historian Conway-Lanz does in his book about collateral damage: as a consequence of the technical and tactical difficulties with aiming and precision, operational difficulties in this phase of the Second World War had “undermined the distinction between area and precision bombing.” This drove the USAAF towards more indiscriminate bombing during the development of the air war.<sup>77</sup>

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<sup>1</sup>Hansell, 57. ABC stands for American, British, and Canadian.

<sup>2</sup>Hansell, 58.

<sup>3</sup>Ibid., 59. Rainbow refers to the series of contingency plans of the US to deal with a number of potential adversaries.

<sup>4</sup>Hansell, 63.

<sup>5</sup>Ibid. Haywood Shepherd Hansell Jr. (28 September 1903 to 14 November 1988) was a general officer in the US Army Air Forces during World War II. He was one of the key planners of AWPD-1 and later also a Combat Wing commander in the Eighth Air Force. His book *The Air Plan That Defeated Hitler* discussed his experiences in the Second World War. It is an extensive firsthand account, but biased as well: Hansell was a true advocate of air power and the doctrine of daylight strategic bombing. Hansell retired as a Major-General in 1946, returned to active duty for the Korean war and reverted to retired status in 1955.

<sup>6</sup>Ibid., 91.

<sup>7</sup>Ibid., 84.

<sup>8</sup>Infield, 4.

<sup>9</sup>Ibid., 88.

<sup>10</sup>Ibid., 153.

<sup>11</sup>Ibid., 151.

<sup>12</sup>Ibid., 153.

<sup>13</sup>Ibid., 168.

<sup>14</sup>Ibid., 170; for an extensive discussion of this subject and the different viewpoints.

<sup>15</sup>AAF Office of Information Services. Highlights of the Army Air Forces: World War II (New York: Headquarters Army Air Forces, 1947), Part 8, 4.

<sup>16</sup>United States Air Force, *The Army Air Forces In World War II*, 7.

<sup>17</sup>Hansell, 53.

<sup>18</sup>Astor, 135; United States Strategic Bombing Survey, Summary Report (European war) (Washington, DC: Government Printing Office, 1945), 3. This attack on Hamburg was a combined effort of both the RAF and the US Army Air Force: the RAF bombed at night, the American bombers conducted two daylight bombardments.

<sup>19</sup>Ibid.

<sup>20</sup>United States Air Force, *The Army Air Forces In World War II*, 9.

<sup>21</sup>See for the first extensive discussion of the results of the bombing: United States Strategic Bombing Survey, *Over-all Report (European war)* (Washington, DC: Government Printing Office, 1945), 11. The United States Strategic Bombing Survey is however not undisputed. Haywood Hansell once wrote to historian David MacIsaac: “The Survey was much like the Bible in one respect. If you reach deeply enough you can find substantiation for almost any preconceived notion or prejudice. See for an extensive discussion of the surveys: Ross, 195-207.

<sup>22</sup>Infield, 13.

<sup>23</sup>The subject of non-(long-range) escorted bombers and the introduction of long-range fighter escort is not discussed in this thesis. See for an extensive analysis of this topic: Martin Middelbrook, *The Schweinfurt-Regensburg Mission* (New York: Scribner, 1983).

<sup>24</sup>Infield, 21.

<sup>25</sup>Ibid., 23.

<sup>26</sup>Knox, “The Future Behind Us,” 183.

<sup>27</sup>Hansell, 177.

<sup>28</sup>United States Air Force, *The Army Air Forces In World War II*, 26.

<sup>29</sup>The challenge is probably best described in General Arnold’s New Year’s message to the commanding generals of the Eighth and Fifteenth Air Forces: “It is a

conceded fact that Overlord . . . will not be possible until the German Air Force is destroyed. Therefore, my personal message to you–this is a MUST–is to, destroy the Enemy Air Force wherever you find them, in the air, on the ground and in the factories,” United States Air Force, *The Army Air Forces In World War II*, 8.

<sup>30</sup>United States Air Force, *The Army Air Forces In World War II*, 30.

<sup>31</sup>Hammel, 331.

<sup>32</sup>Donald L. Miller, *Masters of the Air: America's Bomber Boys who Fought the Air War Against Nazi Germany* (New York: Simon & Schuster, 2007), 254.

<sup>33</sup>Hansell describes the launch of Operation Argument as “one of the crucial command decisions of the war.” Hansell, 180; The force assembled for Operation Argument was “the largest in history of the American strategic forces Sixteen combat wings of heavy bombers, numbering over 1,000 planes and Sixteen RAF fighter squadrons.” United States Air Force, *The Army Air Forces In World War II*, 33; During Operation Argument 3800 bomber sorties and 3673 fighter sorties were launched. 226 bombers and 28 fighters were lost. Hansell, 182 and United States Air Force, *The Army Air Forces In World War II*, 13.

<sup>34</sup>United States Air Force, *The Army Air Forces In World War II*, 31;

<sup>35</sup>*Ibid.*, 13.

<sup>36</sup>General Anderson was the Eighth Air Force’s Deputy for Operations in February 1944. United States Air Force, *The Army Air Forces In World War II*, 31.

<sup>37</sup>*Ibid.*, 32.

<sup>38</sup>Hammel, 335.

<sup>39</sup>Hansell, 180.

<sup>40</sup>United States Army Air Force, Eighth Air Force, Army Air Forces Evaluation Board. *Tactical Development: August 1942-May 1945* (Washington, DC: Government Printing Office, 1945).

<sup>41</sup>Freeman, *Mighty Eighth War Manual*.

<sup>42</sup>Astor, 8.

<sup>43</sup>United States Strategic Bombing Survey, *Over-all Report (European war)* (Washington, DC: Government Printing Office, 1945), 72.

<sup>44</sup>Freeman, *The Mighty Eighth: Units, Men and Machines*, 1.

<sup>45</sup>Ibid.

<sup>46</sup>Ibid.

<sup>47</sup>Ibid.

<sup>48</sup>Freeman, *Mighty Eighth War Manual*, 45.

<sup>49</sup>Ibid.

<sup>50</sup>Ibid.

<sup>51</sup>Ross, 136.

<sup>52</sup>Based on the description at the display of a Norden Bombsight at the Smithsonian National Air and Space Museum, Washington, DC. This simplified description corresponds with the extensive description in Pardini's book.

<sup>53</sup>Pardini, 42 and 75.

<sup>54</sup>Freeman, *Mighty Eighth War Manual*, 45.

<sup>55</sup>Ibid., 24.

<sup>56</sup>The technique and differences of both the PDI- and AFCE-bombing technique are not discussed further in this thesis. See for an explanation: Freeman, *Mighty Eighth War Manual*, 24.

<sup>57</sup>Pardini.

<sup>58</sup>Ibid, 154.

<sup>59</sup>Ibid., 155.

<sup>60</sup>Ross, 134.

<sup>61</sup>United States Strategic Bombing Survey, *Summary Report (European War)* (Washington, DC: Government Printing Office, 1945), 4.

<sup>62</sup>United States Strategic Bombing Survey, *Over-all Report (European War)* (Washington, DC: Government Printing Office, 1945), 72.

<sup>63</sup>United States Air Force, *The Army Air Forces In World War II*, 13.

<sup>64</sup>Ibid., 15.

<sup>65</sup>Ibid.

<sup>66</sup>Freeman, *Mighty Eighth War Manual*, 45.

<sup>67</sup>*Ibid.*, 37.

<sup>68</sup>*Ibid.*

<sup>69</sup>*Ibid.*

<sup>70</sup>*Ibid.*, 37-44.

<sup>71</sup>*Ibid.*, 45.

<sup>72</sup>Ross., 135.

<sup>73</sup>*Ibid.*

<sup>74</sup>Freeman, *Mighty Eighth War Manual*, 45. For a section of 12 aircraft, the formation was 800 feet wide and 480 feet deep.

<sup>75</sup>*Ibid.*, 42.

<sup>76</sup>Ross, 135.

<sup>77</sup>Sahr Conway-Lanz, *Collateral Damage: Americans, Noncombatant Immunity, and Atrocity After World War II* (New York: Routledge, 2006), 11.

## CHAPTER 4

### THE AIR PERSPECTIVE

Bombing attack: Possibly Nijmegen; Sighting: Dropped on Lead;  
Observed results: Town hit, factory hit by 5 bombs, rest in center of town. Big cloud of dust or white-brown smoke rose up. Crew's suggestions and comments: Flying equipment short, both heavy and electrical [2nd Lieutenant Ernest W. Bruce at crew interrogation].

— Interrogation Form Mission 22 February 1944, Pilot Bruce.

#### The Mission Narrative

This chapter starts with a general mission narrative, to provide an overview of the mission. The most comprehensive source for this purpose is the Report of Operations of the Headquarters Eighth Air Force.<sup>1</sup> It describes the mission for 22 February 1944 as: “Six high priority targets of vital importance to the aircraft industry . . . for this third successive day’s attack against production centers and storage parks of the German Air Force.”<sup>2</sup> These six targets were aircraft factories in Halberstadt, Aschersleben, Oschersleben, Bernburg, Schweinfurt and Gotha (all in Germany). Furthermore, a diversion was planned one hour before the main attack, aimed at Aalborg Airfield (Denmark). Also, this mission was the first to include an aircraft equipped with a device designed to deceive the enemy by jamming their radars, the Mandrel.<sup>3</sup>

The routes of the main effort were planned almost directly into central Germany, with courses diverging to the different targets about 250 miles inland. The return route was planned south of the German industrial Ruhr Area, because less fighter opposition and lighter air defense were expected there. The Eighth Air Force’s track chart gives a clear depiction of the routes and overall mission plan (see figure 5).<sup>4</sup>

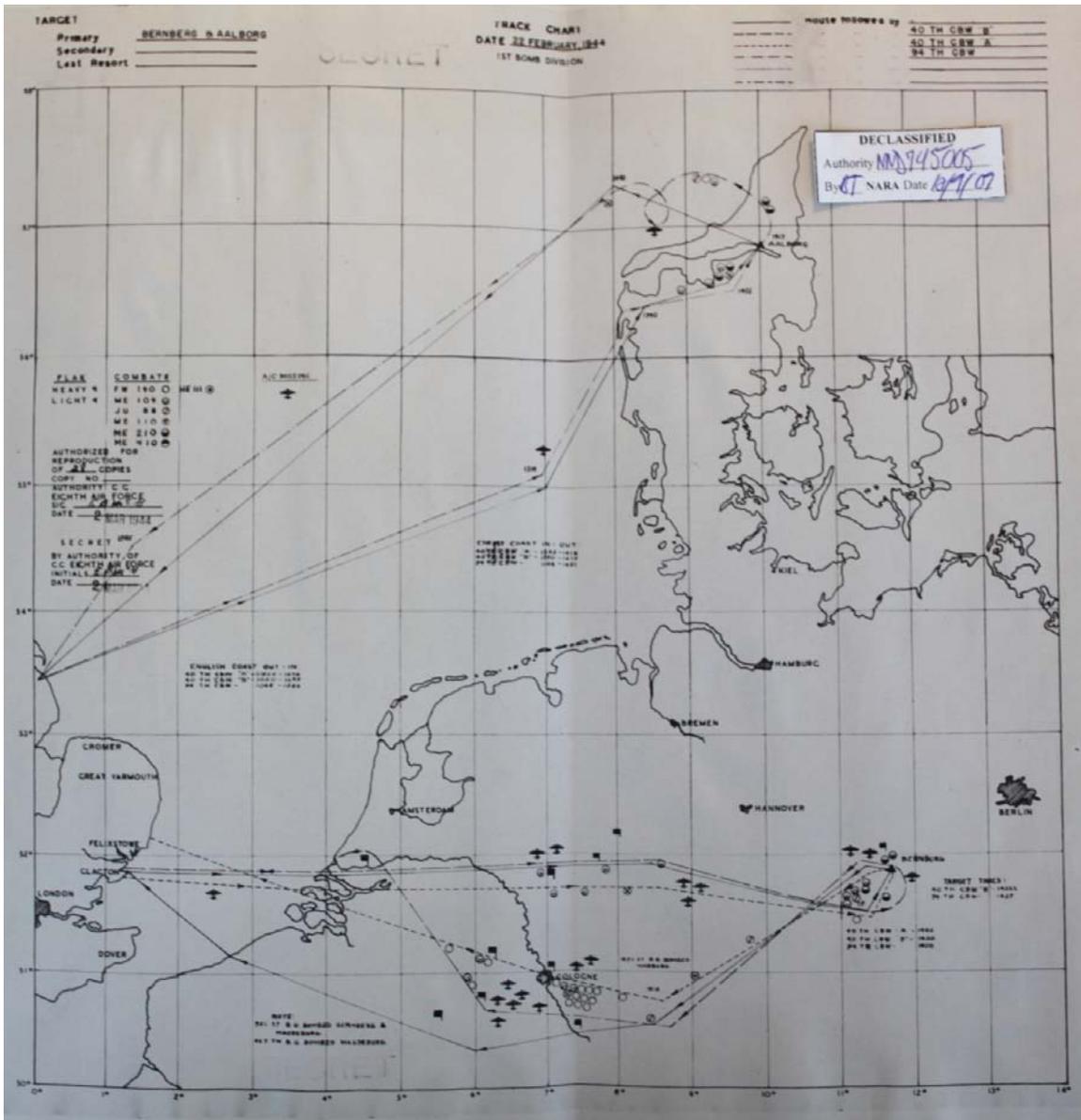


Figure 5. Track Chart 1st Bombardment Division Eighth Air Force.

Source: Tactical Mission Report Mission 22 February 1944, 5 March 1944, Box 5701, 8th Air Force, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD). Declassified by authority of National Archives, no. NND745005, 18 December 2009.

Note: The solid lines show the planned routes for 22 February: after departure from England, the bombers had to fly over 400 miles eastward across the North Sea, The Netherlands and Germany to reach their targets. The return trip was planned South across Belgium. The dashed lines indicate the actual routes of the 1st Division, the first formation of 22 February 1944. Note the aircraft symbols representing lost aircraft.

The raids included fourteen bomber wings with 934 bombers in total. The bombers were escorted by eighteen (mainly P-47's) fighter groups. The 1st Bombardment Division formed the lead formation, followed by the 2nd and 3rd Divisions.

During the assembly after takeoff, the weather conditions prevented the forming of proper combat wing formations. Most of the bombers had to turn around and only 101 of the 384 aircraft of the 1st Bombardment Division reached their targets. The aircraft factories in Halberstadt, Aschersleben, Oschersleben and Bernburg were bombed with 162 tons high explosives, 19 tons incendiary bombs and 65 tons fragmentation bombs in total.<sup>5</sup>

Due to the unfavorable weather conditions, the second and third formation of respectively 253 B-24's and 333 B-17's never reached their assigned targets. They were recalled early by their divisions because of the deteriorating weather conditions, although they were already about 40 miles into German airspace. Additionally, the turn after the recall of the second and third formation led to chaos in the air causing the combat box formations to fall apart. To add to the confusion, the report also mentions a strong westward drift. This worsened the breaking of the tight combat formations.<sup>6</sup> The track chart for 22 February (figure 6) shows the flight movements recorded for the Eighth Air Force during this mission (only for sections and larger formations).<sup>7</sup> This chart clearly illustrates the chaos in the air after the recall.

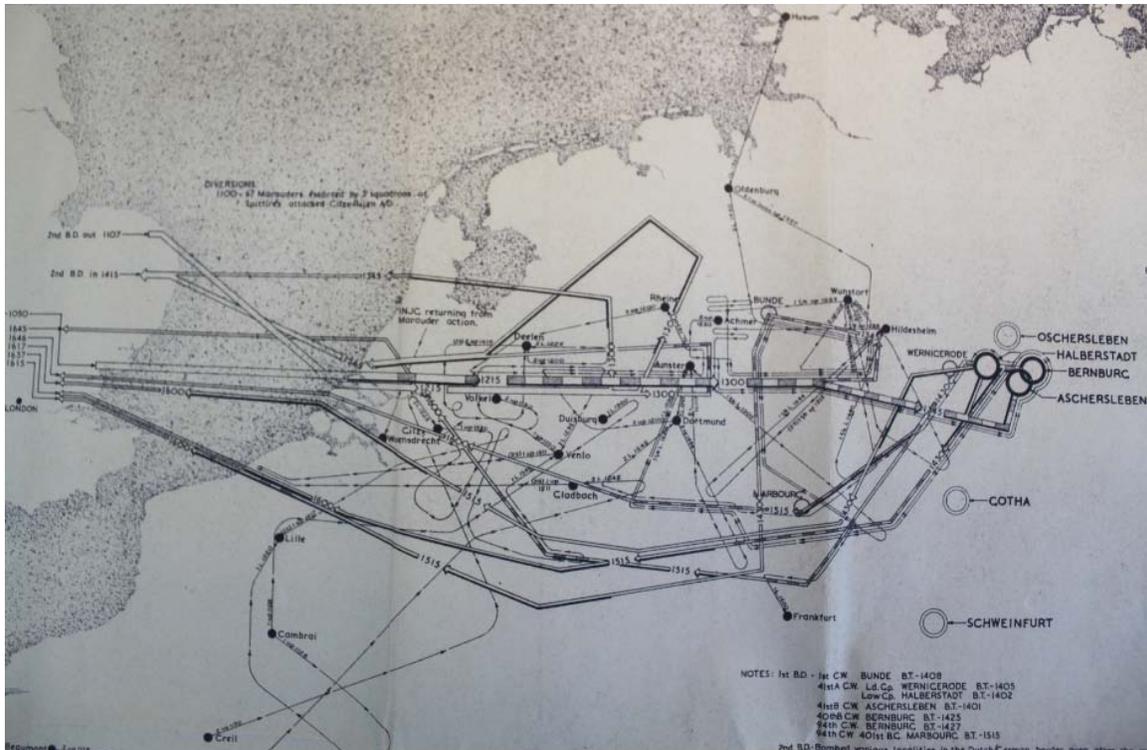


Figure 6. Extract Track chart flight movements 22 February 1944  
*Source:* Tactical Mission Report Mission 22 February 1944, 5 March 1944, Box 5701, 8th Air Force, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD). Declassified by authority of National Archives, no. NND745005, 18 December 2009.

Crucially, returning to England, the commander of the second formation decided not to abandon the mission outright, but to bomb targets of opportunity. The report states that they “bombed four Dutch towns unintentionally.”<sup>8</sup> This extract of the Report of Operations describes this plainly:

The Combat Wings of the 2nd Division were unable to organize as they proceeded inland and, after penetrating more than 100 miles into enemy territory the decision was made to abandon the Gotha mission and this Division was recalled. Elements of the lead Combat Wing which penetrated to approximately 40 miles past the Dutch border elected to seek targets of opportunity. Turning north they failed to allow for strong westward drift caused by a 90 knot wind and this resulted in the unintentional bombing of four Dutch towns, Enschede, Arnhem, Nijmegen and Deventer.<sup>9</sup>

During the entire mission, the fighter groups escorting the bombers faced at least 250 enemy fighters. In addition, the report mentions that seventy-five percent of those aircraft made double sorties.<sup>10</sup> The most intense and concentrated enemy fighter effort was met during the penetration phase of enemy territory. Also, the report states that “due to the inability of the bombers to attain a satisfactory formation and also because the enemy aircraft outnumbered the fighters during the penetration phase, the fighter escort was never able to fully support the entire formation.”<sup>11</sup>

Thirty five B-17 bombers were lost during this mission: twenty due to enemy aircraft, five due to anti-aircraft fire, one to a combination of these and nine due to unknown causes. In addition to this, eleven fighters were missing.<sup>12</sup> Remarkably, these high losses are only mentioned as bare facts. A few months earlier in the Schweinfurt-mission, the loss of sixty bombers, about sixteen percent of the formation, led to a crisis in the American strategic bomber campaign. Although smaller, the loss in this mission on 22 February 1944 seemed not to be disputed. For example, in the 1st Bombardment Division’s Group Commander’s Meeting on 23 February, it is not discussed at all. This intimates that it did not seem to give rise to serious concerns.<sup>13</sup> It is safe to say that this indicates the attrition phase the air war had entered, and illustrates the inconceivable high losses and risks the Eighth Air Force was accepting to take.

The Luftwaffe faced severe losses as well. The mission report indicates the Eighth Air Force bombers had 120 engagements with one or more enemy aircraft; claiming twenty-seven destroyed, three probably destroyed and thirty-one damaged German fighters. On top of that, the US fighters claimed sixty destroyed, seven probably destroyed and twenty-five damaged enemy aircraft.<sup>14</sup>

Summarized, the Report of Operations of the Headquarters Eighth Air Force is, at first glance, a clear explanation of the events on 22 February 1944. However, it raises several questions and does not reconstruct the causes of the bombardment in the necessary detail. Therefore, different aspects need further investigation.

First, the circumstances around the recall of the second and third formation need further clarification. Why did it happen, what were the consequences and how did a part of the formation end up above Nijmegen? Second, when or whether the bomb crews realized they were above Nijmegen, and did they know it was within their rules of engagement to bomb this target? Third, the bombardment itself requires a closer look. What were the exact circumstances, the aiming method and the result?

The archival research revealed several different statements and documents from subordinate units of the Eighth Air Force contain both conflicting and more comprehensive statements on these vital points. Therefore, the most methodical way to answer these three questions is to research the records of the involved subordinate units subsequently. Figure 7 depicts the organization chart, with the relevant units of the Eighth Air Force for the mission and Nijmegen bombardment on 22 February 1944.

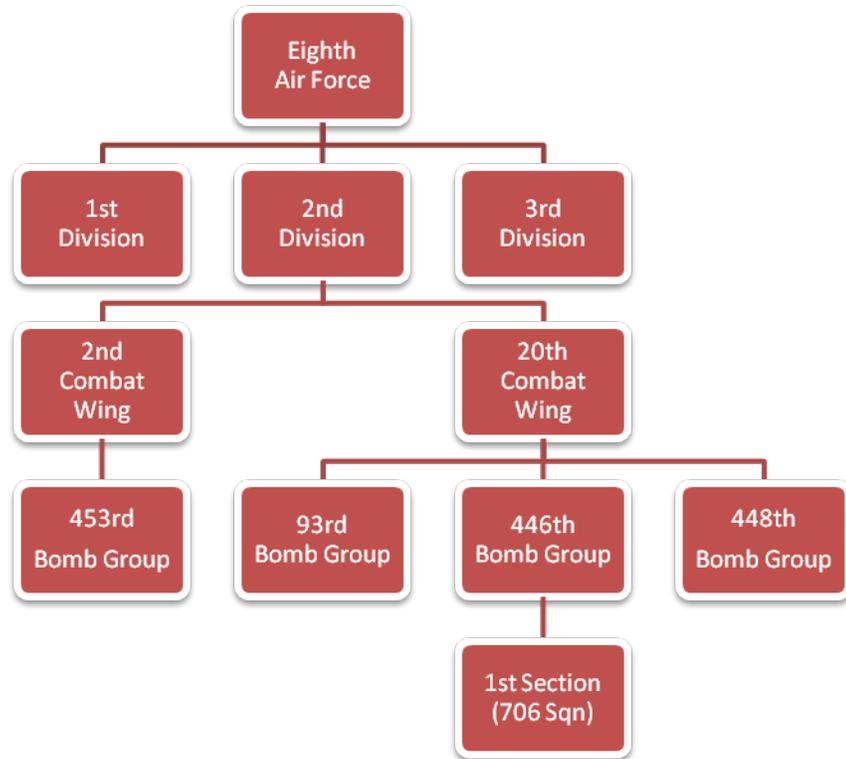


Figure 7. Organizational Chart

Source: Created by author based on data from Joost Roosendaal, *Nijmegen '44; Verwoesting, Verdriet en Verwerking* (Nijmegen, The Netherlands: Vantilt, 2009), 54. Note: Organizational Chart with command relationships and units involved in the bombardment on 22 February 1944.

### The 2nd-Bombardment Division

The earliest relevant document in these records is the 2nd Bombardment Division's Field Order 213 for 22 February 1944. This order clearly outlines the targets for the division's Combat Wings, the six aircraft factories in and around Gotha.<sup>15</sup> Crucially, as will be discussed later on, this order defines the target of last resort for this mission as well. These targets had to meet three criteria. First, these had to be a military objective (although this can be interpreted broadly), second they needed to be located in Germany, and third they needed to be attacked without disrupting the formation's fighter

support.<sup>16</sup> Remarkably, the records use the term “target of opportunity,” but it can be assumed this equates with target of last resort.

The earliest document in the division’s records after the bombardment is the *Résumé of the Gotha Mission* by the Headquarters 2nd Bombardment Division, dated February 23.<sup>17</sup> This *résumé* describes the bombing results of the division’s combat wings. Remarkably, it mentions several details and contradictions not discussed in later reports. The first extract concerns the 2nd Combat Wing. “All aircraft which continued on the mission returned with their bombs with the exception of 4 aircraft from the 453rd Group. These aircraft bombed in the vicinity of Rheime or Nijmegen which is in Holland.”<sup>18</sup> This shows the confusion at the 2nd Combat Wing about which city was bombed. Was it Rheime or Nijmegen? With Rheime they probably meant the German city Rheine, about 120 kilometers north-east of Nijmegen. This confusion is worth a side step, because later it turned out that two bombers of 453rd Bomb Group (a subordinate unit of the 2nd Combat Wing) joined the formation of 446th Bomb Group and bombed Nijmegen together with them. These two bombers were equipped with fragmentation bombs, causing significant casualties on the ground. Examining the records of the 453rd Bomb Group records revealed that the confusion in the division’s *résumé* was caused by incorrect reading and misinterpretation of the 453rd Bomb Group’s mission narrative.<sup>19</sup> One of the two aircraft crews specifically reported having bombed Nijmegen and added to its mission narrative: “S Shore of Rheim river” (meaning South shore of the Rhein river).<sup>20</sup> However, the responsible officer at the 2nd Bombardment Division’s Headquarters, probably misunderstood this, and wrote in the division’s *Résumé* they bombed “Rheime *or* Nijmegen.” This explains the confusion.

The 453rd Bomb Group's records reveal something else as well. The second crew of the 453rd Bomb Group crew which--as it turned out later- bombed Nijmegen--reported in its mission narrative it bombed "Koln."<sup>21</sup> One can assume they meant the German city Köln (Cologne), about 130 kilometers south east of Nijmegen. If this is the case, this shows this crew's confusion, and plausibly substantial navigational errors. Their mission narrative was used in the 453rd Bomb Group's own narrative, but the division's resume does not mention it, probably realizing this mistake.

Returning to the 2nd Bombardment Division's Résumé: all the statements regarding the 20th Combat Wing in the next extract are either incomplete or incorrect.

The 93rd Group lead section returned with their bombs. Part of the second section dropped their bombs 10 miles from the Holland-German border due to an accidental release and failure in the lead aircraft of that section. The 446th Group bombed Rheime or Nijmegen. Actual identification has not been received. The 448th Group reports they bombed the City of Munster with accurate results.<sup>22</sup>

First, this extract mentions that the 93rd Bomb Group "dropped their bombs . . . due to an accidental release and failure," without discussing any further details.<sup>23</sup> Later, however, this turned out to be the bombing of the Dutch city Arnhem, fifteen kilometers north of Nijmegen. Second, this extract of the résumé mentions the 446th Bomb Group to have bombed "Rheime or Nijmegen," although "actual identification has not been received."<sup>24</sup> Most likely, this arose (or was even copied) from the previously mentioned confusion, because the 446th Bomb Group Records do not mention "Rheime" at all. Third, this extract stated 448th Bomb Group to have bombed the German city Munster, 130 kilometers east of Nijmegen. Later however, this turned out to be the bombing of the Dutch city Enschede, 55 kilometers north east of Munster. Finally, on the next page the

résumé states “it is believed that the two Groups dropped their bombs ten miles west of Germany in Holland,” without mentioning which Bomb Groups or cities this concerns.<sup>25</sup>

Therefore, the 2nd Bombardment Division’s mission résumé does not shed clear light on the events. Probably this report was already written on 22 February, which accounts for all the incompleteness, doubts and errors. As almost proverbially known amongst military: “the first report is always wrong.”

But the question remains whether there was any uncertainty at the Headquarters of the 2nd Bombardment Division’s on 22 February which targets had been bombed. On this point, their records reveal significant contradictions with the already discussed mission résumé. The division’s records contain the original incoming and outgoing messages concerning this mission as well. The mission log and four different messages received from the different Bomb Groups on 22 February clearly illustrate it was not open to questions at all which cities had been bombed. All these messages clearly state: “Targets of opportunity [Nijmegen], believed to have been in Germany, were bombed with varying results.”<sup>26</sup> Nevertheless, there must have been a certain amount of doubt. Otherwise, the division would not have asked for verification the next day where each group had bombed, as the next extract of the division’s memorandum proves (figure 8).<sup>27</sup>

1400 hours, 23 February 1944

At request of Division (Lt Col Bryan to Col Wood) we checked to see where each Group thought it bombed and then advised Division (Capt Scriba to Lt Col Bryan). Data was as follows:

93rd - Bielefeld ( $08^{\circ}30' E - 52^{\circ}00' N$ ) and other towns in the vicinity.

446th - Cleve & Goch (roughly  $06^{\circ}10' E - 51^{\circ}45' N$ )

448th - Munster

Figure 8. Memo Re Mission.

*Source:* Memo Re Mission of 22 February 1944, 23 February 1944, Box 5055, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD). Declassified by authority of National Archives, no. NND745005, 18 December 2009.

*Note:* The mentioned position  $06^{\circ}10' E, 51^{\circ}45' N$  is located about 5 kilometers southeast of Cleve, a German city located about 20 kilometers East of Nijmegen. The German city Goch is located 10 kilometers south of the German city Cleve.

With this memo the question arises why the 446th Bomb Group reported the wrong city, while mentioning another city (the correct one) a day earlier. As the crew interrogation forms reveal, both the crews and the staff of the Bomb Group knew they bombed Nijmegen after landing at their base. Was it just a mistake, were they uncertain or was it an attempt to cover up the events? Unfortunately, the researched records of the 2nd Bombardment Division do not contain any supporting evidence to make a pronouncement on this.<sup>28</sup>

Besides the field order, the mission resume and the memo, there is a fourth relevant document in the records of the 2nd Bombardment Division. These are the Minutes of a Combat Wing Commanders' Meeting, held on 28 February 1944. During this meeting, the commanders discussed the missions of the past week.<sup>29</sup> The discussion and comments about the Gotha mission reveal the underlying causes of the bombardment

the five Wing Commanders had identified, almost a week after the mission. Directly or indirectly, they listed: “promiscuous bombing,” poor navigation, and “recall policy.”<sup>30</sup> Furthermore, they agreed upon a procedure to “prevent any misunderstanding on recall policy”: Groups nor Combat wings should recall a formation.<sup>31</sup> Remarkably, there is no account of the weather or the wind being discussed during this meeting. As described previously, these were the main problems the Eighth Air Force discusses in its report. Remarkably, the minutes describe the Wing Commanders assessment of the bombardment as an “erroneously attack.”<sup>32</sup> This is at least more specific than the description in the discussed Eighth Air Force’s report, which called the bombardment “unintentional.” Again, the records do not clarify this difference.

The fifth and last relevant document in the 2nd Bombardment Division’s records is the division’s Tactical Report of Mission. It is their final report, dated 16 March 1944. Hereunder the most relevant part:

Assemblies were accomplished with a great deal of difficulty because of heavy cloud layers and intermittent snow storms, which extended to assembly altitudes and out along course as far as the Dutch coast. As a result, the formations became strung out with sections and individual aircraft losing contact with the main formation and abandoning the mission. In view of this situation, the Division was recalled. Two Combat Wings returned with their bombs. The 20th Combat Wing was approximately forty miles past the Dutch border in Germany and a decision was made to bomb German last resort targets and Groups uncovered for their bomb runs. At the time of this maneuver, there was a 90 knot wind aloft with a consequent strong westward drift. Failing to make allowance for this strong drift westward and confused because of the necessity for changing headings to avoid other Groups bombing at the same level, the towns of Enschede, Arnhem, Nijmegen and Deventer in Holland were mistaken for last resort targets in Germany and bombed.<sup>33</sup>

In general, this report corresponds with the Eighth Air Force Tactical Report discussed previously. The explanation is however slightly extended: it explains the difficulties with the assembly and the weather more in details. Furthermore, the report adds confusion

because of changing headings to avoid other groups as a cause. Also, this report describes that the targets were mistaken for targets in Germany. That is at least another connotation than “unintentional,” which was used in the Eighth Air Force Tactical Report.

In addition to this, the Tactical Mission Report contains an instruction of General Hodges, the Commanding General of the 2nd Bombardment division: “All units have been instructed to positively identify last resort targets of opportunity as being at least twenty miles east of the German border before bombing.”<sup>34</sup> Very likely this was an attempt to prevent more unwanted bombings of targets of opportunity causing friendly casualties in occupied countries.

It is very likely that this report contains the final and official account of the bombardment. A bombardment division in the Second World War was the lowest organizational level in the USAAF to have both the staff capacity and -more important- the authority of a general officer, to compile such an official report. Moreover, Eighth Air Force’s report is less extensive and based on the same sources.

Unusually, the records of the involved subordinate unit of the 2nd Bombardment Division, the 20th Combat Wing, do not contain any relevant information.<sup>35</sup> Therefore, the records of its subordinate unit, 446th Bomb Group will be analyzed next.

#### The 446th Bomb Group Records

The documents in these records prior to the bombardment add little information to what has been discussed already. The Field Order issued by the 20th Combat Wing contains only the formation plan and details regarding the maneuver before and after the bombing; only in addition to Field Order 213 of 2nd Bombardment Division.<sup>36</sup>

The bomb group's records contain numerous documents after the bombardment. Most relevant sources are the crew interrogation forms, the operations officer's report, narratives of the lead bombardier and lead navigator, the Mission Critique and numerous photographs and maps. These sources will be discussed subsequently.

The earliest relevant sources are the crew interrogation forms. Typically, as soon as possible after returning to their home base, the bomber crews were questioned by their intelligence officers.<sup>37</sup> The records contain all fourteen interrogation forms of the bomber formation which bombed Nijmegen. They reveal the targets the crews thought they had bombed, their aiming points, and the observed results. Combining these forms into an overview (figure 9), reveals eight of twelve crews were sure they bombed Nijmegen. Two crews were not sure, but did mention Nijmegen. Three crews mentioned Arnhem (which was bombed by the third section) and one crew mentions "Köln" (as discussed previously). Given the fact that the lead navigator (in the lead aircraft), Lieutenant Tannahill mentions "Nijmegen," this indicates there was at least no doubt which city had been bombed at the moment of the interrogation, just after landing.

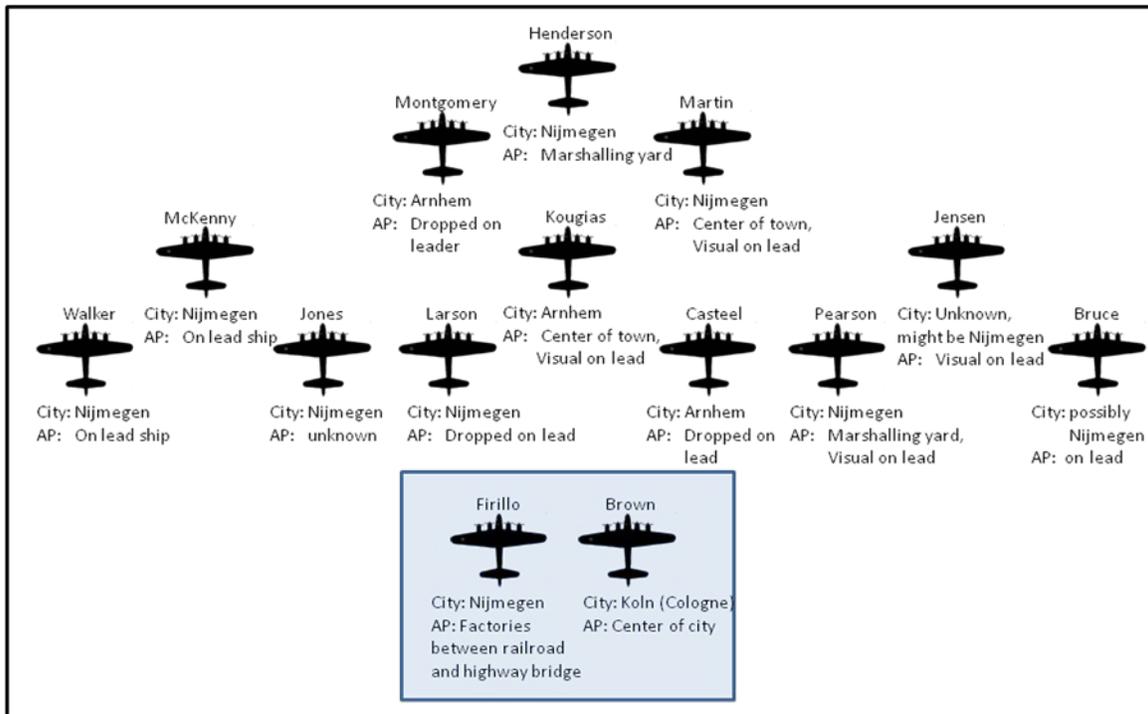


Figure 9. Formation 446th Bomb Group, first section at target (Nijmegen)  
*Source:* Created by author.  
 Note: This picture is based on all the crew interrogation forms of the first section, 446th Bomb Group.<sup>38</sup> It shows their formation at the target<sup>39</sup>, the name of the pilot (above the plane), the city the respective crews mentioned they had bombed at the interrogation and the aiming point or aiming method (AP) they mentioned (below the plane). The rectangle at the bottom depicts the two aircraft of 453rd Bomb Group, which joined the 446th Bomb Group in the chaos after the recall and bombed Nijmegen together with them.<sup>40</sup>

The next day, Tannahill compiled a detailed navigator’s narrative, clearly describing their entanglement and how they ended up above Nijmegen:

Intending to make a run on the factories at Bocholt, Germany a slight turn was made to the right in order to complete a left turn and bomb downwind. The Group was unable to complete turn to left due to other Groups and made a 360 turn to right, but was unable to run on an airport due to another Group making a south to north run on a city on the airport. The Group made another 360 turn to the right and failing to line up on factories, dropped on marshalling yards and warehouses located on river, believed to be in Germany, due to the fact that two 360 turns to the right were made. Actual track in turns was determined after bombs away, and the target of opportunity was determined to be Nijmegen, Holland.<sup>41</sup>

Remarkably, Tannahill also testified the bombs were dropped on targets “believed to be in Germany.” He stated that only after the bombs were dropped, the target was determined to be Nijmegen.<sup>42</sup> This implies the formation consciously bombed this target of opportunity. So according to this statement, the bombing was not “unintentional,” as described in the Eighth Air Force discussed previously.<sup>43</sup>

The entanglement and the subsequent turns could explain why the lead navigator claims he was not able to determine the formation’s position after the recall, but only after the bombardment. The original navigator’s log in the records proves the lead navigator’s inability to determine, or at least record his position for at least thirty-five minutes. The log states subsequently: “1255 Recall verified at 06°42'E,51°45'N, 19000 ft” (about 65 kilometers south of Nijmegen, roughly the recall position on Figure 12) and “1330 Nijmegen, bombs away.”<sup>44</sup> So only after the bombardment the log contains the formation’s position again. This corresponds with his statement. Finally, the flight track chart of the 446th Bomb Group, an appendix to the navigator’s narrative, illustrates the erratic course of the formation (figure 10).<sup>45</sup>

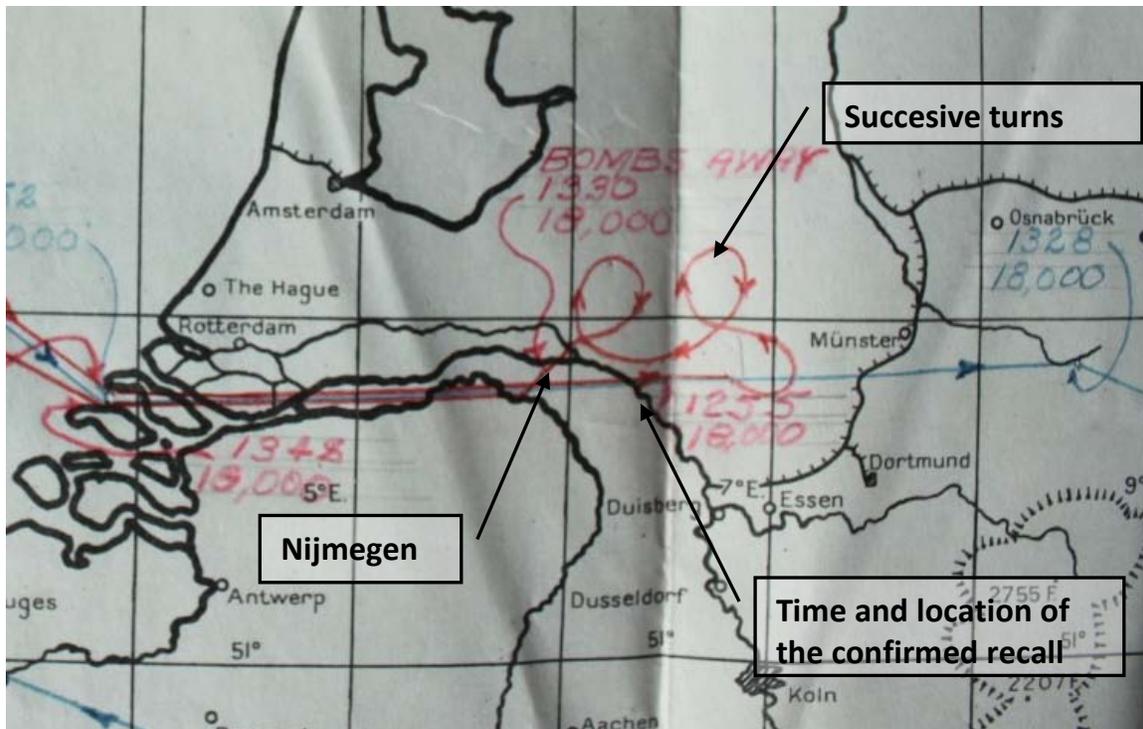


Figure 10. Cut out map showing flight movements first section 446th Bomb Group  
 Source: 446th Bomb Group Lead Navigator's Narrative for Mission 22 February 1944, 23 February 1944, Box 5002, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD). Declassified by authority of National Archives, no. NND745005, 18 December 2009.  
 Note: Blue lines show the planned route, red lines the actual route. By way of illustration, the locations of Nijmegen, confirmed recall and the successive turns are added.

Next and probably the most comprehensive source in the 446th Bomb Group records, is the Report of the Operations Officer regarding this mission.<sup>46</sup> This document has been signed (and is probably written as well) by Captain William A. Schmidt, in his capacity of 446th Bomb Group's operations officer. Schmidt was however *also* the formation leader and co-pilot of the lead plane on the Nijmegen bombardment. This means he had first-hand knowledge, but in regard to a possible question of guilt or obvious mistakes, he could have been prejudiced as well.

The first three paragraphs of his report clarify and confirm the already discussed mission narrative. However, the fourth paragraph of this document, discloses the difficulty the formation leader had with the confirmation of the recall.<sup>47</sup>

. . . a recall was received by various planes in the formation with the Deputy Lead calling the formation leader on VHF and notifying him of said recall. The Formation Leader, not having received the recall, had his radio operator check to see if there had been a recall. The radio operator reported that there had not been a recall. He was instructed to try to get the recall, but was unable to do so. The Formation Leader then called, on VHF, the leaders of the high, 93rd, and the low, 448th, Groups to see if there had been a recall to which he received an affirmative answer. Desiring further proof the Formation Leader then called his Deputy Leader who had received the recall, but not the verification. The Formation Leader then waited until the Deputy Leader got the verification of the recall and then made his decision to abandon the mission. At this time, the formation was approximately 30-40 miles in Germany, and a decision was made by the formation leader to bomb a Target of Opportunity in Germany.<sup>48</sup>

At first glance, it almost seems that the formation leader was fiddling around with this recall. He had not received the message directly and desired further proof several times. As a possible explanation, Brinkhuis' book describes the Germans had tried to deceive the US bomber formations by sending false recall messages in earlier missions.<sup>49</sup> This experience probably caused the lead aircraft to take extra caution in reacting immediately. All in all, this procedure took at least fifteen, but probably thirty minutes.<sup>50</sup> This implies the formation flew 150 to 300 kilometers eastwards above enemy territory (the airspeed was approximately 160 knots), after the recall had been sent.<sup>51</sup>

Remarkably, at the end of the extract, Schmidt's report also states specifically that "the decision was made . . . to bomb a Target of Opportunity *in Germany*." It is unclear whether this order has been issued exactly this way. As previously discussed, this is exactly the same phrase used for targets of last resort in the field order for this mission. When Schmidt wrote his report, he already knew the bombing of Nijmegen was a

mistake, because it was not according to his instructions. And as he was bearing the responsibility this, it was in his interest to disguise the real facts.

The next extract from the Report of Operations makes it even more likely that Schmidt disguised the facts. After describing the entanglement in a similar way as Tannahill, the report states:

. . . a target of opportunity was again picked up, this being a town identified as Goch, Germany, and the first section dropped on said town. The second section did not drop, and the third section dropped on Cleve, Germany. Upon landing and checking the navigation again the towns turned out to be Nijmegen, Holland and Arnhem, Holland respectively.<sup>52</sup>

His explanation that the first section of 446th Bomb Group (under his command) thought they were above the German city Goch does not sound convincing. First, at the earlier crew interrogation Schmidt and his crew (with pilot Henderson) already had reported they had bombed Nijmegen. As discussed before, they realized this at least almost directly after bombing, as both the lead navigator and lead bombardier were in the same aircraft. So changing this statement afterwards is at least suspicious. Furthermore, it is likely that the bomber crews knew this area inside out. They did not only cross this area almost every mission, but the navigation log shows they had crossed the area during the same mission, only forty five minutes earlier, just before receiving the recall.<sup>53</sup> Third, a quick glance at the map shows a completely different layout of the area. Nijmegen is located next to a very large river, while the closest river to Goch is fifteen kilometers north of the city. The navigator cannot have missed this.

Finally, the level of detail of Schmidt's report is remarkable for a document which states it has been written on 22 February 1944. Probably, it took at least a couple of days to produce such a detailed reconstruction. However, all the mission narratives and about

half of the crew interrogation forms are dated 23 February 1944. This strengthens the impression the report is written after 22 February. Summarizing, it may be said the Report of the Operations officer is at least disguising the facts, and partially incorrect.

Again, it is therefore necessary to zoom in further to clarify the exact events. The most relevant source for this purpose is the “Mission Critique.”<sup>54</sup> This is a report of the regular meeting after a few missions, to discuss their proceedings and results. The critique for this mission was held on 23 February 1944. During this meeting, the Bomb Group Commander, Colonel Wood, questioned the lead aircraft’s crews. They discussed the mission of 22 February, but earlier missions as well. First, Schmidt describes to Wood their confused navigation. He stated: “Finally found a city which we thought was in Germany, Nijmegen, and *two* sections dropped on it.”<sup>55</sup> This is contradictory with the just discussed Report of Operations, where he stated that one section bombed Nijmegen, one Arnhem and one did not drop at all.<sup>56</sup>

During this mission critique, Lieutenant McCarty was questioned as well. He was the leading bombardier, in the same aircraft as Henderson, Schmidt and Tannahill. Wood asked him whether he “could definitely identify the town.” McCarty responded: “I can positively identify it as the one they say it is now.” Also he stated: “I was surprised to hear it was not in Germany”<sup>57</sup> The same day, he clarified this statement in his bombardier narrative, the next relevant source:

Word was received to bomb target of opportunity. The pilot was unable to bear on a target previously identified as he was cut out by another formation of friendly bombers. . . . After [another] turn, bomb bay doors were opened and lined up on another target identified as German. We were again cut out and made another 360 turn to the right. When we leveled out we were directly in line with a large city which we made our run on. There was no doubt in our minds but that this city was

in Germany until the navigator began to get bearings for a course back to England.<sup>58</sup>

In general, McCarty statement clarifies and confirms Tannahills statement. In addition, McCarty also explains why the third section of 446th Bomb Group did not bomb: “They got away from us and knew they were in Holland. They were way to right of us [West] and were sure they were in Holland.”<sup>59</sup>

Crucially, the bombardier’s narrative also reveals the details about the aiming:

As we neared the city I saw a railroad yards and fairly large building area beside it. Because of our excessive ground speed I thought that the tendency of aircraft following would be to throw bombs over my MPI [mean point of impact] so I chose a large building near an intersection directly in line with the railroad yards for my aiming point. The bombing run was made on PDI [pilot direction indicator].<sup>60</sup>

This means McCarty’s consciously aimed short of the target, because he expected the other bombers to drop their bombs past his aiming point. According to Freeman’s extensive description of bombing technique this was according to the standing procedure in early 1944: aiming short compensated for “the fractional time delay between the release of the lead plane’s bombs and those of the rest of the formation.”<sup>61</sup> It is however not clear which building in the city McCarty aimed at. Furthermore, it reveals the crews used the PDI setup of the Norden Bombsight.

Additional proof about the aiming can be found in the pictures taken during the bombardment (figure 11). The records of 446th Bomb Group only contain pictures from aircraft 29144, at the right side of the formation. Brinkhuis’ book about the bombardment however, uses similar pictures from the lead aircraft. Remarkably, these pictures are missing in the 446th Bomb Group records.<sup>62</sup> The mean point of impact of the bombs in both pictures is similar, so it can be assumed the picture from aircraft 29144 is

representative for the entire section. Both pictures clearly reveal the city center was hit, instead of the railroad yards. In other words: the bombers missed their target.

Surprisingly, the pictures reveal as well there were significant clouds above Nijmegen, even covering the mentioned target, the railroad yards. This raises the question whether or how the lead bombardier was able to identify the target. However, the records contain another (unmarked) picture, probably taken a few moments earlier. This picture depicts the railway station and marshalling yards, with the same cloud a bit further south.<sup>63</sup>

With the use of these pictures, local knowledge, and current maps, it is possible to reconstruct the final part of the bombing mission in broad outlines (figure 12). This reconstruction includes the available information about the aiming, the actual point of impact (the city center) and the mentioned target (the marshalling yards).<sup>64</sup> Plotting both these areas and the heading of the bombers clearly reveals that the bombs fell short of the target, almost exactly on the bomber course. So aircraft 29144 (with pilot Bruce) failed to bomb the mentioned target by about a kilometer. Almost certainly, this applies for the whole formation, as they used the “drop on lead method.”<sup>65</sup>

This miss could have three causes. First, McCarty could have overestimated the fractional delay in between the lead plane and the rest of the formation. In other words: the other bombers reacted faster than expected. Second, McCarty could also have aimed way too short, causing the bombs of the other aircraft to fell short as well. In both causes, the lead bombardier’s aiming appears to be a crucial mistake. Third, the use of the PDI setup of the Norden Bombsight, instead of the regular setup, also could have caused a lack of precision. As a consequence of these three causes, the majority of the bombs fell

on the city center instead on the marshalling yards, causing the vast majority of casualties and damage in the city.

Another important factor influencing the aiming and the bombing results is the fact that the entire bomber formation used the system of “drop on lead,” as described previously. This meant that this precision bombardment of a target of opportunity had the practical effect of an area bombardment, with a target area at least as large as the bomber formation. Picture 15 clearly reveals this large bomb pattern. Also, the damage in the city confirms this conclusion, as will be discussed in next chapter. All together, this is a highly likely explanation why the aiming was so poor and the entire city center was hit instead of the marshalling yards.



Figure 11. Picture of Nijmegen during the bombardment

Source: Picture 48-3 of Mission 22 February 1944, Box 2339, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD). Declassified by authority of National Archives, no. NND745005, 18 December 2009.

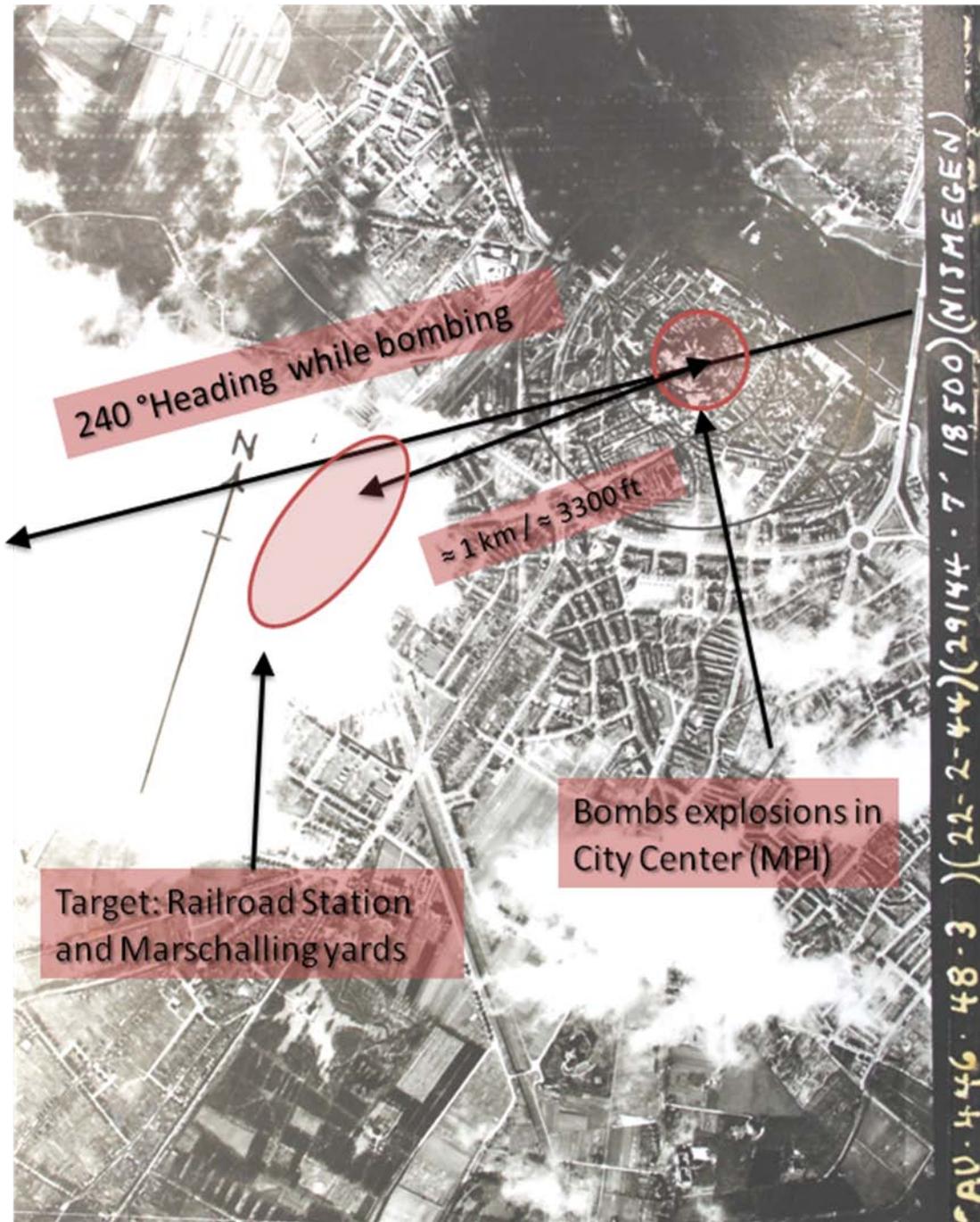


Figure 12. Sketch of bombing analysis aircraft 2911 (pilot Bruce)

Source: Created by author, based on Figure 13.

Note: The aircraft heading is plotted on this picture. Also the mean point of impact and the mentioned target have been identified (with the use of a current map and local knowledge. This proves the bombs of this aircraft fell about 3300 feet short of the target. Declassified by authority of National Archives, no. NND745005, 18 December 2009.



Figure 13. Picture of the Nijmegen bombardment, just after “bombs away”  
*Source:* Gemeente Nijmegen [City of Nijmegen]  
[www.nijmegen.nl/gns/index/boek/de\\_fatale\\_aanval/De\\_Fatale\\_Aanval.pdf](http://www.nijmegen.nl/gns/index/boek/de_fatale_aanval/De_Fatale_Aanval.pdf) (accessed 24 February 2010).  
Note: This picture depicts the drop of the bombs on Nijmegen. The River Waal bridge and the eastern edge of Nijmegen is just visible at the top of the picture. Three groups of twelve bombs are circled. The bombs are dropped almost four kilometers north east of the city. To illustrate and prove the large bomb pattern at the time of release, the distance in between the left and right circle is depicted (approximately 1.5 kilometer).

### Battle Damage Assessment

The twelve bombers of first section, 446th Bomb Group dropped twelve 500 pound bombs each.<sup>66</sup> Of those bombs, eleven had a thirty minutes delay fuse, but they did not all explode.<sup>67</sup> The battle damage assessment of the 446th Bomb Group is very concise. It only stated: “photos show from fair to good results on both targets. Docks, factories and installations hit.”<sup>68</sup> As discussed previously, with the use of both the photos made during the bombing run and the crew interrogation it is, even now, possible to reconstruct the bombing run and the damage in great detail. However, the 446th Bomb Group was brief and not detailed in its assessment.

Furthermore, two aircraft of the 453rd Bomb Group dropped seventy-one 120 pound fragmentation bombs in total.<sup>69</sup> In their narrative report, the bomb group mentions the bombs landed “on factory site between railroad and highway bridge. . . . Direct hits scored on factory building.”<sup>70</sup> This description equals to the entire city center. As discussed previously, the crew of the second aircraft thought or at least mentioned they bombed the German city Cologne. Their battle damage assessment was as vague as well: “fragmentation bombs dropped . . . results unobserved.”<sup>71</sup> To sum up, it is safe to say the bomb groups did not have a clear idea about the results of their bombardment, despite the available information.

### Summarized Archival Results

So far, a great deal of archival excavation has been done for the reconstruction of what exactly happened on 22 February 1944. The records answer most questions about the bombardment. First, there is abundant evidence showing the outline and planned targets for this bombardment mission: aircraft factories in and around Gotha, Germany.

According to their mission plan, the bombers had to cross The Netherlands on their way to the target area in Germany.

Second, the bomb crews had orders to bomb targets of last resort, if they failed to bomb the assigned primary and secondary targets. These targets of last resort had to be a military objective (although this can be interpreted broadly), located in Germany, and third needed to be attacked without disrupting the formation's fighter support. This implies it was not allowed for the bombers to bomb targets of opportunity in occupied countries like The Netherlands.

Third, the weather conditions deteriorated during assembly. This prevented forming of proper formations. As the weather above the European continent was deteriorating as well, the second and third formations were recalled. Only parts of the first formation reached and bombed their assigned targets.

Next, the circumstances around the recall have been resolved. There was a significant delay in receiving and confirming the recall because of inappropriate procedures and the possible risk of spoofing. As a result, the second and third formation flew fifteen to thirty minutes, about 150 to 300 kilometers, eastwards above enemy territory, after the recall had been sent. When they decided to turn around, they were approximately sixty kilometers into German airspace. At that moment Schmidt, commanding the lead bomber of the second formations, decided not to abandon the mission outright, but to bomb targets of opportunity in Germany.

Also, when turning around, the strong westward winds broke the large combat formation into smaller groups. Moreover, different bomb groups were all searching for a target of opportunity and had to change headings to avoid each other. This clearly led to

chaos in the air. In this entanglement, and after three consecutive turns, the first section of 446th Bomb Group and two aircraft of 453rd Bomb Group ended up above Nijmegen.

Sixth, the question whether the crews knew they were above Nijmegen or even The Netherlands at the moment they bombed is unresolved. The records prove they knew at least shortly afterwards, when plotting their course back to England. The records lead one to suspect they did know when bombing, but there is no direct evidence, nor can it be reconstructed. Also, neither Brinkhuis' nor Roosendaal's books about the bombardment establish conclusive proof on this point. Roosendaal states it was in the interest of the crews to mask what had happened.<sup>72</sup> Again, this could explain the explicit statements in the different reports discussed above: "to bomb a target of opportunity *in Germany*" and the bombardier's narrative describing "we found a city which we *thought* was in Germany."<sup>73</sup> However, this does not contribute enough evidence to conclude what the lead crew knew or not. Whether the lead crew did know their position or not will probably remain a mystery.

Seventh, there is abundant evidence of the poor aiming and subsequent results. Aiming short of the target by the lead bomber, to compensate for excessive air speed proved wrong. At least a part of the bombs missed the designated target, the railroad yard, by about a kilometer. Furthermore, the formation used the "drop on lead method." This caused an intended precision bombardment of a target of opportunity to have the practical effect of an area bombardment, with a target area larger than the bomber formation. The pictures prove the bomb pattern is at least 1,500 meters wide. Also, there is clear evidence the bomb crews did not have a clear idea about the results of their bombardment, despite the available information.

Furthermore, the records do not resolve undisputedly whether the crews were aware of their instructions not to bomb targets of opportunity in occupied countries. There is however supporting evidence they did not know for sure. Brinkhuis describes there has been an inquiry after the bombardment at the 446th Bomb Group whether the crews should have known they could not bomb targets of opportunity in occupied countries.<sup>74</sup> The records of the 446th Bomb Group do however not contain this inquiry, but do contain a statement which the briefing officer was urged to give as a result of it. It states that the intelligence officer, First Lieutenant Arthur Darrigrand briefed the pilots, navigators and bombardiers about the last resort target in the exact wordings as discussed earlier. He also stated: "I do not recall making a specific statement to the effect that no target in Holland was to be attacked, since all pilots, navigators and bombardiers had been briefed several times that a target in a neutral country could be attacked only when specifically called for by the Field Order."<sup>75</sup> Furthermore, the records of the 93rd Bomb Group contain a similar statement.<sup>76</sup> The statement suggests the intent of this inquiry could have been to point out the culprit, but the records cannot support this proposition fully.<sup>77</sup> However, had there been no doubt whether the crews were aware of this instruction, there would not have been an inquiry at all. Remarkably, both statements describe "targets in neutral countries." This is probably mistaken: in contrast with the unoccupied and neutral Switzerland, were The Netherlands occupied by the Nazi's and definitely not a neutral country anymore.

Ninth, besides the investigation, the Nijmegen bombardment had at least one other effect as well. The Commanding General of the 2nd Bombardment Division reissued an instruction to "bomb at least twenty miles east of the German border."<sup>78</sup> Very

likely this was an attempt to prevent more unwanted bombings of targets of opportunity causing friendly casualties in occupied countries.

Finally, the records show the bomb groups did not have a clear idea about the results of their bombardment, despite the available information such as photographs and crew interrogation forms. To conclude, this chapter has shown the different descriptions the Eighth Air Force used in their reports, narratives and meetings to describe this bombardment. In general, the higher the organizational level, the more tactful they paraphrase it. Subsequently, the bombardment is described in the documents as a failure, erroneous, promiscuous, mistaken, unintentional, and at least a faux pas. This enumeration explains a part of the title of this thesis.

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<sup>1</sup>Tactical Mission Report Mission 22 February 1944, 5 March 1944, Box 5701, 8th Air Force, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD), 1.

<sup>2</sup>Ibid.

<sup>3</sup>Ibid.

<sup>4</sup>Ibid.

<sup>5</sup>Tactical Mission Report Mission 22 February 1944, 5 March 1944, Box 5701, 8th Air Force, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD), 1.

<sup>6</sup>Ibid.

<sup>7</sup>Ibid.

<sup>8</sup>Ibid., 3.

<sup>9</sup>Extract Report of Operations Headquarters Eighth Air Force. Tactical Mission Report Mission 22 February 1944, 5 March 1944, Box 5701, 8th Air Force, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>10</sup>Ibid., 10. Within this context, a fighter makes double sorties, if it lands at its base for refueling and/or rearmament in between two missions to engage Allied bomber formations.

<sup>11</sup>Ibid., 5.

<sup>12</sup>Ibid., 8.

<sup>13</sup>1st Bombardment Division, Minutes of Combat Wing and Group Commanders, Box 5722, 8th Air Force, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>14</sup>Tactical Mission Report Mission 22 February 1944, 5 March 1944, Box 5701, 8th Air Force, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD), 6.

<sup>15</sup>Field order 2nd Air Division regarding Mission 22 February 1944, Box 4139, 20th Bomb Wing, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>16</sup>Ibid.

<sup>17</sup>Résumé of the Gotha Mission 22 February 1944, 23 February 1944, Box 4795, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>18</sup>Ibid.

<sup>19</sup>453rd Bomb Group Narrative Mission Report, 22 February 1944, Box 2586, 453rd Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>20</sup>Interrogation Form Mission 22 February 1944, Pilot Firillo, Box 2586, 453rd Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>21</sup>Ibid.

<sup>22</sup>Résumé of the Gotha Mission 22 February 1944, 23 February 1944, Box 4795, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>23</sup>Ibid.

<sup>24</sup>Ibid.

<sup>25</sup>Ibid., 2.

<sup>26</sup>Message 20th Combat Wing to 2nd Air Division, 22 February 1944 2330h, Box 4962, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>27</sup>Memo Re Mission of 22 February 1944, 23 February 1944, Box 5055, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>28</sup>This is an appropriate moment to insert a small amount of human interest in this thesis. When the author was young, this was the story he was always told. “Nijmegen was bombed on 22 February 1944, because the American bombers had mistaken Nijmegen for Cleve,” The origin of this story is unclear, but the author’s experience proves the information in this memo was carried through for decades. However, at least the archival records of the 2nd Bombardment Division do not throw some clear light on this issue.

<sup>29</sup>Minutes of Combat Wing Commanders Meeting, 28 February 1944, Box 4795, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>30</sup>Ibid.

<sup>31</sup>Ibid.

<sup>32</sup>Ibid.

<sup>33</sup>Tactical Mission Report Mission 22 February 1944, 16 March 1944, Box 4795, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>34</sup>Ibid., 8.

<sup>35</sup>Box 4139, 20th Bomb Wing, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>36</sup>Field Order 20th Combat Wing, 22 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>37</sup>Freeman gives an extensive description of these briefings. Freeman, *Mighty Eighth War Manual*, 30.

<sup>38</sup>Interrogation Form Mission 22 February 1944, Pilot Henderson, Box 2320, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD);

Ibid., Pilot Person;

Ibid., Pilot Kougias;

Ibid., Pilot Jensen;

Ibid., Pilot Larson;

Ibid., Pilot Casteel;

Ibid., Pilot Walker;

Ibid., Pilot Jones;

Ibid., Pilot Montgomery;

Ibid., Pilot Mc Keny;

Ibid., Pilot Bruce.

<sup>39</sup>This figure is based on: Formation at target, 22 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD). For an extensive discussion about the different formation and their tactics: Freeman, *Mighty Eighth War Manual*, 42.

<sup>40</sup>Based on Brinkhuis, 69. Remarkably, Brinkhuis points out two different crews for the 453rd Bomb Group. This is however not according to the 453rd Bomb Group Archives and interrogation forms.

<sup>41</sup>446th Bomb Group Lead Navigator's Narrative for Mission 22 February 1944, 23 February 1944, Box 5002, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>42</sup>Ibid.

<sup>43</sup>Extract Report of Operations Headquarters Eighth Air Force. Tactical Mission Report Mission 22 February 1944, 5 March 1944, Box 5701, 8th Air Force, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>44</sup>446th Bomb Group Lead Navigator's Log for Mission 22 February 1944, 23 February 1944, Box 5002, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>45</sup>Ibid.

<sup>46</sup>Report of Operations Officer - Mission of 22 February 1944, 22 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>47</sup>Ibid.

<sup>48</sup>Ibid

<sup>49</sup>Brinkhuis, 30.

<sup>50</sup>According to the Schmidt's report it took fifteen minutes to confirm the recall (from 1240 to 1255 hours). The earlier discussed Résumé of the 2nd Bombardment division mentions "the recall being sent at 1225 hours." Résumé of the Gotha Mission 22 February 1944, 23 February 1944, Box 4795, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>51</sup>446th Bomb Group Lead Navigator's Log for Mission 22 February 1944, 23 February 1944, Box 5002, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>52</sup>Report of Operations Officer - Mission of 22 February 1944, 22 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>53</sup>The navigator's log proves they flew past Nijmegen at 1243 hours. *Source:* 446th Bomb Group Lead Navigator's Log for Mission 22 February 1944, 23 February 1944, Box 5002, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>54</sup>Mission Critique - Mission of 22 February 1944, 23 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>55</sup>Ibid., 1.

<sup>56</sup>Report of Operations Officer - Mission of 22 February 1944, 22 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>57</sup>Mission Critique - Mission of 22 February 1944, 23 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD), 1.

<sup>58</sup>Lead Bombardier's Narrative-Mission of 22 February 1944 (Gotha-Germany), 23 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>59</sup>Mission Critique - Mission of 22 February 1944, 23 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD), 2.

<sup>60</sup>Lead Bombardier's Narrative-Mission of 22 February 1944 (Gotha-Germany), 23 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>61</sup>Freeman, *Mighty Eighth War Manual.*, 45

<sup>62</sup>Brinkhuis, 77.

<sup>63</sup>Picture 48-3 of Mission 22 February 1944, Box 2339, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>64</sup>Résumé of the Gotha Mission 22 February 1944, 23 February 1944, Box 4795, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>65</sup>*Ibid.*

<sup>66</sup>Tactical Mission Report Mission 22 February 1944, 16 March 1944, Box 4795, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>67</sup>Brinkhuis 75; 446th Bomb Group, Combat Bombing Flight Record, 22 February 1944, 23 February 1944, Box 5055, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>68</sup>Photographic Analysis Mission 22 February 1944, 23 February 1944, Box 4795, 2nd Air Division, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>69</sup>453rd Bomb Group Narrative Mission Report, 22 February 1944, Box 2586, 453rd Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7. National Archives at College Park, College Park, MD.

<sup>70</sup>*Ibid.*

<sup>71</sup>*Ibid.*

<sup>72</sup>Roosendaal, 65.

<sup>73</sup>Report of Operations Officer - Mission of 22 February 1944, 22 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD);

Mission Critique - Mission of 22 February 1944, 23 February 1944, Box 2317, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD), 1.

<sup>74</sup>Brinkhuis, 128.

<sup>75</sup>Statement of S2 446th Bomb Group regarding mission briefing 22 February 1944, Box 2320, 446th Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>76</sup>Certificate S2 93rd Bomb Group, Box 493, 93rd Bomb Group, Records of the Army Air Forces, Record Group 18, Entry 7 (National Archives at College Park, College Park, MD).

<sup>77</sup>There is supporting evidence the inquiry did not have any consequences for the leading crew. Captain William Schmidt was promoted to Lieutenant-Colonel and became the commanding officer of 446th Bombardment Group (H) from 4 April 1945 until the inactivation 28 August 1945. Furthermore, the unit was selected to be the lead unit during the bombings in preparation for D-Day, on 6 June 1944.

<sup>78</sup>Ibid., 8.

## CHAPTER 5

### THE GROUND PERSPECTIVE

There was an air-raid warning, but we went calmly to table, as we were used to these alarms. We knew we should not be afraid for the Americans. They were our friends, on their way to Germany with their bombs [Mr G.J.H. Uijen, whose father died in the bombardment].

— Bart Jansen, *De pijn die blijft*.

At the first air-raid warning, my grandfather probably stood on his house's roof to cheer to the Allied aircraft, as he usually did. Just before 1.30 p.m., the aircraft came back and dropped their bombs. The house was destroyed [Leo de Haan, whose grandfather, grandmother, aunt and uncle died].

— Bart Jansen, *De pijn die blijft*.

#### Prior to the Bombardment

For the citizens of Nijmegen, the Second World War was already in its fourth year in February 1944 and the occupation by the German Nazi-regime was felt among all sections of society. Not only did the Nazi's and several Dutch collaborators control the local authorities, but they completely ruled society and enforced a harsh, totalitarian regime. Jews had been deported earlier in the war and all men, as long as they were not indispensable, were urged to work in the German war industry. Furthermore, there was an acute shortage of all kinds of material and produce. On the other hand, most hostilities had almost gone by fairly unnoticed to the citizens of Nijmegen, as the city had not been the direct scene of battle. The daily formations of Allied bombers crossing the area on their way to Nazi Germany were the only direct indication of the war. These attacks caused fear and numerous air-raid warnings, but in general people derived comfort from the idea: for them it was the only evidence the Allies were working on the liberation of The Netherlands.<sup>1</sup>

As far as possible, people tried to live normally and survive the war. The possession of radios was forbidden and the Nazi regime controlled the media, but reports of the Allied landings in North Africa and Italy in 1942 and 1943, and of the Red Army crossing the pre-war border of Poland in January 1944, were of course able to get through. On 15 February 1944, the US had attacked Monte Cassino in Italy, and the destruction of the mediaeval monastery was made much of an event in the local, Nazi controlled newspapers. Most important however, the possibility of the long expected second front was the talk of the town and everyone realized Hitler's Nazi-regime's days were numbered.<sup>2</sup>

Prior to the Second World War, the Dutch government had developed the "Luchtbeschermingsdienst" (LBD) to protect against the consequences of aerial attacks. The LBD started as a civilian, voluntary organization, to warn against aerial attacks and provide assistance and relief in the case of air attacks. The LBD installed observation posts and sirens in the city to warn the people. This caused however some mocking reactions amongst Dutch civilians; they trusted on the neutrality of The Netherlands, as they had done in the nineteenth century and the First World War. But the German invasion in May 1940 did the people realize the Dutch neutrality policy had failed and there was serious danger from air attacks.<sup>3</sup>

Soon after the first RAF bombardments on Germany, the Nazi-regime in The Netherlands took over the control of the local LBD organizations and coupled it with their own radar and warnings installations. The organization professionalized, but remained a local responsibility.<sup>4</sup> Brinkhuis also mentions that the occupying forces had considered earlier multiple false air-raid warnings as an act of sabotage; it caused local

workers to interrupt their work in the factories--especially in those which produced for the German war effort. As a result, the occupying forces only sounded air-raid alarms shortly before an attack. There is no evidence this was the case during the bombardment on 22 February 1944.<sup>5</sup>

The LBD in Nijmegen consisted of ninety-two crews, each responsible for the aid relief and coordination within a part of the city. These block crews reported to one of the thirteen city districts, which were linked to the central LBD's command post. Through the German air defense system, the LBD in Nijmegen received information about the possibility of air attacks, but there were also two observation posts in the city: in the highest church tower and in a park at the edge of the city.<sup>6</sup>

In addition to the LBD, there was the so-called *Technische Nothilfe* (Technical Emergency Help). This police-type organization belonged to the German SS *Ordnungspolizei*, and its official task was "to give technical assistance in fighting public emergencies and to fulfill certain tasks in the defense of the country and in air raid protection."<sup>7</sup> Its units were mainly stationed in Germany, but there were also a few present in the "Army Rear Zone," which included The Netherlands.<sup>8</sup> As a coincidence, their headquarters for The Netherlands was located in Nijmegen, and many members helped with the relief after the bombardment.<sup>9</sup>

### The Bombardment

On 22 February around 12.36 p.m., lunch time, the LBD sounded air-raid warnings in Nijmegen. A large formation of about 150 aircraft flew above the city, heading east in the direction of Germany. According to figure 6, these aircraft were almost certain part of the Eighth Air Force's mission. The German air defense unit

located just south of Nijmegen fired, but peace had returned within a few moments. The “all clear” was sounded at 1.15 p.m., and people hurried back out on the street, off to their work. Only ten minutes later, one of the observation posts saw another formation of bombers approaching the city. Unfortunately, a new air-raid alarm was late.<sup>10</sup> This is illustrated by the experiences of Mrs van Uden, a fifteen year old eyewitness of the bombardment, whose second cousin Rika van den Broek (24) was killed:

The air raid warning sounded. There was no panic at all, as this happened more often. We entered a bar and waited. What I remember, it was a bustle and cackle in the bar. After the ‘all clear’ signal, we walked to the city center to shop. . . . The air raid warning sounded again and the bombs fell immediately afterwards. I will never forget this moment. Everything fell and there was an infernal din. Panic broke out and everybody yelled. My friend Rika, who walked next to me, laid down on the ground. I saw people falling, but I did not realize they were dead. . . . I was hit by shells, and had serious injuries, but managed not to get unconsciousness. . . . Rika was dead.<sup>11</sup>

So, the bombardment took the people of Nijmegen by surprise. As discussed previously, the station square was hit by fragmentation bombs. The next grim picture is made a few minutes after the bombardment. The square is scattered with casualties. It is additional proof of how suddenly and unexpected the bombardment happened (figure 14).



Figure 14. Casualties on the Station Square

*Source:* Nijmegen City Archives, Image Library, Picture F46254, [http://www2.nijmegen.nl/wonen/oudste\\_stad/Archief](http://www2.nijmegen.nl/wonen/oudste_stad/Archief) (accessed 3 March 2010).

There are also numerous descriptions of the tremendous chaos in Nijmegen just directly after the bombardment. Death and wounded were all around, numerous houses were destroyed and relatives were desperately trying to rescue or find casualties. To illustrate the chaos, hereunder the experiences of four survivors:

Wim van Deelen, whose schoolmate Piet van Baardewijk (13) was killed: When I entered the station square, I saw it studded with dead bodies and enormous rubble. Only then, I experienced a mental breakdown.<sup>12</sup>

Mr. J Barten, whose sister Anny Barten (17) was killed: Finally we managed to reach the station square. There were dead bodies everywhere. My mother discovered Anny, stretchered off to an ambulance. The journey to the hospital was a nightmare; a procession of wounded, seeking and frightened people. There was no room inside. . . . My sister died 7 March 1944.<sup>13</sup>

Mrs. J. Meurs-Becks, whose sister-in-law Doortje Becks-Mahler (32) perished: The bomb blast shook the ground. Fire and smoke were everywhere. The Saint Stephen Church tower had collapsed and dropped on my parental home. They

found Doortje a week after the bombardment, buried under the rubble. . . . 52 people were killed in our part of the Stikke Hezelstraat [street name].<sup>14</sup>

Toon van den Berg, whose two brothers Huub (13) and Henk (16) were killed: My brother yelled that the aircraft dropped bombs, and the city exploded within a few seconds. It looked like all the lights went out. Everything turned black and that darkness lasted several minutes. Our block of houses had collapsed and people laid everywhere. My brothers laid about twenty meters down the road. . . . My father tried to bring us to safety. In the Bloemerstraat [street name] I heard people screaming from the basements. They were locked up and the houses were on fire. I was a child and could not do anything. These outcries are indelibly printed in my memory. I presume these people did not get out.<sup>15</sup>

Based on recent archival research assessing and depicting the destroyed buildings on a 1935 aerial picture, one could further reconstruct the damage of the bombardment. Figure 15 depicts this analysis. It shows the main impact area of bombs along a track from the northeastern to the southwestern part of the city center. All together, the bombs created havoc along a track of approximately 1,500 meters long and (maximum) 500 meters wide. Furthermore, some bombs were dropped over the target area, west of the marshalling yards. The bomb track has a similar direction as the bomber course (heading 240 degrees), as discussed previously. Basically, this figure confirms the analysis about the bomb pattern in the previous chapter: the city center was hit instead of the mentioned target “marshalling yards.”<sup>16</sup>

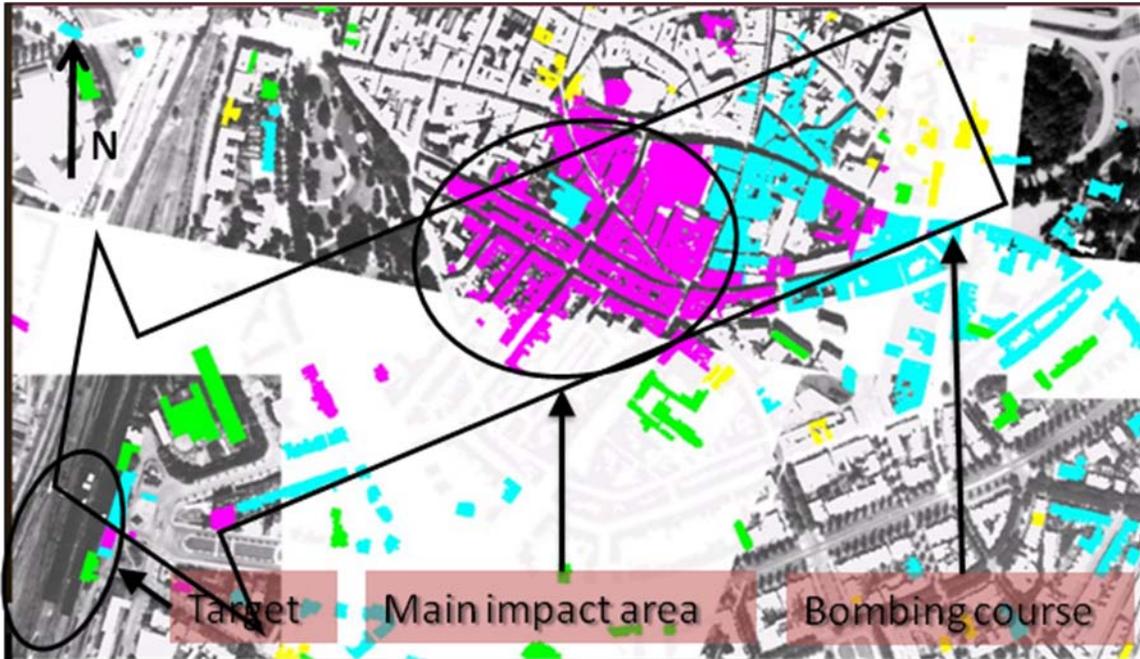


Figure 15. Destroyed buildings in Nijmegen.

*Source:* Created by author, based on: Historische Atlas Nijmegen, <http://www.nijmegen.nl/imap/?app=historie> (accessed 1 March 2010).

*Note:* This picture depicts an aerial photograph of Nijmegen, 1935. Different colors show the damage (only completely destroyed buildings are depicted) during the Second World War. In purple: destroyed buildings on 22 February 1944; in blue: destroyed buildings during the liberation, 17-21 September 1944; in yellow: destroyed during the shelling, fall and winter 1944-1945; in green: buildings occupied by the Germans occupiers prior to September 1944. Furthermore, this figure depicts the bomber course, the main impact area of the bombs and the target mentioned by the bomb crews (the marshalling yards).

### Aid Relief

The men on the LBD's observation post in the church tower and the telephone operator at the police station were directly killed in the bombardment. This not only hindered the alert of the fire department, but prevented the LBD from gaining situational awareness about the damage and situation in the city center. Shortly after, the telephone network did not work properly any more, also hampering the LBD's command and control.<sup>17</sup> Forty years after the war, one of the employees of the LBD assessed the

difficulties they had with the aid relief. Subsequently, he listed the blockade of the telephone network because of political and military reasons, lack of cars, lack of fuel, and lack of food. Finally, he mentioned the road network was partially blocked by the bombardment. Therefore, certain parts of the city were difficult to get to.<sup>18</sup> Despite these problems, it is safe to say that the existence of the LBD was crucial during the air relief.

The Nijmegen fire department was not equipped for such a disaster and had a lack of equipment and material to fight the fire adequately. Furthermore, the bombardment had hit one of the major water pipes, causing a lack of water pressure and problems with the fire-fighting operations.<sup>19</sup> Also, the firefighters could not get to the fires because the streets were blocked with rubble. As a consequence, the fire department could not do much in the first hours. Therefore, the fire destroyed many buildings and caused much more dead. This also explains the relatively low number of wounded. Soon, several fire departments from surrounding cities rushed to assistance. Together, they managed to pump water from the Waal River and hundreds of fire fighters were able to get the fire under control by eight o'clock of the same evening. However, it took eighteen more hours to extinguish all the fires. Figure 16 depicts the firefighting and the rubble.<sup>20</sup>



Figure 16. Fire fighters after the bombardment, 22 February 1944.  
*Source:* Nijmegen City Archives, Image Library, Picture F67168,  
[http://www2.nijmegen.nl/wonen/oudste\\_stad/Archief](http://www2.nijmegen.nl/wonen/oudste_stad/Archief) (accessed 3 March 2010).

The few cities' ambulances were also unable to cope with the extraordinary circumstances. Because of the blocked streets, it took an hour after the bombardment before the first ambulance was able to transport wounded to the hospital. As the capacity was very limited, the LBD commandeered all passing vehicles to transport the wounded.<sup>21</sup> Also, numerous temporary aid stations were opened in and near the city centre, to give the wounded basic medical treatment.<sup>22</sup> Additionally, the hospitals did not have the spare capacity to deal with about 300 critically injured people. As far as possible, other patients were sent home. The large number of wounded led to chaos because people were searching for their relatives. Brinkhuis even narrates about people

penetrating as far as into the surgery room to search for their relatives.<sup>23</sup> Stated below, the experiences of two survivors to illustrate the chaotic situation in the hospitals:

Mrs A.M. Horák, whose sister Els (14) and niece Bertha (10) were killed: my parents went to the Canisius-hospital to inquire after my sister, but were not allowed inside. The wounded were carried inside in a long line. My parents were allowed inside when they saw my sister being unloaded from a handcart. She was unconscious and they laid here in one of the hallways. . . . She had a head wound and lost a lot of blood. She died the same evening.<sup>24</sup>

B. Wolf, whose colleague Co Boekhorn (32) was killed: my leg was broken and the doctor said I had lost about three liters of blood. The situation in the Wilhelmina-hospital was beyond description. Critically and lightly wounded people were all jumbled together. The dead were laid in a separate room. However, it happened that people in shock were declared dead, and woke up amongst the dead. The conscious wounded cursed, cried, screamed or called for their relatives.<sup>25</sup>

Despite these experiences, with much improvisation and with assistance and supplies by other hospitals, the situation had more or less stabilized by the morning of 23 February.<sup>26</sup>

### The Aftermath

On 23 February 1944, a day after the bombardment, about 2,000 people were assisting in all kind of activities: transport, recovering the dead, guarding the city against looting, food aid and cleaning up the rubbish.<sup>27</sup> One of the huge problems they faced was the identification of casualties. Hundreds of dead were unidentified, while their relatives were desperately seeking for confirmation. Figure 17 depicts the casualties collection point in the local city auction hall. Again the typical experiences of two survivors of the bombardment:

Mrs J.E.T. Cobussen-Jacobs, whose father Leo Jacobs (40) was killed: My father worked with the LBD. He manned the tower of the St Stephens Church, which collapsed. At the command post of the LBD they heard him say “bomb impact,” and a loud crack afterwards. My mother kept on searching for my father in the rubble. It was terrible. He could be wounded and in the hospital or dead. Only

three days later, my mother found him, in the middle of the bodies in the auction hall.<sup>28</sup>

Mrs T. Otte-Janssen, whose brother Frans (11) was killed: Frans did not come home and my father and his brother in law searched everywhere: amongst the wounded in the hospitals, and amongst the dead in the auction hall. Her father wrote in a letter to the other family: "I saw hundreds of casualties, but I did not find Fransje. We did not know what else to do. . . . We regret to have to bid him farewell without seeing him." . . . My sister and I were unable to get over that our brother would be one of the unidentified victims. . . . Nine days after the bombardment, my sister and I went to the mass cemetery. Very carefully, without being noticed we opened the coffins to see if we could recognize Fransje. A policeman saw us and told there were photographs of the unidentified at the police station. . . . We recognized Fransje's blouse. . . . It appeared that Fransje had been registered with adults instead of with kids.<sup>29</sup>



Figure 17. Casualties of the Nijmegen bombardment.

*Source:* The Gelderlander, [http://www.gelderlander.nl/multimedia/archive/01378/dodenfoto\\_1378330b.jpg](http://www.gelderlander.nl/multimedia/archive/01378/dodenfoto_1378330b.jpg) (accessed 24 February 2010).

Because of hygienic reasons, the mass funeral had to take place on Saturday 26 February already, although not all bodies had been identified. The Nazi-authorities and the collaborating Dutch civil authorities attempted to use this funeral for propaganda purposes and the Nazi-sympathizing mayor briefly spoke about the “English- American organized assassination of our city.”<sup>30</sup> This was however an incident: broadly speaking the funeral took place without much propaganda. Figure 18 depicts the funeral procession: the whole city had turned out to express their sympathy.



Figure 18. The mass funeral in Nijmegen, 26 February 1944.  
*Source:* Nijmegen City Archives, Image Library, Picture F55477,  
[http://www2.nijmegen.nl/wonen/oudste\\_stad/Archief](http://www2.nijmegen.nl/wonen/oudste_stad/Archief) (accessed 3 March 2010).

### The First Reactions

In London, the exiled Dutch government did not learn of the bombing until 24 February 1944, a full two days after the bombardment. The contact with the occupied

territory was of course very limited, and messages from the resistance usually took a few days to get through. This explains why they had to base themselves on the reports by the air forces initially. It was however not the USAAF who informed the Dutch government, as they had done before; but Royal Dutch Navy LtCol Cornelis Moolenburg, who was a liaison officer at the RAF.<sup>31</sup> Obviously, the Americans were not happy that their British counterparts had informed Moolenburg, before they could notify the Dutch government themselves. Moolenburg on his part, considered the USAAF not very cooperative in providing information about this bombardment and he used his contacts at the RAF to conduct a RAF photoreconnaissance mission to get more information.<sup>32</sup>

The Dutch Secretary of Foreign Affairs, Baron Michiels van Verduynen was notified by Moolenburg and he informed Dutch Queen Wilhelmina. Furthermore, on 24 February there was a regular meeting of a Dutch bombing commission. The principals of this commission, including the Dutch Secretary of Foreign Affairs, discussed the bombardments on Dutch cities on 22 February 1944, but they decided to let the matter drop. At that moment, they must have been unaware of the full facts of the case. The final Eighth Air Force's reports were not available yet and reliable information from The Netherlands was not available yet. Remarkably, they considered there was nothing to do about it anymore and decided to let the case rest. The official (but undisclosed) position of the Dutch government in these days, and probably in this case as well, was not to affront the Americans, "as these [the USAAF] would go to the limit to prevent repetition and punish the culprit [of the bombardment]."<sup>33</sup> Roosendaal points out this modest attitude was illustrative for the Dutch administration in those days.<sup>34</sup> As far as known, there has never been an official objection against the USAAF by the Dutch Government

about this bombardment. As a clarification, one should realize the delicate situation the government was in: both in exile and more important, depending on the Allied troops to liberate The Netherlands.<sup>35</sup> This also explains why the Dutch Queen Wilhelmina considered it not expedient to protest at the US government.<sup>36</sup> However, for political reasons the Dutch government presented this like they had to hold Queen Wilhelmina back not to do that. Besides, the fact of the matter is the government had a lot of other issues to care about in those days, as they struggled with the unity within the Cabinet and three Ministers had threaten to resign.<sup>37</sup>

On 15 March 1944, General Arnold, the Commanding General of the USAAF, probably wrote a letter to the Dutch Government about the bombardment.<sup>38</sup> He stated that he “personally expressed his deep concern and regret to the Netherlands Government and his profound sympathy with the loss of life and property to the nationals of friendly and allied nation.”<sup>39</sup> Furthermore, he pointed “faulty navigation of some isolated units” as the main causes, and emphasized in his letter that “stricter measures have been taken to minimize danger to Dutch life and property.”<sup>40</sup> Arnold probably referred to his instruction to bomb twenty miles from the border. This letter also confirms the analysis in the previous chapter.

On 24 April 1944, about two months after the bombardment, the USAAF used the Second World War equivalent of information operations, and distributed leaflets to explain the strategic bombardments in general and to apologize for the bombardment to the Dutch citizens. It stated that under the circumstances of the modern air war, sometimes harm and grief was caused to our friends. On the other hand, the leaflet

emphasized many American pilots lost their lives as well. This leaflet was the final official and public account about the bombardment by the USAAF.<sup>41</sup>

There was also a notable response by British Foreign Minister Anthony Eden. Historian William Hitchcock describes in his a book about the costs of the liberation of Western Europe that: “The Netherlands Red Cross begged the British to reconsider their air assault on cities.”<sup>42</sup> In an official report, the Red Cross described the attack on Nijmegen extensively: “it left one third of the centre in ruins, killed 500 civilians and injured several hundred. One school was completely wiped out, and all the children and those in charge of them perished. Several churches and historic buildings were reduced to rubble and ashes.” To this report about the Nijmegen bombardment, Eden laconically replied with a phrase which became illustrious and well known: “I fear loss of life and damage to property and cultural monuments are inevitable. It is part of the price of liberation.”<sup>43</sup> This comment explains the second part of the title of this thesis.

For the German occupiers, the bombardment of Nijmegen by Allied bombers was of course a propaganda opportunity. As discussed in chapter 1, they reacted as swift as an arrow to the bombardments. In general, this propaganda was however not very effective: the people in Nijmegen lacked a receptive mind for this after almost four years of occupation. Probably the best evidence the propaganda was not successful, is the fact the American troops in September 1944 who liberated Nijmegen were given a very warm welcome by the Nijmegen citizens.<sup>44</sup>

To illustrate the people’s reactions: Bart Jansen’s extensive book with the testimony’s about the majority of the casualties only contains a handful of examples where people blamed the Americans for this bombardment. For example, Antoon

Knipping, who was in hiding in Nijmegen stated: “I was furious at our “friends,” the Americans, who destroyed and massacred our city.”<sup>45</sup> In addition, Mrs. R. Bökkerink-de Vries, whose colleague Riet van den Heuvel (27) was killed, explicated: “The city centre was a burning mess. . . . Nijmegen was a blaze and I beard immense hatred against the American and English who did this to us.”<sup>46</sup> These two testimonies are however an exception. By far the biggest part of the hundreds of survivors in Bart Jansen’s book talk about their beloved, family, friends or others they have lost, do not discuss the question of guilt at all. To conclude, Mrs. Ockers-Kersten, who lost her brother Johan (12) said:

In spite of grieve for my brother, I bear no malice against the Americans: “you cannot make an omelet without breaking eggs.” I was really glad when they came to liberate us. But now, having grandchildren, I can get excited about every war, wherever in the world. People are unknown which grieve you have for the rest of your life, when you lose a loved one in such a madness, because you will never forget.<sup>47</sup>

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<sup>1</sup>Brinkhuis, 13.

<sup>2</sup>Hitchcock, 11; Brinkhuis, 11.

<sup>3</sup>Brinkhuis, 26.

<sup>4</sup>Ibid., 28.

<sup>5</sup>Ibid., 26.

<sup>6</sup>Ibid., 27.

<sup>7</sup>United States Provost Marshal General's Bureau. *Civil Affairs Handbook, Germany, Section 2g: German Military Government Over Europe: Technical and Economic Troops in Ooccupied Europe* (Washington, DC: Headquarters, Army Service Forces, 1944), 22

<sup>8</sup>Ibid.

<sup>9</sup>Roosendaal, 33.

<sup>10</sup>Ibid., 23.

<sup>11</sup>Bart Jansen, *De pijn die blijft.*, 130.

<sup>12</sup>*Ibid.*, 71.

<sup>13</sup>*Ibid.*, 82.

<sup>14</sup>*Ibid.*, 86.

<sup>15</sup>*Ibid.*, 92.

<sup>16</sup>This picture is based on archival research by the Nijmegen City Archives.

<sup>17</sup>Brinkhuis, 110; Roosendaal, 32.

<sup>18</sup>Brinkhuis, 111.

<sup>19</sup>Roosendaal, 36.

<sup>20</sup>*Ibid.*, 38

<sup>21</sup>*Ibid.*, 44.

<sup>22</sup>Brinkhuis, 114.

<sup>23</sup>*Ibid.*

<sup>24</sup>Bart Jansen, *De pijn die blijft.*, 108-9.

<sup>25</sup>*Ibid.*, 113.

<sup>26</sup>Roosendaal, 45.

<sup>27</sup>*Ibid.*, 75.

<sup>28</sup>Bart Jansen, *De pijn die blijft.*, 295.

<sup>29</sup>*Ibid.*, 300-2

<sup>30</sup>Roosendaal, 77

<sup>31</sup>Brinkhuis, 130.

<sup>32</sup>*Ibid.* Note: See for an extensive discussion about the efforts of Moolenburg, the cooperation of the US Army Air Forces and the photo reconnaissance mission of the RAF: Roosendaal, 71-4 and Brinkhuis, 128-132.

<sup>33</sup>*Ibid.*

<sup>34</sup>Ibid.

<sup>35</sup>See Hitchcock, for an extensive discussion about this subject.

<sup>36</sup>The constitutional position of the King or Queen in The Netherlands is mainly ceremonial, but any official comments she makes, become the official Dutch government's position. In addition to this, in practice was the position of Queen Wilhelmina during the Second World War more than could be expected from her constitutional role: She was a symbol to unite an occupied country.

<sup>37</sup>Roosendaal, 67-9. Note: Brinkhuis has a different version of these events. He claims that Queen Wilhelmina officially protested at the US President Roosevelt. Roosendaal's research proves there is no clear evidence to support this proposition.

<sup>38</sup>Ibid. Note: Roosendaal describes that the official records of the Dutch Ministry of Foreign Affairs only contain a draft version of this letter. It is not clear whether this was the official letter or a concept. The letter could not be retrieved from the National Archives Records by the author either.

<sup>39</sup>Ibid.

<sup>40</sup>Ibid.

<sup>41</sup>The account of the leaflet is based on the war diaries of one of the Dutch government's Ministers in 1944. Roosendaal adopts this story: Roosendaal, 72. This leaflet could not be retrieved from the National Archives by the author though.

<sup>42</sup>Hitchcock, 101

<sup>43</sup>Ibid.

<sup>44</sup>Bart Jansen, *De pijn die blijft*, 24.

<sup>45</sup>Ibid., 536.

<sup>46</sup>Ibid., 272.

<sup>47</sup>Ibid., 321.

## CHAPTER 6

### CONCLUSIONS

Let us not forget the bombardment. Nijmegen lost its heart, but we lost our nearest and dearest [Has van Ballegooy, whose father died in the bombardment].

— Bart Jansen, *De pijn die blijft*.

#### The Catastrophic Chain of Events

The bombardment of Nijmegen on 22 February 1944 receives little attention in history; at the very last it has lost its importance. It is not a heroic tale, but rather an example account of how things can go tragically wrong in war. However, its story is essential to complete the narrative of the Allied strategic bombing campaign in the Second World War.

Typically, many different factors contribute to a tragic event. On the morning of 22 February 1944, when Captain William Schmidt and his crew accompanied by almost 1,000 bombers of the Eighth Air Force lifted off from Bungay Airfield in Suffolk England to bomb aircraft factories deep in Nazi-Germany, they had no reason to believe they would be one of the reasons for the catastrophic events of the day. Putting the significant events of 22 February 1944 in a logical order clarifies the causes, effects and interrelationships of the different events. Figure 19 depicts this chain of events.

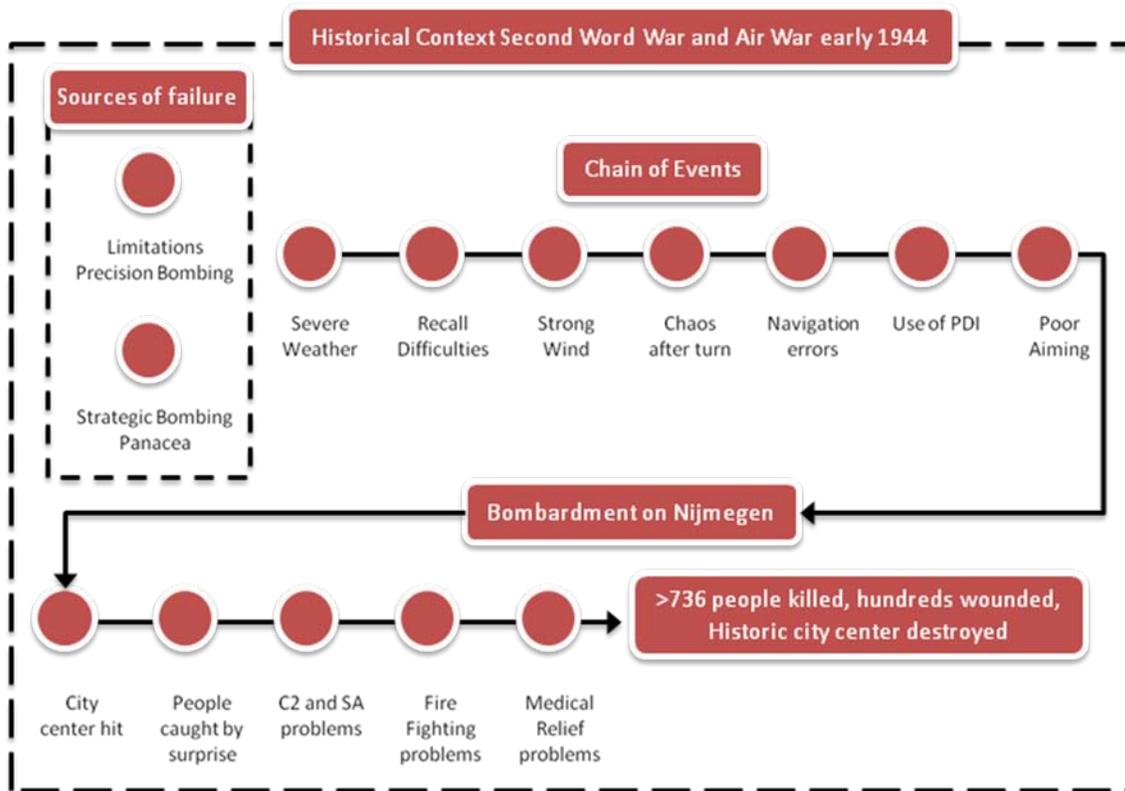


Figure 19. Chain of events

*Source:* Created by author.

Note: This picture shows the chain of events for 22 February 1944. The upper half represents the events from the air perspective, the bottom half the ground perspective. The events take place within the context of the Second World War, and the air war in early 1944. Furthermore, two distinct sources of failure can be identified.

First, one cannot isolate this particular bombardment from the historical context of the air war above Europe in early 1944. The mission on 22 February 1944 was part of Operation Argument, which was nested in the Combined Bomber Offensive and the Allied Grand Strategy. Operation Argument's goal was the destruction of the German aircraft industry, and the plan for 22 February 1944 was to bomb aircraft factories in and around Gotha. If the bomb crews failed to bomb the assigned primary and secondary targets, they could bomb targets of opportunity.

The weather forecast for the week of 22 February 1944 was not conducive to daylight precision bombing. In the war of attrition the Luftwaffe gained momentum again, and Eighth Air Force senior commanders decided to launch the operation anyway. On the morning of 22 February 1944, the poor weather conditions prevented forming of proper formations from the beginning, and caused the recall of a majority of bombers later. There was a thirty minutes delay in receiving and confirming this recall and as a result the bomber formation flew further eastwards. When the decision to turn around was made, the formation was already sixty kilometers into German airspace. At that moment, the mission commander decided not to abandon the mission outright and continued to bomb targets of opportunity. When turning around, the strong winds broke the combat formation into smaller groups, leading to chaos in the air. In this confusion, the first section of 446th Bomb Group with twelve aircraft and two aircraft of 453rd Bomb Group ended up above Nijmegen. Due to navigational errors they misidentified the city: they did not realize they were not above German territory anymore, and dropped their bombs on the Dutch city. It will however probably remain unresolved whether the bomb crews realized they were above Nijmegen at the moment they bombed. Furthermore, the records do not resolve undisputedly whether the crews were aware of their instructions not to bomb targets of opportunity in occupied countries.

The bombardment itself was characterized by poor aiming with reflective results. Aiming short of the target by the lead bombardier to compensate for excessive air speed proved wrong. The limited time to set up the Norden bombsight properly and the use of the PDI-setting attributed to the lack of precision. Therefore, the greater part of the bombs missed the designated target, a marshalling yard on the outskirts of the town, by

about a kilometer. Instead, the bombs landed exactly on the city center. Furthermore, the formation flew in a combat-box and therefore used the drop on lead method, causing a bomb pattern of at least 1,500 by 500 meters. As a result, an intended precision bombardment of a target of opportunity had the practical effect of an area bombardment.

From the perspective of those on the ground, there are also distinct parts of the catastrophic chain of events. First, the people of Nijmegen grew accustomed to air raid warnings. Often the warnings were faulty, as the city had not been attacked yet, leading them to ignore the danger. On 22 February air raid sirens blared for forty five minutes without an air attack. The alarm ended at 1.15 p.m. and the people hurried back to the street, off to their work or schools. About ten minutes later, a new air-raid alarm at 1.28 p.m. was too late: the bombardment hit the busy city center at 1.30 p.m.

Second, the bombardment caused great difficulties for the relief workers. The destruction of an observation post and the telephone network hindered the alert of the fire department, and hampered command and control. It also prevented gaining situational awareness rapidly by the relief agencies. Additionally, the Nijmegen fire department was not equipped for such a disaster and had a lack of equipment and material to fight the fire. The bombardment also hit one of the major water pipes causing a lack of water pressure for fire-fighting operations. The firefighters also could not get close to the fires because many streets were blocked with rubble. As a consequence, the fire department could not do much in the first hour and therefore fires destroyed many buildings and caused even more casualties. Finally, the medical response faced huge difficulties as well. Ambulance capacity was insufficient and thoroughfares were blocked. This hindered the evacuation of casualties and the hospitals did not have the spare capacity to deal with the vast

number of wounded. However, with a lot of improvisation, such as temporary aid stations, the situation in the hospitals had more or less stabilized by the next morning.

### Roots of Failure

Besides this catastrophic chain of events, there are two other distinct sources of failure which contributed to the disaster. The first source of failure is the USAAF's belief and persistence in the concept of strategic bombing as a panacea for winning wars. Its origin can be traced back as far as to the horrific stalemate experiences of the First World War, caused by the superiority of the defense.<sup>1</sup> After the First World War, theorists like the Italian general Giulio Douhet and the American general William Mitchell claimed that air power alone could restore decisiveness to warfare. They contended it could produce victory by itself, while making other components of the military obsolete. This belief in strategic bombing as a panacea, with war as a controllable object, became the leading concept for the development and employment of the USAAF in the interwar period and for the air war in the Second World War as well.

Subsequently, this idea intermingled with the Allied grand strategy to defeat the Axis in the Second World War, as defined in the Casablanca Directive of January 1943. Here, the employment of a particular weapon system, air power, became inextricably bound up with the Allied strategy. According to the US air planners the destruction of the German military, industrial and economic system by air power was a swift path to victory. The direct consequence was the decision to employ daylight precision bombing of these targets, while neglecting the lesson of the First World War, that air superiority was a necessity for all air operations. The belief in the survivability of bombers through self-defense, without having air superiority, led to immense losses. As a result, the

USAAF conducted an operational pause after the disastrous Schweinfurt-Regensburg mission in August 1943. Only then, did the USAAF realize it had to defeat its adversary, the Luftwaffe, first.

To speed up this war of attrition in the air, the USAAF launched Operation Argument in February 1944, later dubbed “The Big Week,” to destroy the German aircraft industry. Operation Argument did not meet its objectives directly though. The destruction of aircraft factories proved to be an almost impregnable hurdle: the factories were too dispersed to destroy effectively by air attacks, and after a bombardment they were able to bring production up to speed again very quickly. The fact that the German aircraft production even peaked as late as in the summer of 1944 proves this. In retrospect, Operation Argument did not shut down the Luftwaffe. The Luftwaffe was defeated by a months-long attrition of fighters, as a by-product of the Allied bomber offensive. The immense losses in this air combat led to loss rates only the Allied air forces could sustain in the long run. In this war of attrition, the number of trained and experienced pilots proved to be the most decisive factor, rather than the availability of fighter aircraft. To sum up: the Luftwaffe was defeated in the air, not on the ground, and the belief in strategic bombing as a panacea proved wrong. Once again, this proves Von Clausewitz’s axiom of the unchangeable nature of war.

The second source of failure is the steadfast misbelief in the concept of *precision* bombing by the USAAF, not taking battlefield circumstances, tactical and technical limitations into account. The availability and capabilities of both bombers and aiming equipment, in particular the Norden bombsight, encouraged the belief in daylight precision bombing prior to the Second World War.<sup>2</sup>

In reality, successful application of precision bombing or “pickle-barrel accuracy,” failed completely. The lesson from the air war in the First World War, that bombing targets under anything other than perfect circumstance was almost impossible, applied to the Second World War as well.<sup>3</sup> The concept was proved wrong because it was based on laboratory like testing instead of battlefield circumstances against an actual opponent. Furthermore, the cloudy skies above the European continent caused difficulty in quickly identifying targets in time. Additionally, the specific features of the Norden bombsight hindered precision bombing. To bomb with precision, the bombsight required a complicated set-up before flight, which was obviously not possible when bombing a target of opportunity. In addition to this, not all Norden bombsights functioned according to specifications, due to problems with mass-production and maintenance. Also, as the bombers flew in tight combat formations for their own defense, they were urged to use the “drop-on lead method.” This method had all aircraft behind the lead bomber dropped their payloads based on the leader. This caused precision rates not conducive to the idea of precision bombing. By and large, there was no precision bombing in the reality of the Second World War, even by a broad definition. The surgical destruction of an individual factory or bridge, as predicted by the theorists in their books, as described in air power doctrine, and as claimed by air power advocates in the USAAF, was never achieved. This failure in precision extends what Von Clausewitz would have called friction and fog in war. It was a deliberate choice of the USAAF leadership to persevere daylight precision bombing, while they knew their assumptions and theory proved false soon in the war.

## To Conclude

The story about this bombardment is an example how tragic events in wars sometimes fall into oblivion. On the other hand, one should also put this bombardment in its historical context. The Second World War in early 1944 can be characterized as a total war, a grim life and death struggle in between the Allied and Axis powers. Regardless of how disastrous the bombardment was for the citizens of Nijmegen, one should realize it was only a minor event on the scale of the historical context of the Second World War.

There is no doubt about the sincere intentions and heroic deeds of the bomber crews in the Eighth Air Force, and the 446th Bombardment Group (H) in particular. These airmen operated under highly dangerous combat circumstances and had to face inconceivable losses almost every day. However, no man is infallible. General Hodges assessment about this bombardment, “at least a faux pas,” is probably an accurate description. There is no evidence in the records to prove the actions blameworthy, but the bomb crews also cannot be quite cleared of the charge of erroneous acts, especially in regard to their mistakes with navigation and aiming. Again, the goal of this thesis is not to point out the culprit. Its goal is to clarify ambiguities about what has happened, possibly to help the citizens of Nijmegen to come to terms with the tragic consequences and finally to learn from such tragedies. Therefore, the chain of events that resulted in the bombing of Nijmegen has been reconstructed in this thesis.

Within the context of the Second World War in general, and the air war in early 1944 in particular, the two sources of failure and the whole chain of events, are the factors which led to the bombardment of Nijmegen, and its horrific consequences, on 22 February 1944. This answers the research question of this thesis.

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<sup>1</sup>Martin van Creveld, *The Art of War: War and Military Thought* (New York: Smithsonian Books, 2000), 161.

<sup>2</sup>Astor, 8.

<sup>3</sup>Knox, “The Future Behind Us,” 183.

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USACGSC  
100 Stimson Avenue  
Fort Leavenworth, KS 66027-2301

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School of Advanced Military Studies  
USACGSC  
100 Stimson Avenue  
Fort Leavenworth, KS 66027-2301

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