

**A CITY AMPUTATED, A COMMUNITY REGENERATED:
MUNICH DURING AND AFTER
THE ALLIED AIR WAR, 1939 TO 1948**

By

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**Submitted to the graduate degree program in History
and the Graduate Faculty in partial fulfillment of the
requirements for the degree of Doctor of Philosophy**

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Abstract

Cities do not exist in isolation. They sum up a complex web of connections between people and natural resources, knit together by transport systems. Cities are also connected to other cities, regions, and countries. Like an organism cut off from its food, a city amputated from its vital connections to natural resources--food and fuel--can suffer and even die. This study argues these connections and the transport system that bind them together make a city work. Warfare, especially strategic bombing, disrupts these connections, having huge impacts on citizens' lives. Urbanites are forced to confront their dependence on natural resources and vulnerability to natural forces such as weather. The subject of this study, Munich, experienced these changes both during and after WWII. Between 1939 and 1948, the city descended from thriving cultural metropole to isolated, burned-out wreck, then slowly rallied to become a city on the mend. This study analyzes how wartime bombing and postwar occupation policies damaged and often completely severed Munich's connections to coal, electricity, and food. It uses eyewitness accounts and memoirs to analyze the impacts of these changes in peoples' lives. It combines the ideas and insights of military, urban, and environmental history. By analyzing war's strike against a city's connections, we better appreciate warfare's place in the perennial relationship linking humans to nature.

Acknowledgements

In pursuing this study, I have had the pleasure of making my own connections to invaluable sources and people. Without them I could not have completed this project. They provided inspiration, information, or consolation, sometimes all three.

For inspiration and information, the list of people to thank is long. I received invaluable assistance from the talented faculty at the University of Kansas. I could not have done this without my excellent dissertation committee. I owe a debt of gratitude to my adviser, Karl Brooks, who stayed with me even after taking a job off campus and leaned on me when necessary. I have been privileged to access Donald Worster's years of wisdom and good humor. Nathan Wood nurtured my teaching skills and interest in urban history. Roberta Pergher and Frank Baron offered valuable feedback and shared their knowledge of German history. I would also like to thank Bill Tsutsui and Ted Wilson for helping me to see that military and environmental history could be combined.

For information, I have benefited from the efforts of the staffs of the Munich City Archive, U.S. National Archives, Library of Congress, the National Archives of the UK, and the Royal Air Force Museum. I extend a special "Danke Schön" to the faculty and staff of the University of Erlangen, my base of research in Germany. Dr. Werner Bätzing helped me narrow the focus of my work. Dr. Andreas Weber gave me a priceless opportunity by introducing me to his parents, Franz and Harriet Weber, whom I interviewed for this project. Through Dr. Weber I also met and interviewed Theo Rosendorfer and Helmut Dotterweich. I thank all four of them for sharing their

stories with me. I would also like to thank Frank Uekötter and the staff of the Deutsches Museum in Munich for offering help and a place to stay.

For inspiration and consolation I offer heartfelt thanks to my family, especially my Dad, Jim Arnold, who passed on his love of history to me. He and his wife Sheryl have unceasingly supported my decision to leave sunny San Diego, California for the wild and windy plains of Kansas. Her daughters, Lauren and Melanie Bullock, have cheered me on and cheered me up when things got tough. Her mother, Thyra Fellows, who passed away last year at the age of 101, was always interested in my work and inspired me to keep going. My brother Jim and his wife Whitney have provided me with loving support through countless gourmet home-cooked meals and time with their menagerie of pets. My nieces Claire and Julia have made me laugh and reminded me why I became an educator. I could not have done this without the inspiration of my former supervisor at the City of San Diego, Linda Giannelli Pratt. She convinced me to follow my heart, leaving a steady, well-paying job for the madcap uncertainty of academic life.

Finally I want to thank all of the friends, too numerous to list, who have supported me in this effort. You read my work, listened to me, offered advice and let me play with your dogs. Most of all you helped me persevere and inspired me to move forward. Thanks.

Dedication

To
Claire and Julia

I finished my “book”!

Table of Contents

Abstract	iii
Acknowledgements	iv
Dedication	vi
List of Abbreviations	viii
List of Tables and Illustrations	ix
Chapter 1 Cities, War, and Connections to Natural Resources	1
Chapter 2 Breaking the Connections: Interwar Bombing Theory and Urban Environmental History	28
Chapter 3 Munich: the “Middle City”	60
Chapter 4 Munich Under Attack	82
Chapter 5 Occupation Year One: Starting Over	112
Chapter 6 Occupation Year Two: Cold and Hunger	152
Chapter 7 Occupation Year Three: From Despair to Hope	191
Conclusion	238
Bibliography	250

List of Abbreviations

US Military

MG: Military Government

MGO: Military Government Officer. Commander of a local MG

OMGBY: Office of Military Government, Bavaria. Commanded all US Forces in Bavaria

OMGUS: Office of Military Government, US. Commanded all US Forces in Germany

Newspapers

MNN: Münchner Neueste Nachrichten

MS: Münchener Stadtanzeiger

SZ: Süddeutsche Zeitung

VB: Völkischer Beobachter

List of Tables and Illustrations

Table 1: Coal Imports to Munich in 1940	65
Figure 1: Map: Munich's Connections to Coal Before the War	66
Figure 2: "Kohlenklau" from <i>VB</i> December 20, 1942	90
Figure 3: Newspaper Clipping: "Save Gas and Electricity!"	91
Figure 4: Newspaper Clipping: "Save Water-It saves electricity and coal!"	96
Figure 5: Cartoon: "Der Stammfahrer"	128
Figure 6: Cartoon: "Where are we going, Uncle?"	236

Chapter 1

Cities, War, and Connections to Natural Resources

On June 28, 1948, a train arrived in Munich from Italy. It carried no famous leaders or returning exiles. Its forty boxcars contained neither new currency nor recovered artworks, just tomatoes and plums. Its arrival, nothing special in 1939, was much anticipated and highly symbolic in 1948. These fruits, so scarce in the first postwar years, were the first delivery of food to Munich paid for by the Marshall Plan. Future Plan trains brought money, materials, and fuel to a city that had suffered much over the past nine years. During the war bombs shattered and burned Munich. After the war a record cold winter froze the city, and a serious drought desiccated it. The train was both a tangible means of reconnecting Munich with the rest of Europe and symbol of hope for the future. It was one small fiber in the new connection between Munich and American food, fuel, and financial resources. American grain would replace the grain that no longer came from Germany's Soviet-occupied eastern provinces. American coal would ease Munich's dependence on coal from the Ruhr.

These distant coal and food resources forged just two of the many connections to natural resources, both foreign and domestic, that Munich needed to function. Connections to natural resources for cities like Munich explained why an ordinary event, the arrival of a train, became extraordinary in a city that was a major rail hub. Connections were vital, indeed indispensable, because Munich, like other cities, did not exist in isolation. Munich summed up a complex web of connections between itself and other cities, regions, and countries. Railroads and other transport arteries--

roads, rivers, airways--connected Munich's human population to the vital natural resources that keep them fed, clothed and sheltered. Munich's resources, even those located far from the city, kept its occupants safe, warm and protected from the effects of weather and other natural forces.

Like an organism that suffers, cut off from its food supply, so does a city wither, when war cuts its precious connections to food, fuel, and power. In Munich, Allied strategic bombing, in particular between 1943 and 1945, followed by the actions of the American occupiers after April 1945, amputated and then regenerated its connections to natural resources, other cities, and other countries. Destruction and renewal significantly shaped the lives of Munich's people. Especially influential was coal, which came mostly from outside Bavaria. Coal made everyday life in the city possible. It provided heat, electricity, gas, and fuel for cooking. After the war, nearly severed from its coal, the city had to rebuild this indispensable connection or find new ones to survive.

This study argues that connections between humans and natural resources, embodied in the transport system that bound them together, make a city work. By analyzing war's strike against a city's connections, we better appreciate warfare's place in the perennial relationship linking humans to nature. This study covers Munich from 1939 to 1948. It traces Munich's connections to coal, food, and water. It chronicles and explains how disrupted connections reshaped the everyday lives of the city's inhabitants. Munich presents a useful example to study warfare's impacts on a city's connections to natural resources. All cities depend on connections to natural resources. Many German cities suffered during WWII and its aftermath. Still,

for this study, Munich is the best choice. Located in southern Germany, centered in a primarily agricultural region far from coal supplies, famed as a transportation nexus and dependent on hydropower, Munich's natural and human equations all make it unique.

A multidisciplinary approach will employ its own connections linking military, urban, and environmental history to better understand war's huge impacts on humans and the natural environment and the everyday lives of citizens. As German environmental historian Dorothee Brantz advised, this study seeks to "better understand the intricate linkages between human and nonhuman forces in urban arenas and history more generally." The connections to natural resources vital to a city are "intricate linkages" that tie the "human forces" of a city's population to the "nonhuman forces" of natural resources and weather. This approach also realizes the goal that Brantz proposed which was to "establish urban environmental history not just as a subfield of history but as an interdisciplinary field of investigation that draws on a broad range of scholarly disciplines in an attempt to breach the human, social, and natural sciences."¹

The structure of this study traces the effects of war on connections to natural resources and on the relationship between humans and nature, proposing they weave common threads running through all the chapters. Throughout the narrative, interviews and memoirs tell the human side of the story to better illustrate how people coped with the changes the war and its aftermath brought. This first chapter shows how urban and environmental historians have analyzed connections between humans

¹ Dorothee Brantz, "The Natural Space of Modernity: A Transatlantic Perspective on (Urban) Environmental History," in Ursula Lehmkuhl and Hermann Wellenreuther, eds., *Historians and Nature: Comparative Approaches to Environmental History* (Oxford: Berg, 2007), 212.

and natural resources using concepts like the city as an “organism” and “urban metabolism.” It then outlines analyses of war’s impact on the relationship between humans and nature. Applying these ideas to military history, Chapter 2 analyzes how interwar bombing theorists first recognized the importance of these connections to urban life and civilian morale. A profile of Munich before WWII follows to emphasize three key connections: between Munich and 1) the Ruhr coalfields, 2) the rivers of the Alps that provided the city’s electricity, and 3) the fuel and food resources of Germany’s eastern provinces. Chapter 4 describes Munich at war, analyzing the practical application of area and precision bombing strategies that emerged from the interwar theorists’ ideas. Munich’s agony under bombs focuses on changes to the urban environment as experienced by people who lived in and around Munich.

Each of the three postwar Chapters (5, 6, 7) focuses on one year of the U.S. Army’s occupation of Munich, beginning in April 1945. Some or all of the three prewar connections are featured, with coal as the most prominent. A fourth vital connection, to the food and fuel resources of the United States, emerges to ultimately hold the key to Munich’s recovery. Chapter 5 focuses on the state of the city immediately after surrender, the role of the occupiers, and the continuing shift from coal to wood, which lasted throughout the first three years of the occupation. It analyzes the growing importance of Ruhr coal, and the strategies Münchener employed to get food and fuel. Chapter 6 focuses closely on the connection between Munich and the Ruhr coalfields, analyzing the impacts of the harsh 1946/47 winter on Münchener’s lives. In Chapter 7, the drought of summer 1947 illustrates how

important the Alpine rivers had been to Munich's electricity supply. It also introduces the growing importance of food from the U.S., rising concerns about the environmental impacts of the shift to wood, and brightening attitudes, as Münchener moved from protest to cautious optimism in spring of 1948. This account closes in June 1948 when currency reform, the Marshall Plan, and the Berlin Airlift established Munich's new future, one firmly connected to the West's material and political resources.

Between 1939 and 1948, the city descended from thriving cultural metropole to isolated, burned-out wreck, then slowly rallied to become a city on the mend. Wartime bombing and postwar occupation policies damaged and often completely severed the city's connections to coal, electricity, and food. This amputation allowed natural forces, especially weather, to punish Munich's citizens. People were forced to surrender many comforts of city life, rely on sources of fuel (wood) they had long left behind, develop new ways to get food or simply do with less, and suffer shortages of electricity and coal. However, despite the forecasts by interwar bombing theorists like Giulio Douhet and Billy Mitchell, Munich's people never gave up. They suffered, but adapted. By June 1948, the city had regenerated some old connections and forged new ones needed to regain its former status. Still, Munich's path forward remained unclear. The one certainty was the new connection to the resources of the United States. Increasingly, after 1948, Munich would be tied to the West.

Both works in urban history and environmental history offer useful insights into Munich's dependence on resource connections. Both disciplines in turn have begun to inform military historians' appraisals of warfare in and on urban areas.

Urban and environmental historians have devised means to analyze the character of a city's connections to natural resources and other cities. An overview on the effects of warfare on connections to natural resources and the urban environment reveals opportunities to enrich military histories by including the concept of "planned disaster." Historians of cities and the environment, war and urban society all provide a framework on which to ground this study's discovery that interwar bombing theory, which viewed cities as targets, actually anticipated some of the ideas of urban environmental history. Chapter 2 will develop this insight at length.

A City's Connections to Natural Resources

A framework that defines a city, explains its constituent elements, will help consider the impact of warfare on a city. Unfortunately, there have been such a variety of models proposed, beginning with Aristotle, that describing all of them in depth exceeds the scope of this chapter or even this study. Therefore, this project focuses more on how a city functions, less on any one optimal theoretical model of a city's form. This study's simple framework highlights three essential elements: people, natural resources, and the connections that link them together. Combined, these elements form a hybrid that is part nature, part human. Take any one element away, and the city ceases to function, like a body deprived of food and water and ways to get them. Other elements are certainly still there, but that which remains is no longer a city. A dead body is not a living human being but a corpse, a shell. The notion of the city as a body or organism, joined to the concept of "urban metabolism" set a useful foundation for historical appraisal of the functioning of cities. Like a

body, a city and its inhabitants need access to resources: food, water, shelter, and most important for this study, energy and fuel. A city also requires a system to transport these resources to the larger body of inhabitants, there to be metabolized. Sever, let alone damage, connections to these sources and the body of the city suffers and cannot function properly.

One of the best urban histories to discuss of the concept of a city as a body or organism is Richard Sennett's 1996 *Flesh and Stone: the Body and the City in Western Civilization*. Sennett traces the model of a city as a body to eighteenth-century medical discoveries about the circulation of blood. New medicine led to new ideas on the "healthy virtues of respiration and circulation" that drove functions in cities. People and goods needed to be transported like blood in the body, and in the most efficient way possible. Smaller vessels of old, narrow and crooked streets had to be replaced by "arteries": broad, straight boulevards, as happened in the "Hausmannization" of Paris in the nineteenth century.²

Circulation was not only internal to the city. Goods and people had to flow efficiently from rural to urban areas and between cities. These connections to the countryside and between cities were equally fundamental to city functionality. Urban historian Spiro Kostof, in his 1991 *The City Shaped: Urban Patterns and Meanings Through History*, lists nine "fundamental premises" defining a city. The two that best reflect the importance of connections are:

"Cities come in clusters. A town never exists unaccompanied by other towns. It is therefore locked in an urban system, an urban hierarchy."

² Richard Sennett, *Flesh and Stone: the Body and the City in Western Civilization* (New York: W. W. Norton & Company, 2006), 263.

“Cities are places that are intimately engaged with their countryside, that have a territory that feeds them and which they protect and provide services for.”³

Kostof recognized that cities, connected to their surrounding territories and to other cities, could not exist in isolation. Munich rested at the top of the “urban hierarchy” in Bavaria, but it could not survive without coal resources exploited by the cities of the Ruhr or food resources grown on farms in the surrounding countryside. Munich, linked to other cities by railroads that carried natural resources and finished goods, suffered when the railroads were damaged, as discussed in Chapter 4. Munich’s dependence on other cities, on the railroads that connected them, and on the surrounding countryside would substantially impact everyday life in postwar Munich, as discussed in Chapters 5, 6 and 7.

Urban theorists and planners in Europe have adapted the “city as organism” idea in the early twentieth century, for example Hans Reichow in Germany and Charles-Édouard Jeanneret--better known as Le Corbusier--in France. In his influential 1948 book *Organische Stadtbaukunst* (“organic city building culture”) Reichow called for cities that had a “*Stadtlandschaft*” (city landscape) that reflected the forms of nature and re-connected people to the landscape by giving them easy access to it. His proposed cities resembled an organism, composed of “cells,” self-contained and self-sufficient neighborhoods that incorporated green space. The roads resembled blood vessels, or, as in a drawing in his book, the alveoli of a human lung. For Reichow “nature” meant the landscape or “green space” from which humans are

³ Spiro Kostof, *The City Shaped: Urban Patterns and Meanings Through History* (Boston: Bulfinch Press, 1991), 38.

separated in modern cities. By contrast, in this project, “nature” refers more broadly to the natural resources (coal, water, food) a city’s people need to survive.⁴

Le Corbusier focused on a city’s internal infrastructure, seeing the lines that brought water, electricity and gas to citizens, as well as streets and railroad lines, as the city’s “arteries.” Power stations, water works, gasworks and railway stations served as “organs.” Food from the surrounding countryside fed the “stomach” of the city. For example, in the 1920s *City of Tomorrow*, Le Corbusier laid out the elements of a model city of three million inhabitants. Parts listed correspond to parts of the human body, including lungs (green space), arteries (roads and railways) and heart (railway station). The street itself becomes “a new kind of organism, a sort of stretched out workshop, a home for many complicated and delicate organs, such as gas, water and electric mains” that are not buried but “easily accessible throughout their entire length.”⁵

The Industrial Revolution highlighted and greatly increased the significance of these connections. Extending railroads more tightly linked cities and offered easier access to outside resources for cities within Kostof’s “clusters.” Increased access to food and fuel in turn enabled huge increases in urban populations, which required greater territory to feed cities. City dwellers became more and more dependent on outside sources for their necessities of life, and on the transport system (roads, railroads, waterways) that brought them.

⁴ Hans Reichow, *Organische Stadtbaukunst; von der Grossstadt zur Stadtlandschaft* (Braunschweig: G. Westermann, 1948).

⁵ Le Corbusier, *The City of Tomorrow And Its Planning*, transl. by Frederick Etchells (London: The Architectural Press, 1947), 23.

The growth of the modern city produced psychological effects as well. Max Weber and Georg Simmel's analyses of urban living's impact on humans provide good material for understanding more than simply the characteristics of city life. Environmental historians can also use their insights to study the relationship between humans and nature. Neither Weber nor Simmel refers specifically to connections to natural resources, but their analyses of psychological changes caused by city life and of city dwellers' attitudes encourage historical scrutiny. Specifically, they depict urbanites becoming more dependent on but simultaneously less aware of nature, in the form of natural resources. Urbanites' dependence becomes apparent in the short term when natural disasters strike or bombers raid cities, and in the long term by a multi-year sustained bombing campaigns.

Weber's essay "The Nature of the City" analyzed cities from economic, social and political perspectives. His economic analysis, the most useful for this study of Munich, viewed a city's inhabitants as living primarily from commerce and having become distant from agriculture. The city operates as a "market settlement," a place where commerce is permanent and not seasonal, and dominated neither by producers nor consumers. The larger the city, the less land is given over for agriculture, and thus the urban dweller enjoys less access to what we today call "green space." The job of the local government, whether a city council, local lord, or citizens' assembly, is to organize commerce for the citizens' benefit.⁶ The environmental historian observes how the people in the market experience a weaker connection to nature because of

⁶ Max Weber, "The Nature of the City," in Max Weber, *The City*, transl. by Don Martindale and Gertrud Norwith (Glencoe, Illinois: The Free Press, 1958).

their functional and geographic distance from agricultural land. They connect to the products made from natural resources, rather than the natural resources themselves.

Georg Simmel argued that this distance from nature was expressed by the dominance of intellectualism and the importance of money in a city. In his 1903 essay “The Metropolis and Mental Life,” Simmel wrote of the “fight with nature which primitive man has to wage for his bodily existence” having become a desire for unlimited freedom during the Enlightenment, when the intellect began to dominate. Living in a city offers this intellectual freedom, but commands a price. Stimuli not present in a small town bombards the urbanite, and at a much faster pace. People react by retreating into their intellect, distancing themselves from the urban environment’s confusing stimuli. Value becomes measured in money, an abstract concept, not goods (as in a barter economy), which are tangible objects. Money, in fact, allows people to control objects.⁷

Substitute “objects” for “nature” and “technology” for “money,” and Simmel’s insight fits environmental history’s focus on the relationship between humans and nature. People in a city must control the forces of nature to enjoy freedom to live a life based on intellect and technology. They turn away from the limits imposed by life on the land, where nature sets their pattern of existence, to pursue life in the city, where humans determine it. Cutting a city’s connections to nature in the form of natural resources takes away this control, restoring both the dominance and limitations of nature. Amputation forces city people to return to a state of quasi-rural existence they had hoped to leave behind. As discussed in the next

⁷ Georg Simmel, “The Metropolis in Mental Life,” in Gary Bridge and Sophie Watson, eds., *The Blackwell City Reader* (Malden, MA: Blackwell, 2002). The return to a barter economy in Munich in the postwar period is discussed in Chapters 5, 6 and 7.

chapter, forcing this rustic return by bombing could possibly force a city to surrender in war.

Environmental historians in Europe (Bernd Herrmann and Rolf Sieferle to name two) and the U.S. (William Cronon, Martin Melosi, and others) offered useful methods to explore the environmental impacts caused by obtaining urban resources and maintaining control over them. Some accounts highlight human actions by taking a social history approach. Others focus more on topics presented by geography, pollution, ecology, land use, and energy sources, and issues more grounded in physical sciences. The common thread, though, remains humanity's desire to control nature and to manipulate it for social, economic, and political goals.

European cities' expansion during the Industrial Revolution profoundly reshaped the natural environment, as developed in recent research by European environmental historians Rolf Sieferle, Verena Winiwarter, Bernd Herrmann, and Fridolin Krausmann. These scholars have applied the concept of "urban metabolism" to analyze the impacts of the growth of cities and the switch from plant-based fuels (wood) to fossil fuels (coal, petroleum). Their work has concentrated attention on energy flows into and out of a city, revealing how much cities depend on outside sources of energy. As German environmental historian Bernd Herrmann put it:

"Cities are mostly differentiated from other ecostructures by changes to what are called 'natural cycles'. One of these is the energy flow that starts with primary production in ecosystems, i.e. the transformation of solar energy into plant materials. Cities do not provide the energy basis for their maintenance by primary production but depend on energy supplies from outside the area."⁸

⁸ Bernd Herrmann, "City and Nature and Nature in the City," in Lehmkuhl and Wellenreuther, *Historians and Nature*, 235.

Significantly, increased demand for natural resources drives this growing dependence on outside sources. City resource hunger in turn reshapes areas where the resources are located. Like hungry adolescents, cities devour more and more “food” (natural resources) to keep growing and industrializing. Similar to the concept of “ecological footprint,” resource-demand studies determine needed resources by an individual, city, region or country in terms of global carrying capacity. Applying this concept to modern cities, scholars like Sabine Barles have quantified these impacts on cities such as Paris. Barles’ 2003 work studied material flows in and out of the city, finding that certain areas used more resources than others. For example, the urban sprawl areas consumed more fuel and building materials.⁹

If vital resources are exhausted, the city “organism” will split into its component parts and die. Rolf Sieferle concluded in *The Subterranean Forest: Energy Systems and the Industrial Revolution*, “If the stream of energy dries up, living structures collapse and dissolve into an unordered equilibrium.”¹⁰ A wartime enemy often aims to disrupt this equilibrium, cutting off a city’s supplies--a practice as old as warfare--to cause surrender. Their heightened dependence on outside natural resources and transport systems to bring them rendered modern industrial cities especially vulnerable to attacks on infrastructure such as railroads.¹¹

European environmental historians have also called for a more multidisciplinary focus in urban environmental history, mixing “hard” sciences

⁹ Sabine Barles, “Urban Metabolism of Paris and Its Region,” *Journal of Industrial Ecology* 13:6 (2009): 898-913.

¹⁰ Rolf Peter Sieferle, *The Subterranean Forest: Energy Systems and the Industrial Revolution* (Cambridge: White Horse Press, 2001).

¹¹ For an analysis of the targeting of the “urban metabolism” in recent times, see Stephen Graham, “Urban Metabolism As Target: Contemporary War As Forced Demodernization,” in Nik Heynen, Maria Kaika, and Erik Swyngedouw, eds., *In the Nature of Cities: Urban Political Ecology And The Politics Of Urban Metabolism* (London: Routledge, 2006).

(geography, biology, etc.) with social sciences to better understand cities' relationships with and impacts on the natural environment. As Sieferle put it in *The Subterranean Forest*, "It is inevitable that environmental history will develop an interdisciplinary scope, since it deals with the dynamics of natural and social processes."¹² By focusing on the shift from wood to coal as fuel in nineteenth-century Germany, Sieferle provided a solid foundation to understand the importance of Munich's connections to fuel sources. In Munich, as will be discussed in Chapters 5, 6, and 7, the "stream of energy", which previously had consisted of coal, had to keep flowing. Wood thus steadily took the place of coal, reversing the shift in fuels brought on by industrialization. In terms of the concept of "urban metabolism," Munich simply changed its diet from coal to wood, with potentially disastrous results, as discussed in Chapter 7.

Among U.S. environmental historians, William Cronon and Martin Melosi offer insights most pertinent to this study. Their works have traced the connections between cities, natural resources and the surrounding areas, both local and regional. William Cronon's classic work *Nature's Metropolis: Chicago and the Great West* inspired this project. Cronon's insight, shared by Sieferle and many others, was to break down disciplinary, intellectual, and even geographic barriers, both in the minds of scholars and the general public alike. Cronon pointed out that just as humans have been studied as separate from nature, human cities have been treated as isolated from the surrounding countryside. He well describes the challenge facing urban environmental historians:

¹² Sieferle, *The Subterranean Forest*, vii.

“Urban historians rarely look beyond the outskirts of cities to the hinterlands beyond; western and frontier and even environmental historians usually concentrate far more attention on rural and wild places than on urban ones...city and country have a common history, so their stories are best told together.”¹³

For inhabitants of cities like Munich, World War II’s aerial bombardment not only broke down the barrier that had formerly separated combatants and non-combatants by making the latter targets. More importantly, strategic bombing damaged, even severed, the connections to natural resources that they had been able to take for granted in peacetime. Munich’s resources in the nearby hinterlands and the region of Bavaria had to replace the restricted flow of resources from outside the region. For example, both during and after the war, coal from the Ruhr and Silesia was limited. Local mines in Upper Bavaria thus had to try to produce more. Coal and other resources (food, water, wood) Munich’s people needed to survive also featured in Cronon’s analysis of Chicago’s impacts on both the local environment and the larger region of the American West. Cronon also emphasized railroads’ centrality in transporting these resources. In Chicago, trains (and ships) brought wood to build housing and pork for foodstuffs. The same lines distributed the finished products to the rest of the country. Munich, like Chicago, functioned as a major railway hub: it imported coal and exported Bavarian agricultural products.

Environmental history has succeeded in concentrating attention not only on people in cities, but the physical infrastructure that supports them. These constructs bring in natural resources, but also, crucially, remove waste. Martin Melosi, a leader in this field, offers useful background for understanding how a city works and its

¹³ William Cronon, *Nature’s Metropolis: Chicago and the Great West* (New York: W.W. Norton & Company, 1991), xvi.

relationship to the natural world. *The Sanitary City* and *Effluent America* aided this account of Munich during and after WWII. *Effluent America*, written in 2001, assessed the role of the city in environmental history, offering a useful review of city “models.” These ranged from the aforementioned “organism” model, most influential in the eighteenth and nineteenth centuries, to more recent “systems” approaches, which include the idea of a city as an eco-system, urban ecology, Walther Christaller’s “central place theory,” and Spenser Havelick’s “organic theory.” Melosi ended his analysis by considering Cronon’s *Nature’s Metropolis*, which he praised for highlighting the overlooked relationship between city and countryside, and summoning “scholars of humans and the natural world into studying the cities.”¹⁴

The Sanitary City, a broad survey of the history of waste management in American cities, helps readers understand how cities depend on water and waste systems. These “sanitary services” form the “circulatory system of the city.” The connections or “arteries” are pipes that move water and sewage, plus the vehicles that remove garbage. All have been so well blended into the urban landscape that they have become inseparable from the concept of a city. Urban dwellers simply expect them to be there, and only notice them when they break down.¹⁵ A city attacked by bombs, like a city subjected to a natural disaster, suffers damage to its “invisible” arteries. Once cut or constricted they make the citizen suddenly aware of how much they had depended on connections to natural resources like water.¹⁶ For Münchenerers,

¹⁴ Martin Melosi, *Effluent America: Cities, Industry, Energy, and the Environment* (Pittsburgh: University of Pittsburgh Press, 2001), 129-133.

¹⁵ Martin Melosi, *The Sanitary City: Urban Infrastructure In America From Colonial Times To The Present* (Baltimore: Johns Hopkins University Press, 2000), 8.

¹⁶ In recounting the 1989 Loma Prieta earthquake, Melosi briefly describes how the resulting damage was able to “generally reshuffle the lives of thousands of people” Ibid., ix.

bomb damage to water pipes and the sewage plant at Grosslappen exposed their vital arteries.

By focusing on urban dwellers' connections to natural resources and highlighting cities' close relationship to natural resources, Cronon and Melosi have expanded the influence of environmental history on urban history. Works inspired by Cronon and Melosi offer additional insights into humans' relationship with the natural world in more specific ways. Some, for example have focused on individual resources such as water.¹⁷ As will be seen in Munich, the city shared characteristics common to all urban zones. Regardless of particular geography and climate, cities' growing supplies of resources had to be found further and further away. A military theorist might observe that their supply lines become more extended and thus more vulnerable. Environmental historians working to integrate urban topics into the field have also offered insights into this strategic vulnerability. Here, then, is where environmental historians should fuse with military history to better analyze the impact of warfare on the relationship between humans and nature.

¹⁷ Two works that recognize the key role of water in cities, and how obtaining water impacts the natural environment, especially true in arid regions such as Southern California and Arizona, are Michael F. Logan's *Desert Cities* and Deverell and Hise's *Land of Sunshine*. These authors assess how authorities in the cities of Los Angeles, Phoenix and Tucson made decisions about how to interact with their local environments. Should they take what nature had to offer, living within their means as it were by using only locally-available water, or conquer nature by importing water at great expense from other areas, thus depending on outside sources? Los Angeles, by tying its fate so closely to the sources of water in the Colorado River Basin and Northern California, created a vital, vulnerable connection subject to interruption by earthquake, sabotage or political action. This is akin to Munich's reliance on sources of coal in the Ruhr, Silesia and Saxony, and hydropower from Alpine rivers. A similar situation existed in Arizona, as Phoenix drew more and more water from the Colorado River, while Tucson tried to rely on local sources. See Michael F. Logan, *Desert Cities: The Environmental History of Phoenix and Tucson* (Pittsburgh: University of Pittsburgh Press, 2006), and William Deverell and Greg Hise, eds., *Land of Sunshine: An Environmental History of Metropolitan Los Angeles* (Pittsburgh: University of Pittsburgh Press, 2005).

Warfare, Connections to Natural Resources, and the Urban Environment

This study, aimed at analyzing warfare's impacts on connections between natural resources and the urban environment, also necessarily integrates the relationship between humans and nature as altered by warfare. Edmund Russell, in *War and Nature: Fighting Humans and Insects With Chemicals from World War I to Silent Spring*, supplies a sound starting line. Pesticides and chemical weapons followed parallel paths, he discovered, having profound effects, good and bad, on humans and the environment. These toxic materials also shaped human views and uses of nature. Russell successfully compels the reader to "rethink the relationship between war, nature, and human history."¹⁸ His wide-ranging analysis covers political philosophy, the relationship of science, industry and government, and the rise of the "military-industrial complex." Yet he stands apart from institutions of power to plumb the discontent that would form the basis of the modern environmental movement. *War and Nature* challenges the disciplinary frontiers that arbitrarily divide nature from war, military institutions, military technology, and human interactions with the environment.

The proliferation of biodiversity in areas such as the DMZ in Korea¹⁹ has shown war's unexpected effects on the relationship between humans and nature. Among the ironies revealed by war's wake is the diminished human control over the natural environment. In Munich, this slackened sense of mastery occurred during the war through bombing and after the war by Germany's surrender to the Allied

¹⁸ Edmund Russell, *War and Nature: Fighting Humans and Insects With Chemicals from World War I to Silent Spring* (Cambridge: Cambridge University Press, 2001), 2.

¹⁹ See Lisa M. Brady, "Life in the DMZ: Turning a Diplomatic Failure into an Environmental Success," *Diplomatic History* Vol. 32, No. 4 (September 2008): 585-611.

occupiers. World War II altered and even severed connections to natural resources by changing the urban environment. The destabilized relationship between humans and nature in Munich revealed just how important these connections had been to the life and livelihood of the city and its inhabitants.

As historians advance cautiously into unfamiliar terrain, a collection of essays on war and environment, Russell and Tucker's *Natural Enemy, Natural Ally* and Closmann's *War and the Environment*, plus regular articles in *Environmental History*, are laying down methods needed to write the environmental history of warfare.²⁰

Wood and forests compose two important elements of Munich's story between 1939 and 1948. Bill Tsutsui's work on Japan during WWII shows war's huge impacts on society and in the environment, in particular regarding forest resources. In "Landscapes in the Dark Valley: Towards an Environmental History of Japan," he describes how widespread clear cutting, killing songbirds for food, and a misguided scheme to produce fuel from distilled pine roots all depleted Japan's forests during World War II. Tsutsui explains that Japan's natural landscape, however, was remarkably resilient, and reminds readers, "The environmental legacies of warfare are complex, contingent, and often surprisingly transitory."²¹ John McNeill's article "Woods and Warfare in World History", in the October 2004 issue of *Environmental History* traces the close relationship between humans and forests, outlines the effects of war on forests, and advances the view that wood functioned as

²⁰ See Richard P. Tucker and Edmund Russell, eds., *Natural Enemy, Natural Ally: Toward an Environmental History of War* (Corvallis: Oregon State University Press, 2004) and Charles Closmann, ed., *War and the Environment: Military Destruction in the Modern Age* (College Station, TX: Texas A&M Press, 2009). Dorothee Brantz's article on trench warfare in WWI in *War and the Environment* is discussed in the next chapter.

²¹ William Tsutsui, "Landscapes in the Dark Valley: Towards an Environmental history of Japan," in Tucker and Russell, *Natural Enemy, Natural Ally*, 198.

a resource for war, a physical barrier, and a source of camouflage for armies.²² British historian Chris Pearson's 2006 article in *Environmental History*, "The Age of Wood: Fuel and Fighting in French Forests 1940-1944," gives specific examples of the forest both as a resource and a refuge. During a war conventionally associated with tanks and petroleum, not horses and wood, wood fueled cars (*gazogenes* or *Holzgasler*) became substantial tools of transportation. In Germany, wood also again heated homes and fueled businesses as the *Wehrmacht* requisitioned coal and petroleum. Pearson reminds readers how war can turn back the clock regarding the value of nature, hence the "age of wood" in the title.²³ Munich's lack of local coal resources and its reliance on coal from other parts of Germany would, as shown in a later chapter, force its citizens to once again burn wood for fuel.

Warfare, especially the modern "total" variety, upsets the cozy relationship the city dwellers have imposed on nature. Bombs and fire damage the connections to outside resources through attacks on transport systems, fundamentally altering the urban environment. Bombing has created situations where cities can be "under siege" *without* an army outside their gates. Bombs cut Munich off from those sources of food and fuel that helped its inhabitants forget about or ignore nature. Its urban environment was transformed as new sights, smells, and sounds assaulted the very senses. Blackout regulations made for very dark nights, unless bomb-ignited fires garishly lit them up. The smell of smoke, bodies, broken sewer lines and trash, combined with the sounds of air raid sirens and bombs, created confusion, restoring the fears that gripped ancestors isolated in a hostile nature. Münchenerers recalled

²² John McNeill, "Woods and Warfare in World History," *Environmental History* 9:3 (2004): 388-410.

²³ Chris Pearson, "The Age of Wood: Fuel and Fighting in French Forests 1940-1944," *Environmental History* 11:4 (2006): 775-803.

feeling that their clock had been turned back, and losing mastery unnerved people. These prosperous and comfortable urbanites were now more exposed to the whims of weather. They often had to forage for food on their own when the local authorities could not provide it. People's reactions to this stressful situation could potentially affect the outcome of the war. They might surrender if things get too difficult or "primitive." As discussed in the next chapter, creating such a punishing atmosphere would become one of strategic bombing's main goals.

The urban environment and urban life changing amidst warfare opens a rich opportunity for environmental historians. For example, in their 2004 article "'It's War and Everyone Can Do As They Please!' An Environmental History of a Finnish City in Wartime," Rauno Lahtinen and Timo Vuorisalo, two Finnish environmental historians, assess WWII's impacts on the Finnish city of Turku. Using newspapers as their primary sources, Lahtinen and Vuorisalo argue that World War II not only damaged Turku's natural environment, but also "fundamentally transformed the way people experienced and used their environment, and had a long-lasting effect by suppressing public environmental debate." During the war, people discarded the "environmental values" that had grown in the interwar years, and did not pick them up again until the 1960's and 70's.²⁴ As happened in World War I, urban spaces were again given over to growing food, industrial pollution went unchecked, and urbanites became intensely aware of agriculture and its importance and recycled almost everything.

²⁴ Rauno Lahtinen and Timo Vuorisalo, "'It's War and Everyone Can Do As They Please!'," An Environmental History of a Finnish City in Wartime" *Environmental History* 9:4 (2004): 679-700.

One of the best analyses of an urban environment during wartime is Roger Chickering's 2007 study of the German city of Freiburg during WWI, *The Great War and Urban Life in Germany: Freiburg 1914-1918*. Chickering explores social, political, economic, and cultural changes that the Great War brought to the quiet Black Forest town. Chickering cast the war as an entity, a "force of nature...an irresistible agent whose invasive claims occupied, then overwhelmed the city."²⁵ His chapter on war's impact on the senses supplies a useful prod to expand urban environmental history by exploring the sounds, smells and sights WWI brought. As resources, especially food, diminished, Chickering shows bureaucratic control over food actually beginning to erase the urban-rural divide. City dwellers and farmers became more interdependent. Citizens cultivated land in the urban areas and authorities stored food in municipal buildings for distribution.

"Planned Disasters"

Damages and disruptions to the urban environment caused by bombing resemble those of natural disasters such as floods, tornados, and earthquakes. The difference is that people wholly make war, while nature's forces originate "disaster" changes. The concept of the "planned disaster," found in both Ted Steinberg's *Acts of God* and Canadian geographer Kenneth Hewitt's variant called "planned destruction," embodies an interesting change in the relationship between humans and nature. By dropping aerial bombs on German cities in World War II, humans gained nature's power to destroy, and temporarily wielded the ability to unleash it. They could not,

²⁵ Roger Chickering, *The Great War and Urban Life in Germany: Freiburg 1914-1918* (Cambridge: Cambridge University Press, 2007), 7.

however, control the consequences once this power had been unleashed. As the Americans discovered at the end of the war, using that power did not, in itself, confer the power to control and shape bombing's consequences. Germans learned first-hand, and their American conquerors shortly after May 1945, that human use of powers once reserved to nature in turn exposed societies to the very powers unleashed. Americans had gained temporary power over not just German people, but over the natural connections Germans in Munich had used to sustain their lives. Yet that power to act did not immediately confer the corresponding power to manage, let alone control, the consequences of the vast powers of destruction wielded by the Allies from above.

This contradiction triggers different reactions from different people. To those in power, asserts Steinberg, after damage has been done, its destruction is attributed not to human actions but to those of an angry God or indifferent, random natural forces. Such deceptive delusions neatly absolve authorities of blame and justify failed policies. While not explicitly accusing humans of deliberately planning disasters such as floods and hurricanes, Steinberg strongly implies that such calamities are not wholly “natural.” Their full suite of destruction was “produced through a chain of human choices and natural occurrences.”²⁶ By building a city in a floodplain or atop an earthquake fault, humans are inviting a disaster. If they do not plan adequately for what will be an essentially inevitable calamity, its effects will be more catastrophic. By recognizing human agency’s role in disasters, Steinberg suggests a theoretical foundation for studying a disaster completely planned and carried out by humans.

²⁶ Ted Steinberg, *Acts of God: The Unnatural History Of Natural Disaster in America* (New York: Oxford University Press, 2006), xix.

Steinberg's model, however, has to be extended to reach aerial bombing, because unlike with bombing raids, humans do not trigger the only disasters he describes, but simply allow them to happen.

Kenneth Hewitt's application of the planned disaster concept in his works about cities and warfare proposes "planned destruction," a more useful concept for this study. His 1993 article "Reign of Fire", included in a collection of essays on the destruction and rebuilding of German cities during and after WWII advances the notion of "planned destruction" by "disaster raids" that were key to a "war of attrition" carried out against German cities by Allied bombers. These "intentional city-wrecking and terror attacks" involved "massive concentrations of bombs in congested and vulnerable urban areas" and "were calamitous for the city as a whole... and are set apart and unique calamities in the memory of each city." These raids targeted "civil support systems and habitat" such as hospitals and commercial centers, forcibly uprooted the urban population, destroyed the cultural and social identities of the city's residents, and created "a *landscape of violence* whose rubble and the dead buried underneath it created the living city into a necropolis." Cities subject to natural disasters are often described in similar terms, and suffered similar damage.²⁷

Steinberg's insights into human involvement that magnifies the damage from natural disasters and Hewitt's concept of "planned destruction" establish theoretical directions for this analysis of strategic bombing, a "planned disaster" that targeted a city's connections to the natural resources needed to survive. The Allies inflicted

²⁷ See Kenneth Hewitt, "Reign of Fire: the civilian experience and urban consequences of the destruction of German cities, 1942-1945," in Josef Nipper and Manfred Nutz, eds., *Kriegszerstörung und Wiederaufbau deutscher Städte: Geographische Studien zu Schadenausmass und Bevölkerungsschutz im Zweiten Weltkrieg, zu Wiederaufbauideen und Aufbaurealität* (Köln: Selbstverlag Geographisches Institut der Universität zu Köln, 1993), 28-29, 42.

such a disaster on cities like Munich, seeking to disrupt not only connections to resources, but more fundamentally, to change the relationships between humans and the natural world. Bombing destroyed the means of controlling natural phenomena such as water, restrained by dams. It prevented people from manipulating a natural resource for human benefit, for example, making electricity and heat out of coal, by destroying gasworks or power plants. Destruction wrought by bombs made Münchenerers more vulnerable to natural phenomena, such as weather, by destroying the roofs over their heads and cutting off supplies of fuel. By taking away the comforts of city life, aerial bombing deprived people of protection from nature.

For Germany's cities, the Allied bombing campaign produced effects similar to a hurricane or earthquake, albeit on more than one occasion and on a more prolonged basis. Bombs damaged or destroyed buildings, power lines, water pipes and sewers, and severed road, rail and water links, cutting off cities from supplies of food and fuel in the surrounding countryside and other parts of Germany. As if preparing for natural disaster, city officials drew up plans to lessen the effects of bombs (bunkers, anti-aircraft guns, etc.) and, if necessary, evacuate the city. After the bombs stopped falling in April 1945, Munich's citizens, like those in a city hit by a tornado, faced the monumental task of rebuilding their city and reestablishing its links to sources of food, water and power necessary to keep them alive. The only difference between the damage bombs did to Munich by bombs and a hurricane or tsunami did to another city was that humans planned and executed the disaster that befell Munich, intending to harm humans. Through application of strategic bombing, humans were able to exercise a power previously held by natural forces, the power to

systematically dismantle a city by cutting its links to the natural resources it needs to survive. The man-made disaster of strategic bombing forced the citizens of Munich to confront anew and then resolve their relationships to the natural resources that shaped and supported their city.

Conclusion

Military, environmental, and urban historians occupy useful common ground. All offer approaches to assessing disruptions to urban life brought by war and the inhabitants' reactions to it. Each field contributes to using the idea of "planned disaster" and its corollary, "planned destruction." The method applied in this study connects, rather than separates, disciplines and benefits all three types of historians. Military historians can use the insights of urban and environmental historians to more comprehensively analyze military strategy and war's impact on cities. Environmental historians can appreciate its highlight on the relationship between humans and nature, a central theme in the discipline. Finally, for urban historians, I propose a more detailed and deeper model of the functioning of cities. By combining the perspectives of military history, environmental history and urban history, this work seeks to present a more comprehensive view of cities' nature, relationship to natural resources, and more broadly, of the relationship between humans and the natural environment. Mixing perspectives, a central effort of this project, offers a new approach to studying impacts of war on cities, people and the environment.

The next chapter begins the endeavor by exploring the theories behind bombing cities. It shows that the men devising their war strategies recognized how

important connections to natural resources were to the life of a city and a country. Although they did not intend this result, they anticipated the same conclusions environmental historians like Cronon and Melosi would reach seven decades later. One of the war theorists' most important insights posited cities' inextricable links to the natural environment. The theorists contended WWI's rudimentary bombing experiments proved that cities depended on connections to natural resources to survive. As Melosi later said, cities and their natural environments were not separate entities. By bombing these connections, an enemy could, in theory, so threaten a city's and even a country's existence that the enemy would surrender. By applying environmental history's newer, and urban history's older, insights to the Allied bombing campaign in Europe, a favorite topic among military historians, this work advances military, urban and environmental history. Its insights create connections that will benefit all three disciplines.

Chapter 2

Breaking the Connections: Interwar Bombing Theory and Urban Environmental History

The enemy nation's will to resist is subdued by the fact *or threat* of making life so unpleasant and difficult for the people that they will comply with your terms rather than endure this misery.¹

Basil Liddell Hart, the famous British military strategist, used these words in his 1925 book, *Paris, or the Future of War*, to describe what he deemed a new and better way to fight wars. Rather than targeting armies in the field, this technique attacked civilians directly to break their morale, their “will to fight.” He referred to this as the “moral [morale] objective,” which he defined as disrupting the enemy’s “normal life to such a degree that they will prefer the lesser evil of surrendering their policy, and that any return to ‘normalcy’...is hopeless unless they do so surrender.”² Victory could be better achieved in the cities than on the battlefield. The most efficient way to do this was to use air power, primarily bombers, on cities and their inhabitants. Bombs aimed at infrastructure targets (railroads, power plants, water and sewer systems. etc.) would cut off their supplies of food and fuel, and make life more primitive. Bombs that killed their friends, families and neighbors and burned or blew up their houses would demoralize them and expose them to the weather. Subjected to all of this “misery,” city dwellers would, in theory, surrender rather than continue to suffer.

To Liddell Hart and other military men like the Italian General Giulio Douhet, the American General William “Billy” Mitchell, and British thinkers such as Lord

¹ Basil H. Liddell Hart, *Paris, or the Future of War* (New York: E.P. Dutton & Co., 1925), 37.

² Liddell Hart, *Paris*, 34-35.

Hugh “Boom” Trenchard, the use of air power to target cities and civilians and force surrender represented a promising new kind of warfare. Having personally experienced combat in the First World War, these men saw air power as the best way to avoid the costly, deadly and seemingly unending slaughter of trench warfare. They developed theories on how air power could change the nature of warfare, with bomber forces playing a central role. They knew that armed forces needed equipment, armaments, food and ways to transport them to fight. More importantly, these men realized that in an era of “total war,” nations could not fight wars without the material, political, and moral support of civilians.

Since cities contained large numbers of civilians in relatively small areas, they provided important targets and represented a huge vulnerability for both sides of a conflict. With the new air weapon, cities could be attacked directly without using ground forces. The inhabitants of these cities, lit by electric light and supplied by roads, rivers, and railroads, lived more comfortable lives than in the past. They were, the theory went, more susceptible to moral collapse. Take away their conveniences and make their lives primitive enough, and they would stop going to work and demand that their leaders surrender. As Lord Hugh Trenchard argued in a 1917 memo, “experience goes to show that the moral effect of bombing industrial towns may be great, even though the material effect is, in fact, small.”³

These new interwar military theories, viewed from the perspective of environmental history, targeted civilians, who would suffer and become demoralized because bombing a city fundamentally disrupted the relationship between humans and

³ Quoted in Tami Davis Biddle, *Rhetoric and Reality in Air Warfare: The Evolution of British and American Ideas About Strategic Bombing, 1941-1945* (Princeton: Princeton University Press, 2002), 37.

nature. A modern city, as discussed in the previous chapter, expresses human control over nature. People in modern cities, which demanded greater resources, were thus more dependent upon connections to natural resources that provided food, fuel, and housing. These connections were longer, more extensive, and thus more vulnerable to attack. The transport system of roads, rails, power lines, and water pipes brought food, electricity and fuel to the city dweller, who could forget his or her dependence on natural resources. The destruction wrought by the “planned disaster” of a bombing campaign shifts control back to nature by exposing a city’s inhabitants to natural forces such as fire and weather. It also damages the connections to the indispensable natural resources that kept nature at bay and made city life comfortable, let alone possible. The inhabitants, forced into a more primitive life by losing their control over natural forces, cannot adjust, and therefore surrender.

Environmental history’s interpretation of urban life closely resembles insights about cities and city dwellers and ideas regarding targeting civilians and infrastructure developed by Douhet, Mitchell and the British theorists. While each differed on elements of bombing strategy, all showed how they grasped the crucial role of connections to natural resources in the functioning of cities and the morale of their inhabitants. They saw the military value in damaging these connections by targeting the transport systems and infrastructure that made them work. Realizing how military men had earlier analyzed these urban connections, a topic later extended by environmental historians, brings the disciplines of military and environmental history closer together. This doctrinal proximity enhances historians’ understanding of aerial war strategy in World War II. Taken together, military and environmental

history provide a complete analysis of how bombing and warfare in general affected cities, thus enhancing urban history as well.

In terms of military history the ideas of men like Douhet, Mitchell and others would influence the two important practices of strategic bombing during WWII, “area” and “precision” bombing. In the official history of Allied bombing in WWII, Webster and Frankland define strategic bombing as “a means of direct attack on the enemy state with the objective of depriving it of the means or the will to continue the war.”⁴ The “means” are composed of material resources (armies and the supplies and equipment they need to fight) and the “will” of spiritual resources, i.e. the support of the government and the population to pursue and continue to pursue warfare. In World War II, the Allies carried out “area” and “precision” bombing to attack these means and will, or morale. “Area” bombing raids, carried out at night by the Royal Air Force (RAF), sought to inflict damage on a larger scale by attacking all the targets in a given area, usually a city. A good example is the 1943 attack on Hamburg, which had the goal of essentially destroying as much of the city as possible.⁵ By contrast, “precision” bombing raids, conducted by the United States Army Air Force (USAAF) in daylight, targeted specific components of the enemy’s war machine such as railroads, military bases, and factories. Also in 1943, the USAAF carried out a series

⁴ Charles Webster and Noble Frankland, *History of the Second World War: The Strategic Air Offensive against Germany 1939-1945: Volume I* (London: Her Majesty’s Stationery Office, 1961), 6.

⁵ For a discussion of the Hamburg raid from a German perspective, see Jorg Friedrich, *The Fire: The Bombing of Germany 1940-1945*, translated by Allison Brown (New York: Columbia University Press, 2008), 166-168.

of raids on the ball-bearing factories in Schweinfurt, with the goal of depriving the Wehrmacht of a key piece of equipment.⁶

These strategies were the product of trial and error. RAF Bomber Command was forced to switch to nighttime bombing after heavy losses from daylight raids, and because they lacked more accurate aiming equipment such as the American Norden bombsight. The American commanders felt that they had the technology and weaponry to carry out successful attacks on specific targets in daylight. Given the vagaries of weather and problems with bombing accuracy, damage was widespread, often quite far from the target. In practice, “precision” raids resembled “area” raids.

The Un-Friendly Skies: The Air as a Battlefield in WWI and its Impact on Interwar Bombing Theory

The experiences of World War I heavily influenced the development of interwar bombing theory in Europe and the United States. A look at the role of air forces, especially bombers, in WWI reveals how air attacks changed how wars were fought. By adding a third dimension--the sky--to warfare, air power increased the geographic area in which combat occurred, and also provided more available targets. It also changed the relationship between humans and nature for city dwellers, making nature less of an ally and more of an enemy. Air forces, while still subject to weather, simply flew over geographical barriers like oceans or mountains. Bombers attacked cities and civilians directly from the air. Oceans still hampered invasions, but if air forces could drop bombs, maybe in the future they could drop soldiers and

⁶ For a detailed account of the Schweinfurt raid, which led to heavy losses of American airmen, see Bernard C. Nalty, ed., *Winged Sword, Winged Shield: A History of the United States Air Force, Volume 1: 1907-1950* (Washington, DC: United States Air Force, 1997), 284-287.

equipment as well. The sky, the land, and the oceans were no longer a defense against direct attack by hostile forces.

Along with tanks and submarines, the first widespread use of bombers occurred in World War I. At first airplanes were used primarily for reconnaissance. Bombing often consisted of pilots dropping individual grenades by hand from the cockpit. By the summer of 1917, when the outcome of the war was far from clear, both sides had stepped up the use of bombers. In June and July German bombers carried out two daylight raids on London. While casualties were comparatively small (194 killed, 564 injured), the raids, plus zeppelin bombings in the fall, frightened the British public and unnerved their leaders.⁷

More importantly, these raids proved that the English Channel, while it still could hamper an outright invasion of the islands, no longer constituted a reliable natural defense that protected Britain and its civilians from the effects of warfare. War had become three-dimensional. Environmental history illuminates the significant shift symbolized by the decline of one natural feature (the Channel) as an ally, and the changing of another (the sky) into an enemy.⁸ As P.R.C. Groves, the Director of Flying Operations in the British Air Ministry at the end of WWI put it in 1922:

This country is faced with the salient and inexorable fact that she is at the end of her immunity as an island. From the point of view of aerial attack, the sea is a positive advantage to the invader; it favors surprise action by hostile aircraft and facilitates their retreat.⁹

⁷ Frank Morison, *War on Great Cities: A Study of the Facts* (London: Faber and Faber Ltd. 1937), 118.

⁸ For a thorough discussion of this idea, see the essays collected in Tucker and Russell, *Natural Enemy, Natural Ally*.

⁹ Quoted in Eugene Emme, *The Impact of Air Power: National Security And World Politics* (Princeton: Van Nostrand, 1959), 180.

In Britain, politicians and military men looked for ways to make up for the loss of the Channel as a defense and limit the increased death and destruction that would accompany the inevitable improvements in aerial equipment and ordnance. Britain needed to defend itself against the new terror from above, and also to develop the ability to dish out the same carnage to the equally exposed enemy. While the sea did not provide much defense for a continental power like Germany, its civilians could count on some degree of protection from the European landscape, which extended their distance from the battlefields on the front. The advent of the bomber erased this advantage.

British military men, such as Field Marshal Jan Smuts (a member of the War Cabinet), Lord Hugh Trenchard, and First Lord of the Admiralty Winston Churchill, began drawing up plans to use bombers to strike not only at the enemy's military forces, but also his morale. In the 1917 "Second Report of the Prime Minister's Committee on Air Organisation and Home Defence Against Air Raids," Smuts described his faith in the deterrent effect of air strikes in the near future, when "aerial operations with their devastation of enemy lands and destruction of industrial and populous centres on a vast scale may become the principal operations of war, to which the older forms of military and naval operations may become secondary and subordinate."¹⁰ The key to damaging morale lay not on the traditional battlefield of infantry and artillery, but behind the lines in the cities and factories.

The horrors of trench warfare, a central aspect of World War I, greatly impacted thinking on the use of air power. They also reflected a new appreciation of the relationship between humans and nature. Many accounts of life in the trenches

¹⁰ Emme, *The Impact of Air Power*, 35.

(*Goodbye to All That*, *Storm of Steel*, *All Quiet on the Western Front*, etc.) present a picture of filth, mud, disease, suffering, and death in a landscape that would be more suited to the Moon than the Earth. Dorothee Brantz, a German environmental historian, has assessed these literary accounts and also letters from soldiers at the front. She describes the “environment of war” created in the trenches of the Western Front, which starkly contrasted with the environments of civilian life. For Brantz, the men in the trenches were vulnerable both to the dangers of combat and the natural environment in the form of weather, disease, and mud. These soldiers also formed a unique relationship to their surroundings, one in which nature, not humans, controlled events. Soldiers were “subordinated to the environment” by the physical nature of battlefields in trench warfare. With soldiers on both sides dug in under the earth, visibility was limited, and walking upright or leaving the trenches could lead to death. This led to a “reversed spatiality” wherein the dead lay on top of the ground while the living buried themselves in it. To survive, soldiers had to adapt to, not control, nature. They had to blend in with the dirt and mud, in effect becoming part of the natural environment.¹¹ Civilians would also adopt similar coping methods to survive during WWII bombing raids. In Munich, for example, Franz Weber and his family would often spend hours underground in their cellar or a nearby bunker. If he was on the street during a raid and had little time, Franz hunkered down in one of many specially dug trenches by the side of the road.¹²

The advent of the airplane offered an escape from this “subordination.” Flying above the trenches, man could once again establish control over nature, as he was

¹¹ Dorothee Brantz, “Environments of Death: Trench Warfare on the Western Front, 1914-1918,” in Tucker and Russell, *Natural Enemy, Natural Ally*, 12-13.

¹² Franz Weber, interviewed by the author, Munich, Germany, February 10, 2010.

now free to pursue warfare independent of the limitations imposed by geography. He would not crawl in the mud like a rat, but soar in the sky like a bird. He would, in Basil Liddell Hart's words, "*jump over the army which shields the enemy government, industry, and people, and so strike direct and immediately at the seat of the opposing will and policy* (italics are original)."¹³ In a war fought principally by aircraft, humans could take back control of the battlefield from nature, or at least increase the possibilities of human influence in war.

While bombers were fairly limited weapons in World War I, their widespread use against military and civilian targets was only a matter of time, as the development of more advanced aircraft and ordnance progressed in the 1920s and 1930s. It was during this time that Giulio Douhet, Billy Mitchell, Hugh Trenchard and his fellow Englishmen developed their theories on the role of air forces and bombing in warfare.

All believed that air forces had radically changed the nature of warfare, that air superiority was crucial to military success, and that attacking cities or "vital centers" to disrupt the enemy's supplies, transport, and civilian support constituted the fulcrum of action. Douhet primarily urged air war to target civilians, believing them to be an enemy's weakest component. Mitchell, while he recognized the value of attacking civilians, mostly argued for targeting infrastructure and natural resources. Trenchard and the other British theorists were more inclusive, essentially targeting everything, depending on the goals of the bombing campaign. While not explicitly referring to cities as organisms, all of the interwar theorists implicitly applied the concept in the words they used to describe cities, countries and armed forces.

¹³ Liddell Hart, *Paris*, 40.

Environmental history, with its multidisciplinary methods, is applicable to many fields, including military history. By studying humans and their relationship to nature from many viewpoints, environmental historians offer fresh appreciations of cities, warfare, and connections to natural resources. Environmental history also helps illuminate interwar bombing theory, a traditional subject for military historians. Men like Douhet, Mitchell and Trenchard wanted to alter the urban environment and disrupt the relationship between humans and nature in cities to such a degree that the people living there would find the situation intolerable, and thus sue for peace.

Giulio Douhet and *The Command of the Air*

One of the first men to suggest possible strategies to accomplish this was the Italian General Giulio Douhet, born in 1869 to a military family. While not a flyer himself, he recognized the military potential of aircraft early on, even if others did not. While still an artillery officer in the Italian Army in 1909, he speculated on the impact of the airplane on warfare, “It must seem strange that the sky, too, is about to become another battlefield no less important than the battlefields on land and sea. But from now on we had better get accustomed to this idea and prepare ourselves for the new conflicts to come.”¹⁴

In 1913 Colonel Douhet published “Rules for the Use of Airplanes in War” and during the war commanded the first Italian air battalion. Douhet was also court-martialed for criticizing his superior officers in 1917, and served a year in jail. Eventually Italian military leaders recognized his genius and returned him to duty in 1918, and in 1920 overturned his court-martial and promoted him to General. Douhet

¹⁴ Quoted in Emme, *the Impact of Air Power*, 5.

published his seminal work *Command of the Air* in 1921. After Mussolini took power in 1922, Douhet served as head of the Italian Government's General Aeronautical Commission. Though asked to stay on by Mussolini, Douhet retired after a few months to write more books, adding a section on future wars to *Command of the Air* in 1928. While the book was not published in English until 1942, there is evidence that it was discussed in America in the 1920s.¹⁵

In *Command of the Air*, Douhet spells out the definitions of warfare in the air, what an air force is and should be, and describes what he feels is the best way to use the frightening new weapon of the airplane. "Because of its independence of surface limitations and its superior speed--superior to any other known means of transportation," he contended, "[the airplane] is the offensive weapon par excellence."¹⁶ An environmental historian recognizes how significant the phrase "independence of surface limitations" had become for this pioneering air war theorist. Douhet saw that the barriers imposed by the natural landscape--mountains, rivers, swamps, and deserts--no longer applied to limit the methods of warfare. Civilians, sources of supply, and transport systems were open to air attack. Armed forces had almost unlimited space to in which to operate, and thus more options for attack. People in cities far behind the lines and the range of artillery could no longer feel safe or see the landscape as protection. Only inclement weather stopped them from being

¹⁵ In a 1997 article, Mark Clodfelter refers to Billy Mitchell having seen a synopsis in 1922. See "Molding Airpower Convictions: Development and Legacy of William Mitchell's Strategic Thought" in Phillip S. Meilinger, ed., *Paths of Heaven: The Evolution of Air Power Theory* (Maxwell Air Force Base, Ala.: Air University Press, 1997). Douhet's work was translated into French in 1935 under the title "The War Doctrine of General Douhet." See Colonel Paul Vauthier, *La Doctrine de Guerre du General Douhet* (Paris: Berger-Levaul, 1935).

¹⁶ Douhet, *Command of the Air*, 15.

completely exposed to direct attack all the time, not just when an army stood outside their gates.

While removing geographic barriers to attack presented commanders with a new targets and better access to old targets, resources were still limited. It was important to maximize the disruption resulting from each attack and choose targets accordingly. To apply the organism metaphor, planners needed to know which were the most vital organs and veins of the of the enemy war machine. Would it be better to destroy a rail line, workers' housing, a canal, a power plant, or perhaps a weapons factory? If, as Phillip Meilinger, a U.S. Air Force historian, opines, Douhet was "perhaps the first person to realize that the key to air power was targeting,"¹⁷ then studying his proposed targets is worthwhile.

In terms of military targets, Douhet believed that the "best defense is a good offense," an idea also supported by Trenchard and others. The best way to defend against air attack was to destroy the enemy's air force on the ground, because "it is easier and more effective to destroy the enemy's air power by destroying his nests and eggs on the ground than to hunt his flying birds in the air."¹⁸ Once enemy "nests and eggs" were gone, an air force could attack the most important targets. These were not in the traditional ground or sea combat zone, but behind the traditional lines dividing armies and navies, providing support for the soldiers engaged in combat.

These targets could be found in

places where effective counteraction is negligible and where the most vital and vulnerable targets are to be found, targets which are, even though indirectly, much more relevant to the action and outcome on the field of battle. In terms of military results, it is much more important to destroy a

¹⁷ Phillip S. Meilinger, "Giulio Douhet and the Origins of Airpower Theory," in *Paths of Heaven*, 11.

¹⁸ Douhet, *Command of the Air*, 53-54.

railroad station, a bakery, a war plant, or to machine gun a supply column, moving trains, or any other behind-the-lines objective than to strafe or bomb a trench.¹⁹

Douhet recognized that resources and the facilities that produce them were as important to the war as soldiers and guns. More importantly, most of these targets were located in cities or connected cities and their indispensable natural resources. The battlefield had in effect been expanded all the way back to the cities, and the “front” was no longer limited to trenches and fortifications, but had become the entire landscape of the belligerents.

Douhet also commented on the best weapons to use in attacking these targets. While high explosive bombs were most effective against bases and rail lines, incendiaries and gas bombs were best used to attack civilian targets, such as “warehouses, stores, food supplies, and population centers.” In these population centers, incendiaries would start fires to destroy buildings and infrastructure, while the extensive use of gas bombs terrorized the civilians, “paralyzing all human activity.”²⁰ Douhet believed that using poison gas, which was a direct attack on civilians, was the most effective way to damage morale. Anticipating Brantz’s work on the altered landscape of combat, Douhet implied that civilians, not just soldiers, would have to bury themselves in the earth to survive, as those remaining above would die from poison gas and fire. This was a terrifying prospect for a city dweller.

Taking advantage of civilians’ exposure to attack by fire and poison gas was a key element in the goal of attacking “morale,” a central tenet of Douhet’s thinking. For him, breaking the will of civilians through air attacks was the key to a swift

¹⁹ Ibid., 126.

²⁰ Ibid., 41.

victory and a shorter, less bloody war. Cities and civilians, not soldiers, should be the targets, as

an aerial bombardment which compels the evacuation of a city of some hundreds of thousands of inhabitants will certainly have more influence on the realization of victory than a battle of the kind often fought during the last war without appreciable results.²¹

The type of battle Douhet refers to here is the agonizing stalemate of a WWI trench battle, where thousands of men died for a few yards of land, which they often subsequently lost in a counter-attack. In a scenario pitting country A with an air force against country B without one, he foresaw the following result caused by attacks on cities and other “vital centers”: “By bombing the most vital centers [A] could spread terror through the nation and quickly break down B’s material and moral resistance.”²² News of an attack on one city (say for example its capital) would spread fear to other cities, the result being disorder and panic:

What civil or military authority could keep order, public services functioning, and production going under such a threat? And even if a semblance of order was maintained and some work done, would not the sight of a single enemy plane be enough to stampede the population into panic? In short, normal life would be impossible in this constant nightmare of imminent death and destruction.²³

Terror caused by exploding bombs and the threat of death from above would not be the only things weakening civilian morale. The threat and reality of being cut off from the material goods--housing, food, electricity, etc.--that make urban living possible, let alone more attractive, than rural living, would also cause defeatism. For Douhet, however, the human element was key. While a broken railway line or destroyed factory could do significant damage, a panicking population could do more.

²¹ Ibid., 140.

²² Ibid., 56.

²³ Ibid., 58.

This focus on civilians is in his 1928 follow-up essay “The Probable Aspects of the War of the Future,” included in the 1942 English edition of *Command of the Air*. In this work he proposed a scenario of a war between Germany and an alliance between France and Belgium. Air power is naturally the key to victory, and strikes are carried out even before the declaration of war, as “Some morning at dawn capital cities, large centers, and important aviation fields may be struck and shaken as though by an earthquake.”²⁴ In using the metaphor of the natural disaster to describe an air attack, he implied that bombers could do the same damage as natural forces. In a future war, such a man-made disaster could shock civilians in to a quick surrender, ending the conflict with a minimal amount of casualties.

What would such a war look like? In summing up his proposed scenario, Douhet said that it would be “a struggle of nations grappling with each other, which will directly affect the lives and property of all citizens” where the side “conquering the command of the air will have secured a decisive advantage.” It would also be “terrifying in its nature, waged in order to strike at the moral resistance of the foe,” be quick and economical, and be “decided by the forces ready at hand when hostilities begin.”²⁵ This scenario contains the major tenets of Douhet’s thought: the importance of air forces and air superiority, war as a struggle between whole nations and not just armies, the vital role of morale in fighting a war, the belief that attacking morale will shorten wars and make them less costly, and finally the importance of being ready for the next war.

²⁴ Ibid., 202.

²⁵ Ibid., 203. Applying this scenario to World War II, we find that Douhet’s projections on the scale and terror of the war were prophetic, but he was completely wrong regarding its length and cost. Furthermore, Britain, which was highly unprepared at the outbreak of war in 1939, eventually succeeded, whereas, Germany, the nation best prepared for war, suffered defeat.

The key to this preparation is also the central element in warfare for Douhet-civilians. At the end of his essay, Douhet hopes that he has convinced people of “two simple truths” that need to be understood in order to prepare for the kind of war he envisions:

1. All citizens must be interested in the aspects of the war of the future, because all of them will have to fight in it...all forces and materials, tangible and intangible, have to be marshaled for the prosecution of war, and all citizens must become deeply interested in it, discussing and understanding it, in order to prepare themselves for the ordeal if it should come.
2. We must look toward the future with anxious, wide-open eyes to steel ourselves for what may come, so that the reality may not take us by surprise.²⁶

In the first point, the focus is on the human element of the city. It is not enough to train soldiers and build weapons; the citizens must be trained as well, and they must realize that they too are soldiers, and more significantly, targets. While Douhet does discuss the bombing of infrastructure targets, in a conflict where “it is actually populations and nations which come to blows and seize each other’s throats,”²⁷ attacking people directly is the best way to win a war, and preparing citizens the best method of defense.

Billy Mitchell’s *Memoirs and Our Air Force*

Douhet was not the only interwar military analyst to consider the possibilities offered by air power and bombing, nor the first to recognize the importance of cities in warfare. While the United States only fought in WWI for about a year, Americans who participated in and observed the new weapon of aircraft also glimpsed its possibilities. One of the most important was General William “Billy” Mitchell.

²⁶ Ibid., 205.

²⁷ Ibid., 195.

Born in France in 1879, the son of a Democratic Senator from Wisconsin, Mitchell took an early interest in warfare. He left college to volunteer for the Spanish American War, and later served in the Philippines and Alaska.²⁸ Sent to Europe as a U.S. Army observer in 1917, Colonel Mitchell was later promoted to Brigadier General and took command of the American aerial forces in France until war's end in 1918. During this time he met Sir Hugh Trenchard and participated in both land and air combat actions. His 1928 recollections of WWI, published as *Memoirs of World War I: "From Start to Finish of Our Greatest War,"* reveal the origins of his ideas on bombing. He fleshed these ideas out in newspaper articles and later books, such as *Our Air Force: The Keystone of Our National Defense* (1921), *Winged Defense* (1925), and *Skyways* (1930). Like Douhet, he believed the airplane had revolutionized warfare. He also viewed winning air superiority and attacking civilian morale as keys to victory in future wars. In *Memoirs* and *Our Air Force* Mitchell emphasized the targeting of natural resources and analyzed the vulnerabilities of urban infrastructure.

Like many military men who witnessed the use of aircraft in WWI, Mitchell was impressed by the possibilities offered by air power and bombing. Free from the limitations of geography, the airplane now determined how a war was fought, and how long it would last. Mitchell contended in his *Memoirs* that "the day has passed when armies on the ground or navies on the sea can be the arbiters of a nation's destiny in war. The main power of defense and the power of initiative against an enemy has passed to the air."²⁹ He also reported the following after flying over a

²⁸ For a complete biography, see Alfred F. Hurley, *Billy Mitchell: Crusader For Air Power* (Bloomington: Indiana University Press, 1975).

²⁹ William Mitchell, *Memoirs of World War I: "From Start to Finish of Our Greatest War"* (New York: Random House, 1960), 291.

battlefield in 1917, “A very significant thing to me was that we could cross the lines of these contending armies in a few minutes in our airplane, whereas the armies had been locked in the struggle, immovable, powerless to advance, for three years.”

Given that armies and navies had determined the outcomes of wars for thousands of years, this new machine had worked a revolutionary change. To Mitchell, the most important battles in future wars would be fought in the air, not on land or at sea.

Extending this technological insight, Mitchell asserted that cities and civilians, now part of the battlefield, would be playing a greater role in warfare than in the past.³⁰

After the war, Mitchell’s published works and practical demonstrations advanced his theory that air power was supreme and land and sea power were obsolete. Between 1921 and 1923 he showed that naval vessels had become vulnerable to air attack by sinking the captured German battleship *Ostfriesland*, one of a series of test attacks on naval vessels. At the same time, he published *Our Air Power* to lay out his ideas on what an air force should look like, what it should do, and what air power meant for warfare. Mitchell’s book also highlighted how the resources and transport system necessary for a city to thrive were also crucial to the enemy’s war machine.

Mitchell was quite taken with the new possibilities offered by air power, calling it an “undreamed-of strategic reserve” and a “wonderful instrument” for military commanders.³¹ The structure of this “wonderful instrument” has four parts or types of aviation: Attack, Bombardment, Pursuit (fighter planes), and in a subordinate role, Observation Aviation. His discussion of “Bombardment Aviation” provides the

³⁰ Mitchell, *Memoirs*, 59.

³¹ William Mitchell, *Our Air Force: The Keystone of Our National Defense* (New York: E.P. Dutton & Co., 1921), 22.

most relevant material for this analysis, and discusses how to choose targets that will most effectively cripple the enemy's war machine. He defines Bombardment Aviation as "that branch which is designed to carry heavy aerial projectiles over enemy targets, and drop them on those places with a view to destroying the material and killing the personnel."³²

Like Douhet, he valued targets behind the lines and in the cities more those on the battlefield:

The Bombardment Aviation attacks the most dangerous target which the enemy possesses. This may be large concentrations of supplies, far removed from the lines, communications-such as railroads (particularly railroad yards), bridges, either temporary or permanent, ammunition depots, or cities or towns that have been converted for military use.³³

The use of airpower made these targets considerably more vulnerable to attack.

To choose the right targets, an attacking army needs detailed information on how the enemy's war machine works:

A complete plan of reconnaissance is drawn up. This is designed to show what communications [are] behind the enemy's positions; that is, his system of roads, railroads, rivers, canals, steamship lines, or any means that he has for moving troops and equipment, all his industrial districts, all his supply points, and even all his mines and factories.³⁴

The elements of this "reconnaissance plan" correspond to the resources (mines) and connections (communications, transport) an enemy's armed forces (and cities) needed

³² Mitchell also anticipates the split between British area bombing and American precision bombing in his explanation of the development of Bombardment Aviation. He distinguishes between "Day Bombardment", "used for the purpose of attacking military objects either on or immediately contiguous to the field of operations, such as troop concentration, convoys and railway trains", and "Night Bombardment", often carried out on civilians. Interestingly, he considered "Night Bombardment" as more accurate. Later experience would disprove this assertion. *Our Air Force*, 55-56.

³³ *Our Air Force*, 41.

³⁴ *Our Air Force*, 43.

to function. It is easy to imagine them as the food, veins and organs of a human body or other organism.

With regard to civilians, Mitchell viewed them as combatants and legitimate targets:

It may be at times the best strategy to damage and destroy property...The forces that are attacked may be composed largely of women and children and other members of the nation's industrial and economic armies not capable of bearing arms, but extremely important as manufacturers of ammunition, and the many other necessities that are equally as important as carrying rifles in the trenches.³⁵

These "industrial and economic armies" were composed of not just workers, but natural resources and connections to those resources. One can almost imagine a mine or farm as a military camp, marshaling the forces of nature to help win the war. The difference here is that it was the *work* the civilians did in these "armies," not their *lives*, that was most valuable.

Mitchell also realized that the chaos caused by attacks on cities could have a significant effect on the production of war materiel. Here is how he described the impact of German WWI bombing attacks on the French city of Nancy. They were

so severe that they caused the complete evacuation of this great city by the civil population. The working people were in such a nervous state that whenever they heard an air-plane or thought they heard one they stopped, looked, and listened. I imagine that the productive ability of that area alone was reduced seventy-five percent by the action of the German Night Bombardment ships.³⁶

He also speculated on the impact of larger attacks in the future by describing how one explosion in 1920 disrupted the lives of New Yorkers:

communicating and transportation systems running through that part of the city were put completely out of order; the excitement of the people affected

³⁵ *Our Air Force*, xxii.

³⁶ *Our Air Force*, 64-65.

the whole city. In other words, the heart of the financial center of the Western Hemisphere was paralyzed for a time...Imagine what a group of 100 airplanes would do...500 explosions would occur, covering the whole of the lower part of New York, which would practically wreck that entire part of the city; and not only paralyze all the business, but would cause a conflagration such as never been known before...(the population) would be burned like rats in a trap.³⁷

The significant thing to notice here is that while the population suffers from such attacks, it is the disruption of transportation and communications that has the greatest effect. A modern city like New York, Mitchell points out, is highly dependent on its infrastructure and its connections, both internal and external.

Despite his focus on infrastructure targets, Mitchell did see the value of gas attacks and expected their use in future conflicts. In *Skyways*, he speculated on a future war between the U.S. and Europe, where cities will be shut down as a “few gas bombs” cause mass evacuations that will shut down production. He painted a grim picture of the effects of such an attack, as in the surrounding areas “the hundreds of thousands from the great cities cannot be fed” because the “principle bridges on the high roads have been broken down by the attack of aircraft.” He concluded that this scenario represented “a quick way of deciding a war and really much more humane than the present methods of blowing people to bits by cannon projectiles or butchering them with bayonets.”³⁸ This does not mean that Mitchell supported gas attacks on civilians.³⁹ This is the only instance wherein he mentioned gas attacks, and it is in a chapter that urges preparation for a new type of warfare determined by air

³⁷ *Our Air Force*, xxiii-xxiv.

³⁸ William Mitchell, *Skyways: A Book on Modern Aeronautics* (Philadelphia: J.B. Lippincott Co. 1930), 263.

³⁹ Nevertheless, his assertion that allowing large numbers of civilians to starve is more “humane” than trench warfare is highly suspect. It is not my purpose here to discuss the morality of bombing, but in this instance it is worth mentioning that by focusing on infrastructure targets, Mitchell is avoiding the implications of bombing for civilians.

power. He wanted the U.S. to develop an independent air force that could defend against such attacks, not necessarily carry them out. This instance aside, Mitchell sees attacking infrastructure targets and defending against such attacks as the main task of an air force, not killing civilians.

Perhaps the clearest indication of Mitchell's focus on resources and connections can be found in his definition of "vital centers," a term common to all the writings analyzed here. He wrote, "vital centers consist of cities where people live, areas where their food and supplies are produced, and the transportation lines that carry these supplies from place to place."⁴⁰ This quote also shows how Mitchell was one of the few interwar theorists to consider food and agriculture as targets, which he saw as the "means of maintenance" for armed forces.

The published works of Billy Mitchell reveal the importance of resources and connections to resources in the functioning of the enemy's cities and his war machine. While he never explicitly stated that cities were organisms, he understood that supplies and equipment created in cities by civilians depend on natural resources for their production. Mitchell also understood that natural resources and supplies could not get to armies and civilians without functioning transportation systems. Targeting these elements with air power and successfully attacking them would deprive armies of the means to fight, and more importantly, damage civilian morale and possibly force surrender and shorten a future war. This war, however, would be a new kind of war, where civilians are soldiers and airplanes determined outcomes.

⁴⁰ *Skyways*, 253.

British Interwar Theory

Thinkers in Great Britain, the first country to operate an independent air force, were also considering these ideas, ideas which would, over time and under the pressure of actual war-fighting experience, result in the strategy of area bombing. Describing the British commanders he met in 1917, Mitchell wrote, “their leaders were not bound down by tradition as those of the older French and German armies certainly were. Their minds were more elastic and receptive to new developments and new methods.”⁴¹

It is not surprising that these “elastic minds” developed the comprehensive and flexible strategy of “area” bombing. This strategy had its roots in practical experience, but also in the writings of British military men and civilians between the wars.⁴² The works of Colonel J.F.C. Fuller, Basil Liddell Hart, and the most prominent commander, Lord Hugh Trenchard all contain the various elements of this strategy. These men targeted civilians, infrastructure and resources, and understood the crucial importance of transport systems and access to natural resources for both armed forces and cities.

Lord Hugh Trenchard

While known more as an administrator than a theorist, Lord Hugh Trenchard, the Chief of Air Staff (commanding officer of the RAF) from 1919 to 1929, had an important and lasting effect on the development of British bombing theory and practice. Born in 1873, Trenchard learned to fly in 1913 and commanded the Royal

⁴¹ Mitchell, *Memoirs*, 112.

⁴² For a more comprehensive discussion of British interwar air power theory, see Robin Higham, *The Military Intellectuals in Britain: 1918-1939* (New Brunswick, NJ: Rutgers University Press, 1966).

Flying Corps, later the RAF, in France during the war.⁴³ While Douhet published his thoughts in one place (*Command of the Air*), Trenchard's ideas are scattered across memos and manuals, and in the policies of the RAF both during his tenure and well into WWII. Trenchard's ideas evolved over time, changing from opponent to enthusiastic supporter of strategic bombing and area bombing in particular.⁴⁴

Like Mitchell and Douhet, Trenchard firmly believed in the morale effect of bombing, a view he expressed as early as 1917. Recounting his meeting with Trenchard in 1917, Billy Mitchell quoted a report from Trenchard that also expressed this view:

The mere presence of a hostile machine in the air inspires those on the ground with exaggerated forebodings with regard to what the machine is capable of doing...the sound policy, then, which should guide all warfare in the air would seem to be this: to exploit this moral effect of the aeroplane on the enemy, but not to let him exploit it on ourselves. Now this can only be done by attacking and by continuing to attack.⁴⁵

A year later, he wrote his most quoted statement on morale bombing: "At present the moral [morale] effect of bombing stands undoubtedly to the material effect in a proportion of 20 to 1."⁴⁶

Trenchard also recognized the value of bombing infrastructure. In a 1928 memo, he explained the rationale for bombing cities and their infrastructure:

Air power can...penetrate the air defences and attack direct the centres of production, transportation and communication from which the enemy war effort is maintained...To attack the armed forces is thus to attack the enemy at his strongest point. On the other hand, by attacking the sources from which these armed forces are maintained infinitely more effect is obtained...we shall

⁴³ For an in-depth biography, see Andrew Boyle, *Trenchard* (London: Collins, 1962).

⁴⁴ Meilinger, *Paths of Heaven*, xiv.

⁴⁵ Mitchell, *Memoirs*, 107.

⁴⁶ Quoted in Tami Davis Biddle, *Rhetoric and Reality in Air Warfare*, 48.

attack the vital centres of transportation and seriously impede these arms and munitions reaching the battlefield.⁴⁷

These “vital centres” were of course cities, which were, however, not to be bombed “for the sole purpose of terrorising the civilian population.”⁴⁸

Here again are the concepts included in the works of Douhet and Mitchell:

The revolutionary nature of aircraft, the value of attacking supply systems, transportation, and “vital centres”, and the importance of morale, but not bombing civilians directly.

Civilians would, however, now experience the terrors of the battlefield:

The great centres of manufacture, transport and communications cannot be wholly protected. The personnel, again, who man them are not armed and cannot shoot back...this new warfare will extend to the whole community the horrors and suffering hitherto confined to the battlefield.⁴⁹

Trenchard continued to influence policy into World War II, writing a 1941 Memo to the Air Staff that highlighted the role of geography and natural resources in warfare:

It must be realised that to-day the Sea is a Source of Weakness to us as well as a Source of Strength...Germany, owing to her land frontiers, is enabled to draw upon the resources of the whole of Europe and the vast areas of Russia and beyond. We cannot therefore find that weak point which we should attack either on the sea or by the blockade.⁵⁰

Trenchard recognized the value of both civilian and military targets, and his memos are a combination of the theories of the other thinkers analyzed. Trenchard was not a pure theoretician like Douhet or a brash promoter like Mitchell: he was

⁴⁷ Hugh Trenchard, “Memorandum by the Chief of the Air Staff for the Chiefs of Staff Sub-Committee on the War Object of an Air Force, 2nd May 1928,” in Charles Webster and Noble Frankland, *History of the Second World War: The Strategic Air Offensive against Germany 1939-1945; Volume IV: Annexes and Appendices* (London: Her Majesty’s Stationery Office, 1961), 74.

⁴⁸ *Ibid.*, 73. Like Mitchell, Trenchard also avoided dealing with the inevitable civilian casualties that would result from the policies he promoted.

⁴⁹ *Ibid.*, 75-76.

⁵⁰ *Ibid.*, 194.

mostly a bureaucrat. Nevertheless, his position atop the RAF and ability to combine and clarify the ideas of others gave him tremendous influence on British bombing policy and the “area bombing” strategy.

Colonel J.F.C. Fuller’s *on Future War*

Like the other air-war thinkers analyzed here, Colonel J.F.C. Fuller came out of World War I convinced that morale was the key to victory, that “the true object of war is the demoralisation of the enemy’s will, for on this will is his policy founded.”⁵¹ He also wanted to avoid trench warfare at all costs. Fuller, however, saw the tank, not the airplane, as more effective in accomplishing this goal. His ideas, as expressed in his 1928 *On Future War*, reveal a lot about the changing nature of warfare after WWI. He analyzed the impacts on energy sources used in war, the role of civilians and strategies to attack the enemy.

In his analysis of World War I and thoughts on future wars, Fuller used terms associated with human bodies and organisms to describe the enemy country and its armed forces, which had “nerves” (the population’s morale) and a “stomach” (food and other necessities). During WWI, Fuller argued, resources, not soldiers, were the key targets. The belligerents’ military leaders became aware of the “economic foundations of the war,” realizing that “if the food supply of the enemy could be cut off, the will of the civil population would be undermined, and with this loss of will to endure, their military forces would be rendered useless.”⁵² Nations could not fight if their “stomachs” were empty. Fuller presented the example of Great Britain’s blockade on Germany in WWI, which successfully attacked Germany’s “stomach.”

⁵¹ J.F.C. Fuller, *On Future War* (London: Sifton Praed & Co. Ltd., 1928), 168.

⁵² *Ibid.*, 172.

Significant protein shortages caused widespread misery. After unsuccessfully substituting potatoes for meat, Germans turned to the more nutritious but less loved rutabaga. The tuber was misidentified as a turnip and the term “turnip winters,” entered historical parlance.⁵³ While he viewed the blockade as contributing to Britain’s victory in WWI, Fuller concluded that such actions were unfeasible in future wars. Such a “siege of an entire nation” would be too costly, because the enemy’s aircraft and tanks allowed him to more easily get around blockades. It was more economical, Fuller concluded, to attack the enemy’s “nerves,” rather than his “stomach,” to damage morale and force surrender.⁵⁴

The key element of this nervous system was the populace, in particular city-dwellers. In an age of steam engines, railroads, telephones and telegraphs, the urban dweller was much more vulnerable to attack. As a result he/she was also more likely to feel the pain of war and demand an end to it. Fuller proposed using poison gas, aerial bombing and tanks to overcome the stalemate of trench warfare. In the end, all three engaged civilians as combatants.

Like Douhet, Fuller put great stock in the power of gas as a weapon of terror, or as he called it, a “demoralising agent.” Gas was also easy and economical to produce, since it was commercially manufactured and the ingredients were widely available. It was “non-lethal” in that it only wounded its victims, who would recover enough to support the economy and trade with Great Britain.⁵⁵

Fuller, unlike Douhet, tempered his faith in air power with practical considerations. While aircraft, being independent of terrestrial limitations, would

⁵³ Chickering, *The Great War and Urban Life in Germany*, 269-271.

⁵⁴ Liddell Hart, *Paris*, 174.

⁵⁵ Fuller, 181.

undoubtedly play an important role in future wars, they were limited by gravity, open to attack from all sides and needed a place to land.⁵⁶ To Fuller, the best way to employ aircraft was in conjunction with land and sea attacks. For example, the best time to attack cities and damage morale was after a land attack or naval blockade, when the people had already experienced the pain of war. In the end, he saw airplanes as auxiliaries to land forces and delivery systems for gas bombs, not as the main weapon of warfare, as Douhet did.⁵⁷

Fuller was one of the few better known writers to consider the consequences of disrupting the enemy's nervous system and stomach for the attacker, not just the victim. He reminded his readers that in a time when countries had become more interdependent, "by destroying the enemy's resources and debilitating his people we are economically, and this case also ethically, striking a blow, not only against ourselves, but against the whole civilised world."⁵⁸

For Fuller, bombing in future wars was more about fear and morale, and less about resources and infrastructure. While cutting humans off from natural resources (especially food) had worked in the past, it was more economical to attack civilians directly. Ideally, this would be done by using gas to bring fear (although not death) and tanks to overcome natural barriers and bring artillery fire to the cities. To Fuller, while both were important, the best part of the human/nature relationship to attack was the human element. His emphasis on targeting morale would influence the later British practice of WWII "area" bombing.

⁵⁶ Ibid., 202.

⁵⁷ Ibid., 215.

⁵⁸ Ibid., 166-167.

Basil Liddell Hart and *Paris, or the Future of War*

Like Douhet, Trenchard, and Fuller, Basil Liddell Hart also valued morale as a target, but his ideas on the subject, published in *Paris, or the Future of War*, reveal a broader understanding of the importance of connections to natural resources in the functioning of a city. His book speculated on future conflicts and proposed ways to avoid long, costly and exhausting wars. The goal for an attacker was to “subdue the enemy’s will to resist, with the least possible human and economic risk to itself.”⁵⁹ Like Fuller, he believed that the best strategy was not to attack the enemy’s “stomach” via naval blockade like in WWI, but target the enemy’s “nerves” through direct attacks on cities and civilians. He based this assertion on the fact that the inhabitants of modern industrial cities were easier to rattle, and that modern states and economies had grown highly interconnected. The “progress of civilization” had made the nation’s morale, its “nerve system,” easier to disrupt than in “earlier and more primitive times.”⁶⁰ Bombing cities could demoralize these “sensitive” people by exposing them to natural forces such as weather. He cited an example of this in his eyewitness account of the bombing of Hull during WWI: “Women, children, babies in arms, spending night after night huddled in sodden fields, shivering under a bitter wintry sky-the exposure must have caused far more harm than the few bombs dropped from two or three Zeppelins.”⁶¹

⁵⁹ Liddell Hart, *Paris*, 25.

⁶⁰ *Ibid.*, 42.

⁶¹ *Ibid.*, 45.

Upsetting the routine of everyday life was also an effective way to attack morale:

A modern state is such a complex and interdependent fabric that it offers a target highly sensitive to a sudden and overwhelming blow from the air. We all know how great an upset in the daily life of the country is caused at the outset of a railway strike even.⁶²

This “complex and interdependent fabric” also meant that the effects of attacks could boomerang on the aggressor, as “the commerce and prosperity of civilized nations are so closely interwoven and interdependent that the destruction of the enemy country’s economic wealth recoils on the head of the victor.”⁶³

Liddell Hart recognized the strategic value and vulnerabilities created by the interconnected nature of modern cities and their reliance on outside resources. In doing this, he showed that he understood the vital role of connections to other cities and regions, as well as natural resources, in the functioning of cities and economies. By pointing out the vulnerabilities that such connections represented, he anticipated links between the contemporaneous military strategy and the interplays between urban and environmental history.

Conclusion

Studying the ideas of the theorists discussed here has revealed the links between military, urban, and environmental history and created a more comprehensive understanding of the role of cities, natural resources and the natural environment in warfare. All of these men recognized that to achieve victory in a modern “total” war, a nation must not only defeat the uniformed soldiers on the battlefield, but also the civilian “soldiers” in the cities and the war machine they

⁶² Ibid., 47.

⁶³ Ibid., 49.

supported. They believed that the best way to do this, and shorten future wars, was to attack the morale of the people in the cities. This could be done via direct attack, as demonstrated most strongly in the works of Douhet, Fuller, and Liddell Hart, or by attacking resources and infrastructure, as seen in Mitchell and Trenchard.

The different strategies and points of attack these men proposed were based on a substantial understanding of the crucial role of connections to natural resources and transport systems in the functioning of cities. While not explicitly stating that countries and the cities within them were “organisms”, these men referred to “stomachs” and “nerves”. These metaphorical body parts were part of the infrastructure that connected natural resources to factories to provide material support for the enemy’s war machine and kept up the morale of city dwellers, whose moral support was vital to fighting a war. The goal of strategic bombing, whether of the “area” or “precision” variety, was to break this set of connections and strike at the weakness of the modern city, its citizens. Air attacks, by depriving the enemy’s urban dwellers of the necessities and conveniences of modern urban life, could, in theory, degrade their urban landscape so much that they would demand an end to the war. In this new kind of war, the landscape offered minimal protection, the sky had become a battlefield, and a city street could pose just as much danger as a trench.

Finding the germs of ideas later developed by urban environmental historians in the works of Liddell Hart and other famous military strategists offers an encouraging sign for further mixing of historical disciplines. Other military thinkers and leaders could share Douhet, Mitchell, Trenchard, Liddell Hart, and Fuller’s potential as “proto-environmental historians”. This opens up many possibilities for

future research and expanding links between military strategies and environmental factors discovered by Brantz and other environmental and military historians. For example, the success or failure of military campaigns has partly depended on natural forces and how armies dealt with them. Military historian G.E. Wood described in his 2004 *Mud: A Military History* how the twice-yearly mud plague known as the *rasputitza* was a factor in the failure of the German invasion of the Soviet Union. Dirt roads became huge morasses of mud, ensnaring tanks, men and artillery, bringing the German *blitzkrieg* to a screeching--or rather a squelching--halt. The *Wehrmacht* might have fared better had it more completely understood the characteristics of the Russian environment.⁶⁴

The interwar theorists understood the system of connections between cities and natural resources that made cities and war machines function. They developed strategies of “area” and “precision” bombing targeting the most vulnerable elements--civilians and infrastructure--in that system. The next two chapters explore the application of these air-war strategies to Munich during WWII. Munich’s wartime amputation of its connections between people and natural systems and set the stage for their postwar re-generation covered in chapters 5, 6 and 7.

⁶⁴ G.E. Wood,, *Mud: A Military History* (Washington, D.C.: Potomac Books, 2006), 33.

Chapter 3

Munich, The “Middle City”

You have to remember that Munich then wasn't the city it is now...Munich was kind of a “middle city”. In comparison to Hamburg or Berlin or Stuttgart, Munich was actually a little nest.¹

This is how Dr. Franz Weber remembered his home city of Munich in the years before World War II in an interview in February 2010. In other memoirs, people tended to focus on the cultural aspects of the city, on its parks and cafes. They did not speak of the gritty industry of Stuttgart, the political and social whirlwind of Berlin, or the bustle of the port of Hamburg. Instead, like this excerpt from Hermann Proebst, they tended to remember pleasant smells and other natural features:

when the summer heat had broiled a long time...Around evening a wonderfully fresh breeze blew through the little gate of the courtyard garden. With every breath the smell of many roses came, first through the spraying haze of the fountains and then through the coolness of the shade in the arcades. And now, after its breakthrough into the steady heat over the glowing asphalt, small whirlwinds began to form, which mixed the breeze of the exhaling garden with all kinds of pastry shop smells, of cream puffs, pineapples, chocolate tortes and whipped cream.²

While Munich lacked the perceived sophistication or grit of these other cities, it had a substantial population (860,000) and many cultural treasures, and was a former imperial (now state) capital. Its railway stations formed a nexus of trade and transport that earned the city the moniker “Hub of the South” (*Drehscheibe des Südens*), moving resources and products from the region, the country and foreign nations. It sat astride firmly “in the middle” of major transport routes. Though it did

¹ Franz Weber, interview.

² Hermann Proebst, “Denk ich an München,” in Hermann Proebst, ed., *Denk ich an München: Ein Buch der Erinnerungen* (München: Gräfe und Munzer Verlag, 1966), 10.

not have the political significance of these other great German cities, the “middle city” would become a major target for Allied bombing in WWII. As the largest city in Bavaria, largest south German state, Munich would also play an important role in postwar German recovery.

The city is also something of a “middle child” in terms of scholarly literature on the impacts of WWII and its aftermath. Munich’s experience during wartime has received little attention, particularly in English-language scholarship. There are only two studies of the bombing of Munich written in German, Irmtraud Permooser’s *München im Bombenkrieg* and Hans-Gunther Richardi’s *Bomber über München*, and none in English.³ The substantial literature on postwar Germany has mostly overlooked Munich’s experiences. Environmental history has not yet affected Munich’s urban history, but as discussed in the first chapter, environmental historians such as Cronon, Melosi, and Sieferle have provided tools for understanding the vital role of this city’s connections to natural resources. The previous chapter showed that military men like Douhet, Mitchell, and Trenchard also understood the importance of these connections and hoped to prevent another horrible war by targeting them and the urban dwellers who depended on these resources.

This profile of the city of Munich before the war offers a brief environmental history and illuminates the importance of the city’s connections to natural resources and the vulnerabilities these connections exposed. It focuses on three crucial prewar connections, to the Ruhr, Alpine rivers and Eastern provinces. Separately and in

³ Irmtraud Permooser, *Der Luftkrieg über München 1942-45: Bomben auf die Hauptstadt der Bewegung* (Oberhaching: Aviatic Verlag, 1997) and Hans-Gunther Richardi, *Bomber über München: Der Luftkrieg von 1939-1945 dargestellt am Beispiel der “Hauptstadt der Bewegung”* (München: W. Ludwig Buchverlag, 1992).

concert, they shaped the character of the city of Munich and knit together its human inhabitants with the geography amid which they lived. As will be seen, Allied bombing disrupted and then broke these particular connections, unleashing the greatest impact on the everyday lives of Munich's citizens.

Munich's location in Bavaria, just miles from the Alps and far from coal sources, has substantially impacted its development and helped make it unique. Geographically speaking, the city lies on a plateau of stone about 1800 feet deep, surrounded by moors, valleys and forests. Centered in an agricultural area, with no large cities in its immediate area, Munich forms the center of a "monocentric" region, as opposed to the cluster of cities in the Ruhr that compose a "polycentric" structure.⁴ Though this would seem to isolate Munich, the absence of nearby cities and lack of heavy industry forced the city to tie itself closely to other parts of Germany.

To accomplish this, Munich needed a transport system that brought resources such as coal from other regions, and sent goods, such as foodstuffs, in exchange. R. Geipel and G. Heinritz's edited volume *München: Ein sozialgeographischer Exkursionsführer* ("Munich: A Socio-geographic Excursion Guide"), points to the role of transport and trade in the "dynamic" character of Munich's development. Roads, rivers and rails shaped the city's growth since its founding in 1158. The city began as a trading post on the Isar River, occupying a strategic location on the salt road from Oberföhring, part of the east-west trade route that ran from Vienna to Nuremberg and points west. The Isar also linked Munich to Italy, carrying wood, passengers and other goods to the Danube, where they were shipped to Vienna.

⁴ R. Geipel and G. Heinritz, Hrsg., *München: Ein sozialgeographischer Exkursionsführer* (Kallmünz/Regensburg: Verlag Michael Lassleben, 1987), 14.

Munich's transport system, especially railroads, discussed below, would drive its rise from these humble beginnings to a royal residence and cultural center in the eighteenth and nineteenth centuries, and an industrial center and world metropolis after WWII. In 1939, when the Nazi Government provoked WWII, Munich, however, still functioned more as a trading center, albeit on a European scale, and a cultural center than an industrial powerhouse. The city's relatively late industrialization diverted the traditional "dirty" industries such as steel plants, to other areas. Lacking a traditional industrial base, Munich welcomed specialized, high-tech companies such as BMW (*Bayerische Motor Werk*) in 1917.

Connections to Coal

Munich's intimate dependence on connections to distant but indispensable natural resources applied especially to coal. Despite the absence of heavy industry, Munich and its citizens relied primarily on coal to provide fuel, electricity and even food. Munich used basically three types of coal: pitch coal (*Pechkohle*), hard coal (*Steinkohle*) and brown coal (*Braunkohle*). Coke, a coal by-product, was also imported. People used coal to keep warm, cook their food, provide them with gas and electricity, and run the trains that brought the natural resources that they needed to survive. In Franz Weber's household, coal, not electricity, was still the most important commodity:

There were still not any electrical appliances. There were electric stoves, but ours was gas-powered. There were no washing machines, no dishwashers. We had record-players but you had to hand-crank them...the necessity for electrical power wasn't really there yet...the railroad still mostly used coal-there were steam trains and diesel...the demand just wasn't as high.⁵

⁵ Franz Weber, interview.

Because of its centrality to nearly every function that made the city habitable, vulnerability to coal supply amputations was crucial to Munich and its citizens. If its transport system was severed or its coal supplies diverted to the military or other parts of Germany, Munich would suffer. A closer inspection of the local coal supplies in Bavaria and imports of coal to Munich in 1940 demonstrate this problem.

Of the three types of coal, pitch-coal, found primarily in the foothills of the Alps, was the closest source to Munich and thus the most reliable supply available. A high-quality coal similar to anthracite (high-quality hard coal), but younger, pitch coal has a high heating value and is useful for household heating. It is also, however, composed of 50% slag, which makes it difficult to mine.

Brown coal, normally located down to 30 meters below the ground, was found in large amounts in central Germany, mostly in the state of Saxony around Leipzig and Dresden, and in the Sudeten region of Czechoslovakia. It was delivered raw or pressed into briquettes (used in coal stoves and heaters) for easier transport, with the remaining coal used in the immediate area. It was available from local sources in the Upper Palatinate region of Bavaria north of Regensburg, but was more economical to import from other regions.

Of the three types, hard coal was the most useful but also the least available from local sources. The only nearby Bavarian source was the Stockheim mine in Upper Franconia, which produced only a small percentage of Bavarian coal resources. In 1938, total production of hard coal in Bavaria was 22,000 tonnes, compared to 1.5 million tonnes of pitch coal, and 1.25 million tonnes of brown coal.

In normal pre-war times, Bavarian mines could supply only between one-sixth and one-fifth of the state's total coal demand, so imports from other regions were crucial.⁶

For Munich, this meant that sources in Upper Bavaria could supply only the pitch coal. The rest had to be transported some distance from outside sources. Table 1 below lists the coal types and sources for Munich in the 1940-41 "coal year" (April 1940-January 1941):

Table 1: Munich Coal Imports, 1940-41 Coal Year⁷

1940/1941 (15 April 40-31 Jan. 1941)

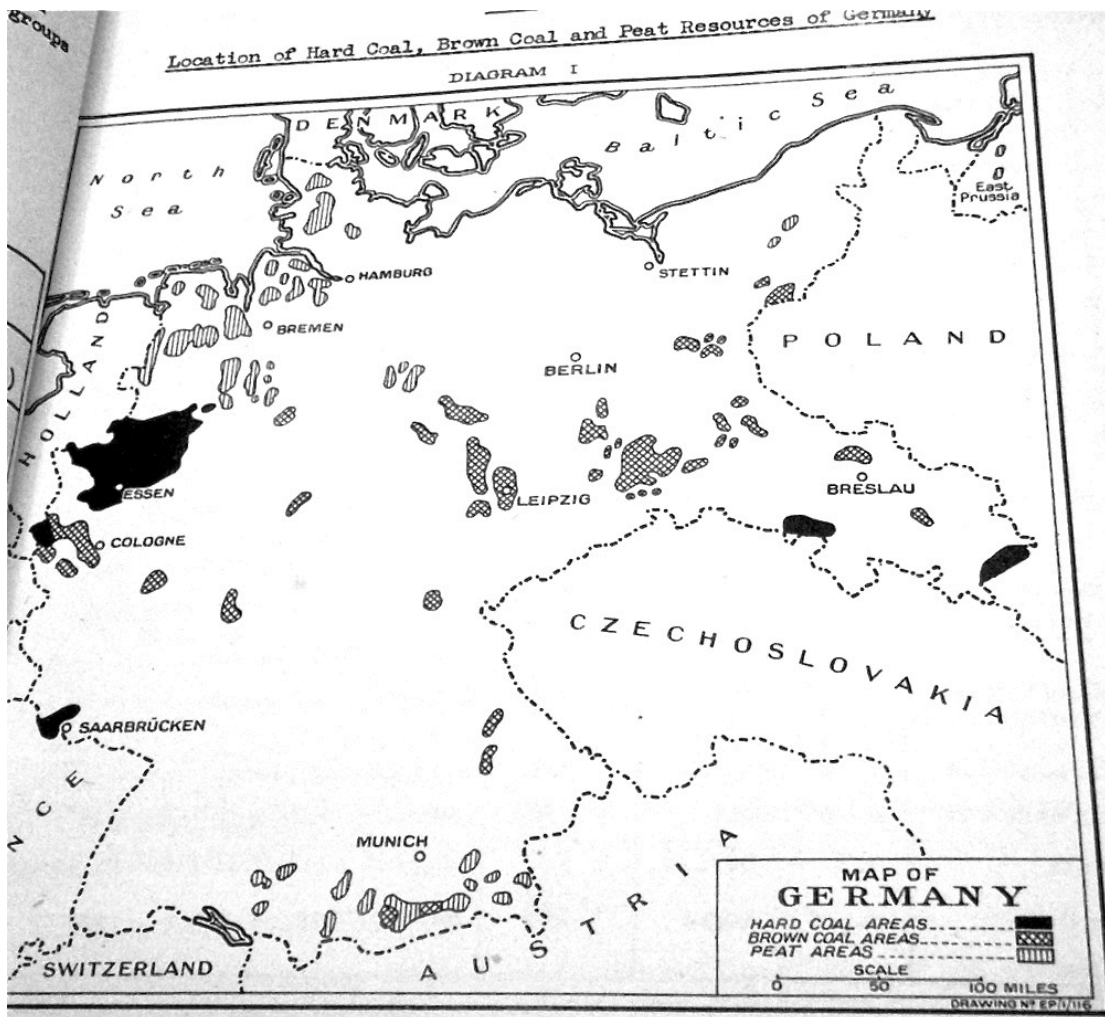
COAL TYPE	SOURCE
Pitch Coal	Upper Bavaria
Brown Coal	Sudetenland
Brown Coal Briquettes	Central Germany, Rhineland
Coke	Ruhr, Aachen, Saarland, Silesia
Hard Coal	Ruhr, Aachen, Saarland, Silesia, Saxony, Sudetenland

The predominance of imports was a situation that would come back to haunt Munich's people and their Allied occupiers. After the war, supplies that formerly arrived from areas ceded to Poland (Silesia), returned to Czechoslovakia (Sudetenland), and falling into the Soviet occupation zone (Saxony) became difficult to access or simply closed. The following map illustrates this situation:

⁶ "Der Bayerische Kohlenbergbau," *Mitteilung des Bayerischen Statistischen Landesamts*, Heft 13(30 Sept, 1946), 1.

⁷ Source: "Lieferung von Kohlen 1940-1943," Stadtarchiv München, *Kriegswirtschaftsamt* 450.

Figure 1: Munich's Connections to Coal Before the War



Source: "Germany: Electricity Supply, Part I: Generation and Transmission," Report No. L 294/1/z, Ministry of Economic Warfare, Enemy Branch, The National Archives of the UK, Public Record Office, FO 837/446

Coal And Gas

Coal also supplied a key ingredient for Munich's gas supply. Gas made from hard coal first lit streets in October of 1848. Coal gas for urban public lighting was not replaced by electric lights until the late 1890s.⁸ Berlin had used gaslights since 1826, but Munich's first gaslights were delayed, even though local scientists had been

⁸ Zell, 8.

experimenting with the idea since 1815. Aside from Munich's status as a royal capital (kings could be quite reactionary regarding lighting), the biggest hindrance to gas lighting in Munich was linked to coal supplies. Hard coal for producing gas was not available until the completion of the rail line to Zwickau (in Saxony, also birthplace of the infamous postwar Trabant car) in 1850. The available coal from Upper Bavaria could not be converted to gas.⁹

This vulnerability led to the addition of other materials for gas production. Until April 1912 the city used pure hard coal gas, whose quality was determined by lighting power. After this gas from coke was also added, either as blue or carbureted coke gas necessary to achieve the required heating effect of the gas. After 1927, so-called "clear gas" (*Klär gas*), produced from the sewage treatment plant at Grosslappen, was also piped to the new gasworks at Dachauer Strasse and mixed with the other two, creating a blend thereafter known as "city gas" (*Stadtgas*). Dachauer Strasse would become a target for bombing raids during the war.

Increased demand for gas after 1937 spurred expansion of the production and delivery of gas in Munich. Eventually the system acquired the capacity to convert 1000 metric tons of coal into 300,000-320,000 cbm of gas in 24 hours.¹⁰ The pipeline system consisted of 1.2 million meters of low-pressure lines and 200,000 meters of mid- to high-pressure lines that supplied an area of 460 quad-kilometers (qkm).¹¹ Keeping this system supplied with coal was crucial to keeping Münchenerers safe in well-lit streets and warm in their houses, schools, and offices. Like the railroads and

⁹ Stadtwerke Gas München, *100 Jahre Gas in München* (München: Stadtwerke Gas München, 1950), 11. Unless otherwise indicated, this study refers to amounts in metric tons (tonnes) rather than tons.

¹⁰ *Ibid.*, 71.

¹¹ *Ibid.*, 100.

electrical utilities, the gasworks relied heavily on Munich's connections to outside sources of coal.

Railroads

Railroads enabled Munich's industrial development. Located in southern Germany near the Alps, far from the coal resources of the Ruhr and Saarland in the west and Saxony and Silesia in the east, the city by 1900 had not developed the heavy industries common to areas such as the Ruhr. Munich grew more as a trading city than a manufacturing center. An imperial capital until 1871, its rulers resisted industrialization and its associated problems such as air and water pollution and labor proletarianization. Munich did, however, develop varied industries that differed from conventional norms. Its imperial rulers did promote small to mid-sized firms that produced goods based on scientific research. In 1826, King Ludwig I moved Bavaria's main university, Ludwig Maximilian University, from Landshut to Munich. In 1868 King Maximilian II founded Munich Technical University (*Technische Universität Münchens*). These early scientific-research complexes helped establish Munich as a center that fused basic research with applied science and technology. Not until after WWII did Munich would grow to become Germany's largest industrial city.¹²

What advantage the city did enjoy in the nineteenth century was its strategic location on trade routes within Germany and between Europe's regions. The coming of the railroads greatly enhanced this advantage and compensated for Munich's

¹² Landeshauptstadt München, Referat für Stadtplanung und Bauordnung, ed., *Stadt, Bau, Plan: 850 Jahre Stadtentwicklung München* (München: Franz Schiermeier Verlag, 2004/2008), 69.

weakness in coal resources with a strong transport system. By sustaining Munich's connections to coal, the railroads held the key to Munich's twentieth-century survival. They also established the city's role as a vital link in Germany's overall transport system. The self-declared "Hub of the South," Munich connected trains carrying goods and passengers from within Germany and also from other countries to their destinations throughout Germany.

Railroads also gave Munich's industries access to markets within Germany and Europe, as well as overseas. One of Munich's most famous industries, brewing, typified this mutual advantage. Once railroads connected the city to the rest of Germany and Europe, Munich's brewers exploited access to markets in these areas, and also overseas. Vital rail links increased beer production, which in the later years of the nineteenth century, went from 200,000 hectoliters to more than 500,000 hectoliters in less than a decade. By 1865, Munich's largest brewery, Löwenbräu, itself produced as much beer as all of the city's breweries had in 1815. Carl von Linde's development of refrigeration machines also increased beer production substantially.¹³

Munich's burgeoning rail links in the nineteenth century highlighted the city's new importance as a rail hub. The first railroad route connected Munich to the town of Lochhausen in 1839, with a line to Augsburg completed the following year. In 1841, the Muffat factory built the first locomotives in Munich, and the city eventually became a key stop on the high-traffic international routes linking Paris to Vienna, and Berlin to Rome. These connections further cemented Munich as an important center for agricultural trade in wood, cattle, grain and vegetables. By 1876, just a quarter-

¹³ Landeshauptstadt München, *Stadt, Bau, Plan*, 75.

century after its first train puffed to Lochausen, Munich's three train stations connected people and goods to all of the major railroad stations in Bavaria and beyond via eight major lines.

By 1939, Munich had added two more train stations, and operated as a fully integrated transport hub for regional and international rail traffic.¹⁴ Two years later, in the 1941 *Münchener Jahrbuch* (Munich Yearbook), Dr. Ernst Ferdinand Müller, the editor, described the significance of Munich as a rail hub for all of Germany:

Munich is next to Vienna the most important outpost of the Reich in the South. It is the invasion gate to the Alpine region, Bavaria's most important railroad hub, collection point for traffic to and from Italy, and because of the proximity of the Danube shipping route, the most closely linked to the trade between the Reich and the whole southeast European region.¹⁵

Statistics bear this out: in 1940, total railroad goods traffic in Munich reached 5.5 million tonnes (3.8 million in, 1.7 million out) or 6.5 tonnes per capita. War's destruction--especially the railroads' amputation--yielded a far different situation. In 1947 total freight had plummeted 50 percent to 2.76 million tonnes total, (2 million in, 760,000 out) or 3.5 tonnes per capita. In turn, severing the links that enabled imports of coal from other parts of Germany threatened to grind the railroad traffic that passed through Munich to a halt.¹⁶

Electricity and Water: Fluid Connections to the Alpine Rivers

Munich's electricity supply tied city people to coal. Coal, however, functioned not as a primary electricity source, as in most other German cities, but as a key

¹⁴ For a complete history of railroads in Munich, see Klaus D. Korhammer, Ernst Rudolph, Armin Franzke, *Drehscheibe des Südens - Eisenbahnknoten München* (Darmstadt: Hestra Verlag, 1991).

¹⁵ Dr. Ernst Ferdinand Müller, *Münchener Jahrbuch* 52 (München: Carl Gerber, 1941), 9.

¹⁶ Helmut Koenig, *Beiträge zur Soziogeographie Münchens* (München: Wiederaufbauamt der Landeshauptstadt Münchens, 1950), 82.

supplement to abundant local hydropower. Unlike cities in northern Bavaria, which were closer to coal sources and thus had cheaper transport costs, Munich's proximity to the Alps and their rivers made hydropower competitive.

Since its founding Munich's close connection rivers produced an ultimate reliance upon waterways, both external and internal. The city's main source of water, the Mangfall Valley, sits in the nearby Bavarian Alps. There, the city's chief river, the Isar, rises before flowing 263 kilometers (163 miles) to confluence with the Danube. Though always overshadowed by the Danube to the north, the Isar integrally shaped Munich's twentieth-century identity, separating the eastern part of the Old City (*Altstadt*) from the middle-class neighborhoods of Bogenhausen and others.

In 1939, the Isar still flowed relatively unchecked out of the Alps. As writer Hermann Proebst trilled, the Isar was "still a wild river, springing from the glacier bed of the mountains then over shiny pebbles and rock fissures, whirling around green islands, into a labyrinth of tributaries, then reassembling itself under the yoke of the bridges." Canals and smaller brooks (*Stadtbäcker*) composed part of the distinctive urban landscape of the *Altstadt*. Even by 1939, the city still echoed with what Proebst called a "mountain river atmosphere" that combined waterways with the open spaces and "quietly breathing park landscape" of the English Garden. The river and *Stadtbäcker* did not just ornament their city, making people happy. They also provided water for livestock, clothes washing, fire suppression, and "drove many mills and produced all kinds of useful work."¹⁷ Many factories exploited the available waterpower. For example, the Roeckl Glove Factory moved south out of the old city

¹⁷ Hermann Proebst, "Denk ich an München," 10.

to the Isartalstrasse in the Isarvorstadt neighborhood, where it used the brooks to power the factory and leather tannery.¹⁸

One of the most important kinds of “work” the waterways did was to generate hydroelectricity. Harnessing water for electricity generation began as soon as Münchener started using electricity in the 1880s. The first buildings in the city to be lit by electric lights included the Main Train Station (*Hauptbahnhof*) and Bavarian Parliament. In 1884, the first formal plans were made to use the power of the Isar and other rivers, the so-called “white coal” of Bavaria.¹⁹ The first hydro plant on the Isar, the *Maxwerk*, was completed in 1884 and installed under the Maximilian Bridge (*Maximiliansbrücke*) with a capacity of 530 horsepower. Interestingly, the proposed design had to fit in to the local landscape so as not to spoil the river’s aesthetic. The plant had two turbines, which, because the Isar flowed unhindered into the city, needed to be maintained at a flow of 15 cubic meters (cbm) per second at high water with a fall of 3.3 meters, at low water 8.27 cbm/sec and 5.5-meter fall. In subsequent years, more hydro plants were added including the new and old Upperborn Plants, the Leitzach Plant (in 1915) and the three South Plants (Südwerke) I, II, III on the Isar.²⁰

By the height of WWII, Munich derived an extraordinarily high percentage of its electricity from hydropower. In 1941, the city’s total generation capacity was 387,736 MWh, with 16.8% generated by coal-fired steam plants, 69.8% from hydropower, and 13.4% imported from outside sources in Central Germany and

¹⁸ Landeshauptstadt München, *Stadt, Bau, Plan*, 71.

¹⁹ C. Zell, *Geschichte der Elektrizitätsversorgung Münchens: gewidmet den Städtischen Elektrizitätswerken Münchens zu ihrem 50-jährigen Jubiläum* (München: Städtische Elektrizitätswerke München, 1949), 26.

²⁰ *Ibid.*, 13. The role of hydropower in WWI was significant, as it made it possible for commercial, industrial and household users to be protected from electricity rationing. *Ibid.*, 25

Austria.²¹ The statistics for Bavaria as whole were even more tilted toward hydropower, which generated a full 86% of all public utility output in 1940.²²

These statistics obscure coal's importance to the electrical system in Munich and Bavaria. While Munich had access to abundant hydropower via the Alpine rivers, it still needed coal to provide power during the winter or in times of low rainfall. Though a small share of annual power production, coal's contribution was especially timely. Weather largely determined what kind of electricity (hydro or coal-fired) Münchenerers would use. During the summer, ample hydropower was available as long as rainfall was sufficient and the previous winter's snow-pack had been normal. In the winter though, when the Alpine rivers became icy or frozen, the flow of the Isar dropped and coal-fired plants helped take up the slack. Assuming coal arrived from the usual sources, the invaluable electricity kept flowing.

The upshot of this system was that electricity supplies in Munich, while flexible and adaptive, contained vulnerabilities to the actions of humans and nature. The connection to the Alpine rivers depended on natural forces-rain--and was vulnerable to changes in the weather. Drought could reduce river flows to a trickle. Extreme cold make the rivers into fields of ice. The connection to coal depended on human actions for supplies and transport. It was vulnerable to interruptions in rail service and coal shortages. During the war, human actions threatened the connection to coal. Authorities diverted coal supplies for military uses. The Red Army took over

²¹ It is important to note that due to losses in transmission and efficiency, generating capacity is always higher than actual consumption. In terms of actual usage Munich consumed 299,013 MWh in 1941, with 22% to households, 14% to streetcars, 35% to industrial users, 10% to commercial users, and 16.5% consumed by the utilities themselves. It is interesting to note that only 0.1% went for streetlights, which still relied on gas. Zell, 46.

²² Bayerischen Statistischen Landesamt, *Statistisches Handbuch für Bayern 1947* (München: Michael Beckstein Verlag, 1947), 134.

coalfields in the East. Bombs damaged the railways and power plants. These actions made it difficult for coal-fired electricity to fulfill its role as a supplement to hydropower in winter. Threats to coal and water supplies were threats to the electricity supply. This was a situation that would lead to dire consequences after the war, as will be discussed in Chapters 5,6 and 7.²³ Because of its vulnerability to drought and cold weather, hydropower could not reliably supply all of Munich's electricity needs. Coal, while small in amounts, was a giant in terms of keeping the electricity flowing, especially in winter.

Food: The Connection to the Eastern provinces

Common images of Munich, whether in present day or the past, tend to feature food: sausages, pretzels, potatoes (*Kartoffeln*), and beer, served in huge (to American eyes) steins. A focus on finished foods overlooks the varied origins and complex routes shaped by the ingredients that go into these culinary delights. Munich and the surrounding province of Bavaria occupy mostly agricultural land, most of it better suited to raising potatoes, cattle and livestock rather than grains such as wheat and barley. It is no surprise then that before WWII, Bavaria imported a substantial amount of grain from Germany's eastern provinces, which were more suitable for growing wheat, oats, and barley. The centrality of grain imports, transported by rail long distances from the East, would hit home after the war. After spring 1945, Germany's primary grain-producing regions east of the Oder-Neisse Line

²³ At a Munich City Council meeting in July of 1947, the councilmember in charge of utilities reported "hydropower is now, as it was before, decisive for Munich's electricity supply," *Stadratsprotokolle*, 1947.

(Pomerania, Mecklenburg, East Prussia, etc.) fell under Soviet control, later becoming parts of Poland and East Germany.

Comparing statistics from Germany in 1937 versus the rump Germany (west of the Oder-Neisse Line) in 1946 reveals the importance of these eastern provinces. In 1937, Germany had an area of roughly 471,000 square kilometers. After losing the provinces of East Prussia, Brandenburg, Pomerania, and Upper and Lower Silesia to Poland and the Soviet Union, rump Germany was now 356,000 square kilometers or about 25 percent smaller. The loss of territory was bad enough, but the impact on the food supply made things a lot worse. Not only had Germany shrunk by 115,000 square kilometers, most of this land was in the breadbasket of Germany. In terms of food production, the lost provinces contained 28% of 1937 Germany's agricultural land, yielding 30% of the summer wheat, 30% of the summer barley, 24% of the oats, 30% of potatoes, and 34.5% of the winter rye. In terms of the harvest, the areas of the Oder-Neisse line produced 26% of all grains in 1937 including 60% of summer crops and 40% of winter crops (rye, wheat, barley). To exacerbate the situation further, while it lost territory, rump Germany gained population: Bavaria went from a 1937 population of roughly 7 million (100 people per square kilometer) to a postwar population of about 9 million in October 1946 (128 per square kilometer).²⁴

For Munich and Bavaria's people, grain imports from the east composed an important part of their food supply. Imported grain enabled Bavaria to export potatoes and meat to other areas of Germany, receiving in turn the natural resources, in particular coal, their region lacked. These imports helped insure that before the war,

²⁴ "Die Bedeutung der Gebiete östlich der Oder und Neisse für die Ernährungswirtschaft Deutschlands unter besonderer Berücksichtigung Bayerns," *Bayern in Zahlen 7*: July 1947.

the average daily food intake for people living in Greater Germany like Franz Weber, Harriet Weber, Helmut Dotterweich, and Theo Rosendorfer was 2900 calories. By the end of the war it had dwindled to 1500, and during the postwar years it often ranged between 1000 and 1500.²⁵ Being able to trade food for coal also gave Münchener the crucial fuel to keep warm in the winter, when the flow of electricity from hydropower slowed down.

Munich As A Target

All of these connections show how Munich's urban life literally depended on outside sources of fuel, electricity, food, and required the railroads to transport them. These numerous, vital connections made the city vulnerable to attack. The limited amount of hard coal available in Bavaria and the important role coal played in the everyday lives of Munich's citizens meant that interruptions in transport or diversion of coal resources to military uses could have severe impacts. When citizens' access to coal was damaged or ever severed, they lost access to the fuel that heated their homes, cooked their food, and supplied them with electricity in the winter and natural gas all year.

When studying Munich as a target, Allied bombing planners recognized it as both a key cog in the German war machine and an important part of German morale. In Great Britain, the *Bomber's Baedeker (BB)*, named ironically after the popular Baedeker tourist guidebooks, gave profiles of German cities for bombing, not visiting. The *BB*'s profile of Munich illustrates the city's value to the German military. Amongst the infrastructure targets listed in the book are: railroad

²⁵ Koenig, *Beiträge zur Soziographie Münchens*.

marshalling yards, goods yards with extensive storage facilities, a thermal energy plant with a capacity of 100 megawatts (MW), a gasworks, metal works (especially aluminum). Food-related targets included an ersatz coffee factory, flourmills and grain storage. Factories making war materiel got the most attention. The *BB* profiles in detail BMW's aircraft factories at Allach and Moosbach and its tanks and motorcycles factory in Oberwiesefeld.

The most important infrastructure targets in the Munich area were related to railways, stations, and repair facilities. These included the *Hauptbahnhof* and its Marshalling Yard. The *BB* describes Munich's role as a rail hub:

Munich is the centre of an important network of railways and has direct connection with France (through Strassburg), with Austria (through Rosenheim) and with Italy (through Innsbruck and the Brenner Pass)...the main station is fully electrified, as are all but one of the main lines that radiate from Munich.²⁶

Railways supplied the key to maintaining the connections between the city and its natural resources. Rail lines and rolling stock formed the "arteries" that kept the "body" of the city alive. By cutting or even clogging these "arteries" bombing attacks threatened the city's ability to feed and house its citizens. Hungry, cold workers simply would make less war materiel. Munich's factories produced armaments (tanks, planes, motorcycles) vital to the war effort. The "Hub of the South" linked several railway crucial main lines that led to a vital military front (Italy, France, Austria). Connections plus dependence on railways made Munich a prime transportation target. Vital to the movement of supplies and war materiel as well as

²⁶ *The Bomber's Baedeker: Guide to the Economic Importance of German Towns and Cities: Second Edition* (Enemy Branch, Foreign Office and Ministry of Economic Warfare, 1944), 74-75.

soldiers and civilians, bombing Munich's rail stations and rail yards slowed the flow of goods and resources that served the German war machine.

The *BB* does not directly refer to Munich as a morale target. Munich is simply described as “a university town, and a cultural centre of European importance.”²⁷ Yet Allied planners, as well as Germany's leaders, understood that its position as “Capital City of the Movement” (*Hauptstadt der Bewegung*) and the birthplace of the Nazi Party gave Munich substantial propaganda value. Hitler maintained his official residence in Munich. The city bristled with memorials and monuments celebrating the Nazi Party. That it became the object of major aerial attacks later in the war (1942) had more to do with geography and technological limitations than planner's intentions. Munich's location in southeastern Germany required Allied bombers to fly over several hundred miles of hostile territory to reach the city.²⁸ As discussed in the next chapter, Munich began suffering more frequent and damaging attacks in 1943, when the tide of war turned against Germany. By then, Allied advances enabled the deployment of long-range fighter escorts and bombers from bases in Italy. Together, degraded German air defenses and advanced Allied forces and weaponry made Munich more vulnerable to attack.

In terms of natural resource supplies, Munich was not a major oil target. The closest oil wells and refining facilities were in nearby Austria, while the oil shale lands in Württemberg were 200 kilometers westward. Munich was, however, a major transport hub for oil coming from Romania and points east. The most prominent Bavarian natural resource, besides agricultural land and wood, was hydropower,

²⁷ *Ibid.*, 75.

²⁸ It is interesting to note here that geography, which according to the interwar theorists was no longer an obstacle, still had to be overcome by bombers.

which provided the majority of Munich's electricity. The *BB* devoted a whole section to the Middle Isar and Uppenborn hydro schemes, which used dams on the Isar River northeast of Munich proper to run power stations producing circa 500 million kilowatt-hours (kWh), divided evenly between the City of Munich and the railways.²⁹

To an Allied bombing planner, Munich and its surrounding region presented, with the exception of oil refineries, all the types of targets--resources, communications, transport, and industry--that warranted "precision" attacks on infrastructure. Its value as a morale target made it ideal for "area" attacks. Its role as a regional capital, propaganda target, manufacturing center and railroad hub ensured that the city, once bombers could reach it safely, would rate high on the list of targets made by Allied commanders.³⁰ The city was subject to multiple attacks from 1942 to 1945 by both the RAF and the USAAF. These attacks damaged connections to natural resources and changed the city's urban environment, both of which impacted not only the citizens' everyday lives but also their relationship to nature.

The very characteristics that defined Munich as a functioning city--location, geography, role as a major rail hub, and dependence on outside sources of coal--inevitably made it a prime military target. As discussed in the next chapter, attacks on Munich and its transport system during the war would lead to shortages of coal and electricity, and more painfully, the destruction of housing, infrastructure, and lives. After the war, the new realities of defeat would bring equally severe consequences.

²⁹ Ironically, the hydropower facilities were not bombed during the war. It was the coal shortages, exacerbated by attacks on railroads that had the biggest effect on Munich's electricity supplies.

³⁰ Writing after the March 9, 1943 raid on the city, J.M. Spaight referred to Munich as "one of the Jekyll and Hyde cities of Germany. It has a dual personality and it was the bad and dangerous Munich that had to be put out of action, which could not be done without danger to the Munich which all civilized peoples wish to be spared" J.M. Spaight, *Bombing Vindicated* (Glasgow: The University Press, 1944), 92.

Amputated from the natural resources it required, Munich's vulnerabilities changed its residents' relationship to the forces of nature. Before 1939, Münchenerers could believe they commanded nature. After 1945, nature wielded a stronger impact on the everyday lives of citizens.

Conclusion: Profiles of Eyewitnesses Interviewed for this Study

Cities are not just buildings and infrastructure; without people to live in them they are dead, "ghost cities". When I discussed this project with a professor in Germany, he wanted me to make sure that people and their everyday lives were a significant part of this study. I was fortunate, with his help, to find four citizens of Munich who had lived in the city during the time of this study. I would like to introduce them now.

I spoke with Dr. Franz Weber and his wife Harriet at their home in the Bogenhausen neighborhood of Munich, where Franz grew up. He and Harriet, who grew up in the adjacent neighborhood of Haidhausen, were both born in Munich in 1931. Franz, a retired lawyer, spent the entire war in Munich, living in Bogenhausen with his mother, father, sister and a maid, later to be joined by an aunt from Würzburg and a friend of his sister. His father, an upper-middle class businessman who had served as an officer in WWI, joined the local militia (*Volkssturm*) in the last months of the war. After the war, Franz was sent to school in Ettal, outside of Munich, and stayed there until 1950. Soon afterwards he met Harriet when they both received their *Abitur* (similar to a high school diploma). Her father, also a lawyer, joined the army during the war and was later imprisoned in the Soviet Union. She

also had two siblings, and like many children, all three were sent to Bad Tolz in the countryside in 1943 to escape the bombing. The children briefly returned to Munich after the Stauffenberg plot to kill Hitler attack failed in June 1944. Soon afterwards Harriet went to stay with her uncle and aunt in Herrsching, a country town outside of Munich. She remained there until the end of the war.

Theo Rosendorfer was also evacuated, in this case to Kitzbühel, Austria in 1942, after living in Munich with his family from 1939 to 1942 in the Au neighborhood, directly on the Isar River near the Deutsches Museum. He was born on June 2, 1936 in South Tyrol (*Sudtirol*), a German-speaking Italian territory. His father, a soldier in the *Wehrmacht*, was killed in Italy in 1943. He later became a chemist.

Helmut Dotterweich, like Franz Weber, spent the whole war in Munich. Born in the city in 1930, he was still a teenager when the war ended in 1945. His father was a civil servant, and his mother ran the family's rental property until it was destroyed during the bombing. He eventually worked for television for 30 years before retiring. His story begins the next chapter, which covers Munich during the war. By the time the city surrendered to the U.S. Army invaders in April 1945, its amputated connections and gaping bomb scars made an urban wasteland that little resembled the bustling hub of 1939.

Chapter 4

Munich Under Attack

[At the beginning of the war] we were well-off; by the end, we were poor; poor as church mice; there was absolutely nothing left...we were able to save our furniture, but that was it... until our household was rebuilt I had to sleep on the rubble pile so that that the tools would not get stolen.¹

When the Second World War broke out on September 1, 1939, Helmut Dotterweich lived with his family in the southeastern part of Munich, near the Theresienwiese, site of the famous Oktoberfest. His parents owned a piece of property that made money from automobiles. It had an auto repair shop, a parking garage with 30 spaces, and a car wash. During that time, many people would store their cars in the garage during the week, and take them out on weekends. It was a luxury, and a way to escape the city. By the end of the war, the garage, repair shop, and car wash had all been destroyed, and few people, except for high-ranking Nazis, were allowed to own a car, let alone drive one. If they did drive, the car likely used wood, not gasoline, for fuel.² The smell of wood smoke from automobiles, as well as stoves, would compete with the lingering odor of a city of burned out buildings and the clouds of dust from rubble. The smell of wood burning, not coal, harkened back to a pre-industrial age. The substitution of wood for coal was one of the many ways six years of war transformed Munich's urban environment and made it into a place where city life resembled primitive pre-industrial survival.

¹ Helmut Dotterweich, interview by author, Munich, Germany, February 12, 2010.

² The wood-powered cars, (*Holzgaser* or *Holzgaswagen*) used heat to convert wood into a gas that was then fed into a modified internal combustion engine. Cars were equipped with a large tank in the rear of the vehicle that was filled with wood chips, which were burned. The resulting gas was extracted through a pipe and fed to the engine. By the end of the war, Germany had over 500,000 such vehicles. See <http://www.lowtechmagazine.com/2010/01/wood-gas-cars.html>

Despite what the bombing theorists thought, people like Helmut Dotterweich did not give up under aerial attack. They adapted. They found ways, like using wood for fuel, to make up for the shortages created by the Allied bombing campaign. Driven by the ideas of the interwar theorists and split into two different strategies, area and precision bombing, the RAF and USAAF targeted Germany's cities, people and infrastructure to starve the German war machine and demoralize its people. These strategies were embodied in the Casablanca Directive--because it was issued after the meeting between Churchill and Roosevelt in Casablanca--from January 21, 1943. Issued by the Combined Chiefs of Staff, it made clear the mission of the RAF's Bomber Command and its allies in the USAAF:

Your primary object will be the progressive destruction and dislocation of the German military, industrial and economic system, and the undermining the morale of the German people to a point where their capacity for armed resistance is fatally weakened.³

The first part represents primarily precision bombing; the "dislocation" contemplated hitting infrastructure targets like railroads and shipping. The "undermining of morale" would be accomplished by area bombing, which pounded cities because they housed civilians. Both strategies aimed to damage or destroy the connections between city people, natural resources, and other cities that both kept the German war machine running and made city life feasible.

As a target of both area and precision attacks, Munich would suffer many "dislocations" and damaged connections from Allied bombs.⁴ This chapter analyzes

³ Webster and Frankland, *Volume IV*, 154.

⁴ It is important to note that the lines between "area" bombing, which targeted cities and people, and "precision" bombing, which targeted infrastructure (railroads, repair yards, power plants. etc.), factories, and military facilities often became blurred. This was due to the inaccuracy of bombing and

the impacts of the Allied bombing campaign on Munich, its people, and its connections to natural resources. The focus is on specific RAF “area” and USAAF “precision” attacks between September 1942 (the first major raid) and the surrender of the city to the Americans in April 1945. By attacking the transport system and the city’s infrastructure, “precision” attacks damaged connections to natural resources, especially coal, which played a crucial role in the functioning of the city and in people’s lives. As a source of fuel for locomotives, power plants, household heating and cooking, producing gas, and in the city’s factories and food production facilities, coal’s indispensability exposed Munich’s dependence sources outside of Bavaria, making the city particularly vulnerable to coal shortages.

Both “area” and “precision” attacks degraded the city’s urban environment. Bomb damage altered the relationship between humans and natural systems, thus hugely impacting the daily lives of Münchenerers. Newspaper articles from the *Völkischer Beobachter (VB)* and *Münchener Neueste Nachrichten (MNN)*, memoirs, and eyewitness accounts documented the dislocations, amputated connections, and degraded living conditions. As the city took more and more damage, it became a place that few Münchenerers recognized. As the city burned, night became day. As the streets filled with rubble, people spent a lot of time huddling underground in basements and shelters. The interruptions in electricity supplies and shift from coal to wood as a fuel source highlighted the importance of Munich’s connections to coal in the Ruhr and Germany’s Eastern provinces. The chapter ends with Munich’s official surrender to the Americans on April 30, 1945. A burned, broken, isolated city, its

the location of infrastructure targets within cities. For Münchenerers, this meant that bombs aimed at the Main Train Station often landed on nearby houses or Karlsplatz, the gateway to the old city.

connections to the natural resources required to function had been severely damaged. To survive, these severed links had to be rebuilt.

A City at War

When the war began in September 1939, few people could foresee such an outcome, but the mood in the city was mixed. The enthusiasm of younger people and fervent Nazis was tempered by the apprehension experienced by those who had lived through the blockade of food supplies during the First World War. Older inhabitants did not relish living through such privations again. In her diary, Munich resident Margarete Konetzky described the mood in the city on the first day of the war as “A mix of shock, distraction, and depression, at least among the older people and those who had participated in the last war, and of euphoric hubbub among the younger people and especially among Nazis. Also fear and worry, especially among women and mothers.”⁵ These women were right to worry. By the time the city capitulated on April 30, 1945, Munich had been bombed 76 times. The population had dwindled by almost one-half to 480,000. Roughly 6,400 people had been killed and 16,000 injured. Over 300,000 people were made homeless.⁶ Authorities had evacuated thousands of children to the surrounding countryside. Many intact families had left to escape the bombing. The city--composed of people as well as their connections to natural resources needed to survive--had taken much damage during the war.

⁵ Hans-Gunter Richardi, *Bomber über München*, 31.

⁶ Irmgard Permooser, *Der Lufkrieg über München*, 367. Statistics on deaths from air raids vary from 6,200 to 6,600; I have split the difference. It is unclear from the statistics as to how many of those made homeless subsequently left the city.

While the city had been bombed as early as 1940--the first raid took place on the night of March 9/10--not until 1942 had the first heavy raids begun and bombers inflicted serious damage.⁷ Using newspapers, memoirs and interviews with eyewitnesses, the remainder of this chapter focuses on specific time periods and major air raids to examine how Allied bombing raids and the war in general cut the connections between Munich and its vital natural resources, and how these continual amputations affected Munich's citizens. Each raid will explore a different method and target, as well as a way that bombing changed the urban environment.

1942: The War "Hits Home" in Munich

Between the outbreak of war in 1939 and fall 1942, the RAF attacked Munich seven times, but the city suffered minimal damage. While high on the list of bombing targets, Munich had been far enough away from England to escape major damage. This changed the night of 19/20 September 1942, when 79 RAF bombers carried out their first large raid. The center of the city was hit with 169 tons of bombs, causing 143 deaths and 413 injuries.⁸ The raid provoked a mixed reaction of outrage and defiance, at least in the official propaganda. In a speech given hours after the raid on September 20, *Gauleiter* (Regional Leader) Paul Giessler said:

We can say that here in Munich, we are just like our soldiers. We are hard and brave and true like them. Here stand the fathers, the mothers, the siblings, and the wives of the bravest soldiers in the world. That is our pride. Munich has been thrown into the front of the war, and she will think and act just like her sons out there [on the battlefield].⁹

⁷ Permooser, 378.

⁸ Permooser, 379.

⁹ Richardi, 116.

While seemingly full of false bravado, Giessler's words expressed the new role of the urban dweller in warfare. As discussed in Chapter 2, Munich's citizens, because of the advent of air power, had become combatants, and subject to the same risks (death, injury, deprivation) faced by the soldiers on the front. As the war progressed, the city became like the trenches of WWI: a place of darkness and danger that harkened back to a more primitive time. Margarete Konetzky wrote the following in her diary as she returned to the city on September 22:

From the train I could already see many destroyed houses and factories in Munich. My heart was very heavy. My aunt picked me up and told me of terrible things. Our neighborhood looked ghastly. The whole Grillparzerstrasse had to be torn up...the street is covered with rubble and glass. The area between Prinzregentplatz and Prinzregentenstrasse is a wasteland.¹⁰

What Frau Konetzky saw was the beginning of the physical damage the war, in the form of bombing, would bring to Munich. The course of the war in general would also have a dramatic impact on the lives of Munich's citizens by restricting their access to natural resources. One of the most important resources was coal.

Coal in 1942: Act Locally

As discussed above, Munich relied heavily on sources outside Bavaria for coal. After Germany invaded the Soviet Union in 1941, military uses demanded more and more coal, forcing Munich to rely more heavily on local sources. During a speech at the Penzberg mine in Upper Bavaria on Feb 5, 1942 Adolf Wagner, Defense Commissar for Defense Sectors VII & XIII and *Gauleiter Staatsminister* (Regional Leader State Minister), called on local miners to produce more coal:

¹⁰ Richardi, 102.

Now we especially need you miners in Upper Bavaria. The winter, the higher requirements for armaments and transport make the demand for coal imperative. You must manage it for us somehow. Each ton more that you produce is of immeasurable value for victory... Produce more coal so that our women and children do not freeze and that our work comrades in the armament industries can make the weapons and munitions that the Führer needs for his soldiers on the front to achieve victory.¹¹

For the citizens of Munich military demands meant less reliable coal deliveries, as an article in the February 28/March 1 edition of the *VB* reminded them:

In the winter months there are always certain difficulties in transporting coal... The conditions this winter be will be similar... the coal dealers will not always be able to deliver coal to households on time. Therefore deliveries at a specific time cannot be guaranteed. Also, types of fuel customers are used to will not always be available. Customers must therefore understand when another type is delivered.¹²

While this seemed to be a minor inconvenience, it pointed to future problems.

Weakened connections to coal in the Ruhr and Eastern provinces increased dependence on local sources of coal during a time when the war was going well for Germany. Its invasion of the Soviet Union, while it had stalled before Moscow, had not yet become a retreat.

This became more evident in terms of coal supplies. In the fall and winter of 1942, Munich buses started using wood-fired engines. Schoolchildren began enjoying “coal holidays” (*Kohlenferien*) to reduce coal consumption.¹³ The Munich City Council discussed this measure at a meeting on January 18, 1943. A look at the transcript from the meeting reveals the problems Munich had getting coal during that winter, and for the rest of the war. Since coal supplies were short, authorities gave priority for coal deliveries to hospitals, childcare facilities (nurseries and hospitals),

¹¹ “Mehr Kohle für Heimat und Rüstung!,” *Volkischer Beobachter*, Feb 6, 1942.

¹² “Zur Kohlenversorgung,” *Volkischer Beobachter*, Feb 28/March 1, 1942.

¹³ “Holzgasgenerator-Anhänger bei den Münchener Omnibussen,” *Volkischer Beobachter*, November 11, 1942.

and homes for the aged. Lord Mayor Fiehler complained, “not only in Munich, but other cities, estimations of consumption are too low.” “The coal is there, but there are no workers,” he lamented. Herr Bauer, head of school districts, reported that despite four weeks of *Kohlenferien* some schools had to be closed, as they were allotted only 60 percent of the coal and coke given out in 1938. The school year 1941-42 having been so cold, there was nothing left. Councilors complained about the quality of Silesian coal (“it’s garbage”), and Fiehler reported that the military was getting all the high-quality Ruhr coal.¹⁴

Coal supplies now had to be protected from air raids. The Economic Office of the Munich City Government issued a Proclamation to coal dealers on August 13, 1943 that ordered: “After an air raid on Munich it is absolutely necessary for securing household fuel supplies that the Economic Office gets an overview of how much coal dealerships have been hit. Coal dealers must report the extent of damages to the Economic Office.”¹⁵

Coal consumption, which was linked to electricity production and consumption, spurred efforts to get Munich’s citizens to conserve electricity. On December 20, 1942 a caricature of a rodent-like robber (Figure 2) began appearing in editions of the *VB* and the *MNN* to represent the concept of “Coal thievery” (*Kohlenklau*).

¹⁴ Stadtarchiv München, *Stadtratbesprechungen*, January 18, 1943.

¹⁵ Stadtarchiv München, *Kriegswirtschaftsamt* 452.

Figure 2: “Kohlenklau” from *VB* December 20, 1942



“Who is the Coal Thief? A villain that we all must defend ourselves against, because he endangers us and our war economy”

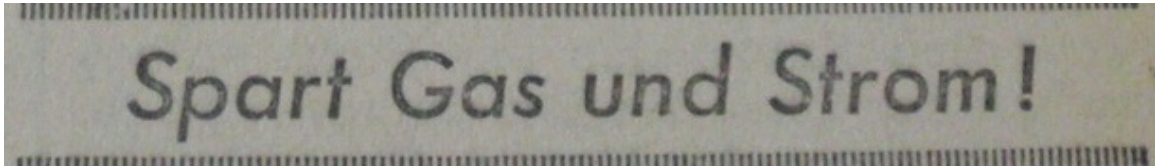
The figure, keeping one eye out for the police as he snuck away with a sack of coal, also worked his way into ads for products such as razors, bandages (to prevent burns from hot saucepans), and carbon paper.

The “*Kohlenklau*” campaign inaugurated part of a larger nationwide energy conservation effort that began with a September 8, 1942 speech from Hermann Göring. It expanded with a series of voluntary conservation measures throughout 1943. For example, a November 3 article in the *VB* urged citizens to put signs on doors saying “close me-think of the coal!”¹⁶ Two weeks later the November 16 *VB*

¹⁶ “Wir besuchen einen Energiespar-Ingenieur,” *Völkischer Beobachter*, November 3, 1942.

had “*Spart Gas und Strom!*” (“Save Gas and Electricity!”-Figure 3) inserted in a column. Eventually, these measures became mandatory.

Figure 3: “Save Gas and Electricity!”



1943: Total War

Along with setbacks on the battlefield and increasing difficulties in getting coal and fuel, the early months of 1943 would also bring more bombing attacks. The raids in September and December of 1942 had proved that Munich was vulnerable and could suffer heavy damage. Two developments in the military situation in 1943 added to this vulnerability in the long term, both in terms of bombing and access to resources. The Allied invasion of Italy brought the impending threat of bombers based in that country, overcoming Munich’s geographic advantage and allowing easier access to Munich as a target. The defeat of the *Wehrmacht* at Stalingrad marked the beginning of the long retreat from the Soviet Union, which would divert more and more resources away from the cities to the armed forces.¹⁷ Ultimately, the Red Army’s westward advance would lead to the loss of the eastern territories in Pomerania and Silesia that supplied Munich with wheat and coal respectively.

The USAAF would not carry out its first major daylight “precision” raid until March 1944, but the RAF continued to deliver major night raids in 1943. These “area” raids escalated the damage done to the city by cutting off public utilities such

¹⁷ For a detailed account of the Battle of Stalingrad and its aftermath, see Antony Beevor, *Stalingrad* (New York: Penguin Books, 1999).

as electricity, gas, and water. They also created a new urban environment by igniting huge fires, whose light turned night into day. The first major raid occurred on the night of 9/10 March 1943, when 218 bombers dropped 599 tons of bombs, killing 208 and injuring 435.¹⁸ Munich resident Helene Marschler wrote in her diary on March 10 that “Many parts of Munich are said to be in flames” and later on the 13th, “The bombs dropped have almost exclusively been incendiaries. The most unpleasant thing has been a cut-off in gas supplies that is supposed to last for months, as three gasworks were hit. There is an alarm almost every night.”¹⁹

The editors of the *Völkischer Beobachter* remained adamant that the enemy’s bombing goals were less material than political: “With these methods of murder and burning [they] would turn Europe into a land of rubble and make it ripe for Bolshevism.”²⁰ Munich could suffer privation, but Münchener would not give up: “There are many ways to live. With and without comfort...we will not be defeated by this terror.”²¹ The damage to the gasworks was significant because most Münchener used gas stoves for cooking (electric stoves were still relatively rare). In Dachau concentration camp, damage to the gasworks led to the kitchen cooking not only for the inmates, but for city dwellers as well. Such interruptions became more and more prevalent, especially as coal supplies grew harder to obtain.²² All in all, the gasworks suffered ten major attacks during the war, with whole neighborhoods cut off for days,

¹⁸ Permooser, 378-379.

¹⁹ Quoted in Eva Berthold and Nobert Matern, eds., *München im Bombenkrieg* (Düsseldorf: Droste Verlag, 1983), 40-41.

²⁰ Interestingly, the American occupiers would worry after the war that poor conditions would lead to Germans rejecting democracy in favor of communism. See Chapter 6.

²¹ “Eine Stadt hält Stand: nach dem Terrorangriff auf München,” *Völkischer Beobachter*, March 31, 1943.

²² Richardi, 150.

sometimes weeks.²³ Theo Rosendorfer, six years old at the time, remembered the impression the bombing raids made on him:

The Paulaner brewery on the Knochberg was bombed heavily, there was an alarm, I remember to this day, it was simply sensational, how the hill overlooking the Isar where the brewery was located, the way it burned; this bright glowing fire; for me as a child this made an unforgettable impression; I can still see it today-the fire, the smoke clouds, how the flames were whipped up into the sky.²⁴

Fire had become the most effective way of destroying a city, as demonstrated by the Hamburg raid in 1943, but high-explosive bombs were also used to great effect. The problem for the RAF remained accuracy. In blacked-out cities, targets were hard to identify, and in order to create an effective firestorm, specific points, especially in the older parts of a city, needed to be hit by incendiaries. To remedy this problem, the RAF tested the use of markers to better identify targets at night and increase bombing accuracy. During the 6/7 September raid on Munich 404 bombers took off from Britain and 347 made it to the target. Because of cloudy weather, the markers were of little use, but that did not stop fires from breaking out in several parts of the city. While this raid did not ignite a firestorm as in Hamburg, the bombs nevertheless caused substantial damage that made an impression on the citizens. After the bombers flew away, 1334 fires burned, 208 dead needed burial, and 785 wounded required treatment.²⁵

While condemning the raid as a “night of horror,” the *MNN* initially offered some hope the day after the raid: “The pale sun, which only appeared as a white disc

²³ *100 Jahre Gas in München*, 100-102.

²⁴ Theo Rosendorfer, interview by author, Munich, Germany, Feb 10, 2010.

²⁵ Permooser, 378.

through the clouds of smoke, saw a city working like it never had before.”²⁶ Three days later, Eugen Roth, the editor of the *MNN*, wrote, “The war has made our cities quieter; yes, even the cosmopolitan city of Berlin has become provincial. Less traffic, early curfews, no lit-up advertisements... more than in the early war years, people retreat to their homes and families.”²⁷ Munich, it seemed, was returning to an earlier, “simpler” time.

More importantly for this analysis, the September raid, along with a second big raid on the night of October 2/3, showed that bombing could make the distinction between night and day almost meaningless. Writer and commentator Wilhelm Hausenstein, who lived in the nearby village of Tutzing but visited Munich often, wrote in his diary on October 3, “We were in the garden. First some greenish-white stars over Munich, enlarged; there were greenish-white and red bodies of light the whole way from the foothills of the Alps over the reflecting lakes to Munich and beyond; it was as bright as on a night with a full moon.” Even during the day, sunlight could often not penetrate, as Hausenstein wrote after visiting Munich on October 6, 1943, “The air was full of dust, that still had not settled after two days.” The sense of smell was also affected, as everywhere “there was the usual horrible-sweet smell of burning.”²⁸

Helmut Dotterweich spent much of the war at school in nearby Augsburg, and during a different raid, the teenager had a more intense experience from firebombing:

We literally were walking through flames: flames on the right, flames on the left, and I wonder to myself today that it was possible, why were we not

²⁶ Richardi, 176.

²⁷ *Ibid.*, 176-177.

²⁸ Wilhelm Hausenstein, *Licht Unter dem Horizont: Tagebücher von 1942 bis 1946* (München: Bruckmann, 1967), 161-162.

harmful by the flames? We walked 20 to 25 kilometers west to escape the fire. I remember seeing the moon, but it was actually the sun. It was so dark during the day-I thought it was still nighttime, but it was midday.²⁹

Hausenstein was seeing the light from anti-aircraft fire and exploding bombs, while Dotterweich was seeing the sun shrouded in smoke from the burning city. Both of these phenomena, created by bombing raids, changed the urban environment by producing light when it wasn't expected (Hausenstein's experience), or shrouding light and making it difficult to tell night from day (Dotterweich's). Even on nights when no raids occurred, the city's environment was altered, darkened due to blackouts. Darkness was one of the natural phenomena, like being exposed to weather, that the city dweller could normally control. Bombing made the city a more primitive place, where citizens were deprived of the technological advances (electricity, indoor plumbing, lighting) that made the city seem more "civilized." In Munich during the war, light came not from "modern" electric lights, but from a much more primitive source, fire.³⁰ Just as coal was replaced by wood, electricity, at least at night, was replaced by fire.

Electricity still remained important, however. While people began to leave Munich in large numbers in 1943, those who remained were subjected to more intense pleas to save electricity. Conservation images were now linked to water consumption and the lives of soldiers on the front, not just the consumption of coal.³¹

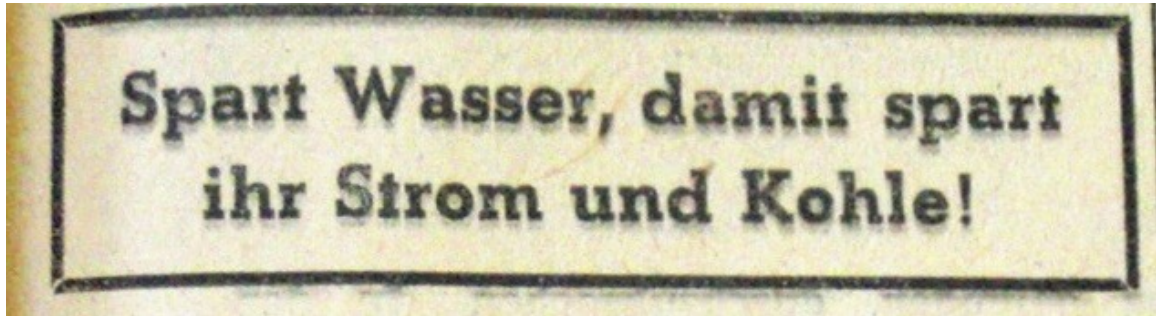
²⁹ Dotterweich, interview.

³⁰ There was one artificial light source. Theo Rosendorfer remembers that at night "there were markers that glowed in the dark so one could see the other passersby, so that people did not run into each other in the dark; people used to make jokes about this." Rosendorfer, interview.

³¹ Children were sent to the countryside as part of the Kinderlandverschickung (KLV, in English "Sending of children to the countryside") program. Theo Rosendorfer, along with his mother and sister, was evacuated to a farm in Oberndorf, six kilometers north of Kitzbühel in the Bavarian Alps.

For example, as seen in Figure 4, the April 19 issue of the *VB* urged Münchenerers to “Save Water-It saves electricity and coal!”

Figure 4: “Save Water-It saves electricity and coal!”



Later, an article entitled simply “Save Water!” said the following in the November 9 issue of the *MNN*, “Each liter of water that flows in our pipes is pumped using a measurable amount of energy from gas, electricity or steam. For this we need coal, and therefore poorly used water is an unnecessary demand for coal, which is to be absolutely stopped.”³² Earlier, on April 6, 1943, the hospitality industry was ordered to reduce electrical consumption from lights by 30 percent,³³ and these restrictions increased in December as hotel guests had to sign an affidavit that they would not use any electrical appliances during their stay.³⁴

For household users, energy saving measures began in May 1943, as announcements began appearing in the *VB* and *MNN*. For example, the *MNN* May 14 issue listed the following compulsory and voluntary measures:

In the future all households with more than ten rooms are allowed to consume only 80 percent of the electricity use during the same period (May-Oct) of the previous year...a 10 percent reduction is expected in the remaining households, as well as an overall reduction in gas consumption of 10 percent.³⁵

³² “Spart Wasser!,” *Münchner Neueste Nachrichten*, April 9, 1943.

³³ “Einschränkung des Lichtverbrauchs,” *Völkischer Beobachter*, April 6, 1943.

³⁴ “Kohlenklau-Kontrollen in Gastätte und Hotels,” *Völkischer Beobachter*, December 1, 1943.

³⁵ “Strom- und Gasverbrauch,” *Münchner Neueste Nachrichten*, May 14, 1943.

In July, Albert Speer announced that citizens could earn 50-500 Reichsmarks for energy-saving suggestions.³⁶ The December 3 issue of the *VB* urged households to go beyond voluntary measures and save more.³⁷ This was the last of the voluntary measures, however. On January 21, 1944 *Gauleiter* Giessler ordered mandatory energy-saving measures, which forbade the “overheating of rooms” and the use of gas and electricity to supplement coal heaters. Gas-powered water heaters were to be used only once a week, and electrical elevators could only be used for the sick, wounded, and handicapped. The order also restricted electrical use between the hours of 7-9am and 4-7pm. Violators would be prosecuted. This was done because “the riches of the Greater German Empire in coal and electrical energy must first serve war production. The sacrificial struggle of our soldiers compels the homeland to sacrifice on its own side, and to conserve in all areas of daily life.”³⁸

In 1943, the increased frequency and ferocity of air raids and rising demand for resources for the war effort intensified the transformation begun in 1942 after the first big raids. Bombers brought the concept of “total war,” where an entire society and its resources are combatants, home to the citizens of Munich. Explosive destruction, fire, and conservation measures were rendering life in the city more primitive. The process accelerated in 1944, as the USAAF began bombing Munich and the *Wehrmacht* retreated on all fronts, cutting access to resources from conquered territories. The city and people of Munich were to experience the greatest shocks during the war to date.

³⁶ “Sparsamer Energieverbrauch,” *Völkischer Beobachter*, July 21, 1943.

³⁷ “Es können noch Lichtstunden gespart werden,” *Völkischer Beobachter*, December 3, 1943.

³⁸ “Spart mit Kohle, Gas und Strom!,” *Münchner Neueste Nachrichten*, Jan 21, 1944.

1944: The Year of Fire

As the new year began, Munich's citizens lived in a city becoming more and more primitive. As quoted in Richardi's *Bomber über München*, Journalist Ruth Andreas-Friedrich wrote in her diary on January 4, 1944, "We sweep up rubble. We nail cardboard. We sit without water, without transport, without electricity. The telephone is also dead, and one only finds out through the grapevine if friends living far away are alive. An auspicious beginning to the year."³⁹ The damage Andreas-Friedrich referred to was only a taste of what was to come. The RAF would use fire as its primary weapon to carry out its strategy of area bombing to damage morale in night raids. Fire effectively damaged a city dweller's morale by destroying his/her house, killing friends, family, and neighbors, confusing night with day, and exposing all to the elements. While Douhet had favored using poison gas to accomplish this goal, incendiary bombs did the same work: create enough misery and a city's inhabitants will surrender. After the 1943 Hamburg raid, the RAF had demonstrated it could unleash fire as one of its most effective weapons to destroy cities. British bombers began to drop large amounts of incendiaries during night raids on Munich. Munich's role as a transportation hub now became the focus of American bombers, flying from Italy to carry out "precision" raids.

The introduction of daylight raids after 18 March 1944, like the fires RAF bombs created, altered the urban environment's dynamics. In Munich, bombs changed the meaning of daylight for its citizens. Münchenerers had grown used to raids at night, usually between the hours of 10pm and 2am. They knew that, while they

³⁹ Richardi, 238.

would likely spend the night in an air-raid shelter, during the day they could go about their business in relative safety. The appearance overhead of American bombers disrupted this routine. Journalist Kurt Preis remembered a saying repeated in Munich at the time: “Wenn’s hell wird, müssens ja wieder dahoam sei, sonst kommt koana mehr hoam.” (“When it gets light, one has to be back home, otherwise one never comes home”).⁴⁰ Just as bombing at night made it hard to distinguish night from day, American daylight raids made real daylight no longer safe.

Raids during summer and fall 1944 demonstrated the double danger now posed by RAF night attacks and USAAF daylight attacks. In July, the USAAF’s Eighth Air Force carried out seven big raids on Munich. The first set occurred on successive days: the 11th, 12th⁴¹ and 13th, followed by raids on the 16th, 19th, 21st and 31st. Over 4200 planes dropped roughly 8,800 tons of bombs, killing 1,856 and injuring 4,753. Targets included factories, the inner city, airfields, and railroads.⁴² The raids interrupted gas and electricity service, damaged the sewage facility at Grosslappen, and destroyed water pipes, hampering water distribution, so that trucks had to distribute water to residents.⁴³

Munich had not seen this level of destruction and carnage before. Exposure to natural forces and retreat from “civilization” that began with the first big raid in 1942 intensified. Wilhelm Hausenstein wrote in his diary on July 16, “the fourth raid on

⁴⁰ Richardi, 217.

⁴¹ This was the most damaging raid on Munich during the war. See Permooser, 383.

⁴² Permooser, 381-382.

⁴³ United States Strategic Bombing Survey, Medical Branch, *Report 65: The Effect of Bombing on Health and Medical Care in Germany*, Chapter 10: Environmental Sanitation, US National Archives RGB 260: Records of the United States Strategic Bombing Survey, folder 200a/148, 237-238.

Munich. One gets the impression that Munich will be bombed to the ground.” Later, on July 30, he wrote of the decline in living standards outside the city in Tutzing:

The pressure of the overall situation grows harder and harder. A half a month after the events (raids) I cannot bring myself to look at our destroyed Munich... The ‘technical achievements’ begin to decline again-it is like we are returning to an earlier time. Also for us (in the countryside), even though we have hardly been affected by the war, every moment the water is cut off, because there is now electricity to power the pump. Every couple of days there is no light; the telephone only works half the time; the trains run very late.⁴⁴

Editorials in the *MNN*, while portraying the citizens of Munich as heroes, nevertheless revealed the extent of the damage:

When the bombs fall all around the air-raid shelter, the enemy identifies himself with the bursting of collapsing houses and the dense smoke of burning homes, when the pressure of exploding bombs goes through the cellars and the fine dust of destruction coats (everything), then everyone who can keep their nerve and can summon the power to carry on the grim fight is a hero.⁴⁵

The *MNN* editorial from July 22/23, entitled “Once Again!,” portrayed the city as a body, and the natural world as a balm for damaged psyches:

Again a storm has burst over our city, walls shake and burst apart, fire licks from roofs and apartment buildings, high-explosive bombs detonate and new craters and ruins are added to the old ones. The countenance of our city gets even more distressed. Clouds of dust swirl over houses and streets... The air in the cellars and bunkers gets warm, thick, gets used up; one talks quietly or not at all (and) thinks of loved ones that one worries about, or those that-far from the great city that once again bleeds from new wounds, care for us... And then the warning and the all-clear came; we climbed out again into the light of day, into the summer, and saw that the flowers bloomed, full and luxuriant, in the parks we heard the birds singing and trilling and Nature carried on as if nothing had happened. Nature is kind.⁴⁶

⁴⁴ Hausenstein, *Licht Unter dem Horizont*, 260-262.

⁴⁵ “Stadt unter Terror,” *Münchner Neueste Nachrichten*, July 17, 1944.

⁴⁶ “Wieder Einmal!,” *Münchner Neueste Nachrichten*, July 22/23, 1944.

Returning to the city on Aug 12, Hausenstein wrote:

The city is for the most part destroyed: in its apartment buildings, in its monumental character. I cannot imagine how Munich could be restored to its former appearance... Will generations to come live in the midst of ruins?... The streets are dead. The population seems to have been reduced by a third or a quarter in one blow.⁴⁷

Like the editorial writers at the *MNN*, Hausenstein also took comfort from the natural world. On Sept 12, 1944 he wrote, "Overall there is rubble composed of trash, lead, glass, broken bricks, burned rafters; the impression is not only sad, but also disgusting. The most comforting thing is that green things--grass, nettles and others--grow on the heaps."⁴⁸ To apply the "city as organism" metaphor, Munich had begun bleeding internally. Its arteries connecting it to resources and other cities also came under attack. In fall 1944, the USAAF launched a series of attacks on Munich's railroads.

Severing the Arteries: USAAF Railroad Attacks in Fall 1944

In keeping with their strategy of attacking infrastructure targets during daylight "precision" raids, the USAAF's Eighth (VIII) and Fifteenth (XV) Air Forces focused attention on Munich's rail stations, marshalling yards, and repair shops. Munich, a key center for moving supplies to and from the Italian and Balkan Fronts, had to be shut down. In addition to the rails' military function, these facilities also allowed the citizens of Munich to import coal, food, and other necessities.⁴⁹ The reports of the Regional Railroad Authority (GLB), which included most of Bavaria as

⁴⁷ Hausenstein, *Licht unter dem Horizont*, 265-266.

⁴⁸ *Ibid.*, 271.

⁴⁹ See Chapter 3 for a profile of Munich's railroads.

well as the Munich Railroad District, captured and translated by the US Army in 1945, give a good insight into the impact of the raids on railroads.

The first American railroad raid on September 22 mobilized 447 planes to drop 853 tons of bombs. 172 died on the ground and 249 were injured.⁵⁰ The GLB reported “considerable damages to super structures, track lines and the closing of tracks and lines...due to the air attack on Muenchen district.”⁵¹ The Munich Police Department’s detailed record of the raid reported 1,500 people left homeless, and 13 power lines, 10 gas lines, 25 water lines, and six streetcar lines damaged.⁵² New interruptions in streetcar service would be exacerbated by next raid on October 4. The GLB reported:

In the district of Munik (sic), specially difficult operations because of damages on the junction of Munik (sic) caused by the air raid of October. In the district of Munik (sic) operations still difficult as a consequence of the paralyzation of Munich Hbf and Munich-Laim Rbf (regional)...Munich Hbf completely paralyzed.⁵³

Assessing the railroad raids after the war, the U.S. Strategic Bombing Survey concluded that the October raid, which dropped 2,606 bombs in the marshalling yard, “put operations on a permanently lower base,” i.e. they would never reach the same level of activity for the rest of the war. Despite the substantial damage done by the October 4 raid, which included 3,800 meters of track destroyed, 4,950 meters displaced, 26 switches destroyed or damaged, plus damage to signal lines and equipment, the Munich railroad yard was up and running again after nine days. The report went on to point out those raids on railroad facilities outside the Munich area,

⁵⁰ Permooser, 383.

⁵¹ US National Archives, RGB 260: Records of the US Strategic Bombing Survey, folder 200a/148.

⁵² Stadtarchiv München, *Stadtverteidigung* 711/1.

⁵³ US National Archives, RGB 260: Records of the US Strategic Bombing Survey, folder 200a/148.

such as in Regensburg, Rosenheim, and Innsbruck, created congestion, reduced the ability to send out trains, and reduced overall efficiency.⁵⁴ As the rail center for Bavaria, Munich was more vulnerable because it forged connections to other cities and regions. To an environmental or urban historian applying the “organism” metaphor, the Americans had demonstrated that the “organism” of Munich’s transportation system could be wounded not only by attacking the main facilities in the city (the heart), but also facilities in the periphery (the arteries).

For Munich’s citizens railway destruction meant more travel restrictions. For city officials, bomb damage necessitated finding alternative ways of moving people and goods around. A steam-powered miniature railway (*Kleinbahn*) originally constructed in August to haul rubble, now carried streetcar passengers, as many of the electrical wires serving the streetcars had been destroyed. The age of steam had returned to Munich.

November alternated still more USAAF daylight raids with nighttime RAF fire raids. In addition to dropping incendiaries, the RAF now unveiled so-called “blockbusters,” high-explosive ordnance such as the 12,000-pound “Tallboy” bomb designed specifically to destroy buildings. In all, six November raids involving 1200 planes dropped 3,836 tons of bombs, killing 436 and injuring 410. Alfred Haussner wrote in an article on the November raids entitled “The Rubble and the Remains” that

⁵⁴ US Strategic Bombing Survey, Transportation Division, *Report #202: Effects of Bombing on Railroad Installations in Regensburg, Nuremberg, and Munich Divisions*, Second edition, January, 1947, U.S. National Archives RG 260: Records of the US Strategic Bombing Survey, folder 200a/148, 2.

“with every bomb dropped a small piece of the area that we understood as belonging to our homeland, crumbles into rubble and dust.”⁵⁵

Like earlier editorials, the one entitled “Munich today” in the November 24 edition of the *MNN* revealed the degraded living conditions while extolling the heroism of Munich’s citizens:

The autumn wind howls, rain and snow whip through the streets and one’s feet are suddenly in water, in one of the thousands of small holes that lurk treacherously after fire and bombs in asphalt and cobblestones next to patched streetcar tracks...When firestorms rage through the streets, when bodies lie buried under ruins, when electricity, gas, water, streetcars (and) railroads fail, then the enemy’s destructive power seems to suddenly fight against newly created willpower, then everyone fights with passion and fierce love for their homeland.⁵⁶

The “firestorms” referred to in the editorial did not approach Hamburg’s ferocity, but nevertheless badly damaged life and property. The December 18 RAF raid on Munich caused the war’s highest casualty toll on the city.⁵⁷ Hausenstein wrote afterwards, “The noose grows tighter and tighter around us here...at 11 o’clock at night the sky in the northeast was red like a bleeding wound. The alarms never stop.”⁵⁸

His account of his visit to the city on December 21, 1944 highlights the damage to transportation done by the USAAF and the impact of the RAF fire raids:

In Munich yesterday and the day before...Hard trip: back and forth took eight hours, including the stops at railway stations and the lengthy transfers on the way...The city is now absolutely destroyed; it exists practically only as rubble; on Wednesday in many places it was still burning from Sunday night.⁵⁹

⁵⁵ Alfred Haussner, “Der Schutt und das Bleibende,” *Münchner Neueste Nachrichten*, November 17, 1944.

⁵⁶ “München Heute,” *Münchner Neueste Nachrichten*, November 24, 1944.

⁵⁷ Permooser, 384-385.

⁵⁸ Hausenstein, *Licht unter dem Horizont*, 286.

⁵⁹ *Ibid.*, 287.

Nature had now enlisted an Allied enemy. Cold weather and frozen water pipes hampered efforts to put out fires. Ironically, staying warm now bedeviled people living in a city that was often on fire, as the coal and fuel situation deteriorated in late 1944.

The Coal Situation in Fall/Winter of 1944

During this time the increasing shortage of coal deepened the suffering of Munich's residents, and forced them to rely more on wood as a fuel resource. In the *MNN* for October 14, citizens were advised that for the time being, heating of government offices, Nazi Party offices, law offices, banks, insurance offices, cinemas, inns, and department stores was forbidden to save coal for the winter. In the countryside, people were to collect harvested wood and pinecones to substitute for coal. The article also contained a warning that if customers overused their coal allotment, they would not have anything for winter, and that "the commencement of heating must be pushed back as far as possible."⁶⁰

As 1944 ended and the final winter of the war began, Munich was in a very bad state, and about to get worse. Its connection to coal was now nearly severed, as the Red Army advanced westward and the transport system shuddered under constant interruptions. As the coal supply continued to shrink, officials now actively encouraged citizens to substitute wood for coal, and allowed them to cut their own wood.⁶¹ Coal dealers in the city were now authorized and encouraged to distribute

⁶⁰ "Brennstoffversorgung in Stadt und Land," *Münchner Neueste Nachrichten*, October 14, 1944.

⁶¹ "Mehr Waldholz als Brennmaterial," *Münchner Neueste Nachrichten*, November 20, 1944.

charcoal (*Holzkohle*) and wood to power wood-burning generators and cars.⁶² By January 1945, even the fine old trees in the inner city were at risk: a new rule allowed older trees in parks, rivers, and lining city streets to be cut.⁶³ This acceleration in the process of returning to wood as a fuel source dramatized Münchener's disconnection from their outside sources of fuel. Now consuming wood from within its urban innards, the starving organism of Munich was beginning to feed on itself.

1945: Collapse

The new year of 1945 arrived as the city had reached a new low in its history.

An editorial in the *MNN* from Dec 30, entitled "1945," summed up the situation:

We have all become poorer, our city has become poorer, more distressed; now we see buildings torn apart that once created a sensation in Europe. A toast-wherever it is possible with the "nervous schnapps," the special distribution of liquor can and will not belie the seriousness with which we greet the year 1945.⁶⁴

Giulio Douhet foresaw just such a scenario in "Probable Aspects of Future War," which in 1928 offered a disturbingly prophetic vision of Germany in early 1945. Germany, a belligerent that had lost the "command of the air," would have to

fight an unequal fight and resign itself to endure implacable offensives. Its army and navy would have to function with bases and communication lines insecure, exposed to constant threat, against an army and navy with secure bases and lines of communication. Its sea traffic would be cut off at the ports. All the most vital and vulnerable points in its territory would be subject to cruelly terrifying offensives.⁶⁵

The "cruelly terrifying offensives" wreaked on Munich in 1945 took the form of area raids on 7/8 Jan by the RAF, and precision raids by the USAAF on February

⁶² "Kohlenhändler als Tankholz-Hersteller," *Münchner Neueste Nachrichten*, December 20, 1944.

⁶³ "Erhöhte Holzabführung," *Münchner Neueste Nachrichten*, January 30, 1945.

⁶⁴ "1945," *Münchner Neueste Nachrichten*, December 30, 1944.

⁶⁵ Douhet, *Command of the Air*, 202-203.

25 and April 9, which targeted railroads and airfields. During the January raid, 597 planes dropped 2220 tons of bombs, killing 505 and wounding 988. A “double attack,” the second wave of bombers struck an hour or so after the first, when citizens had been given the “all-clear” and left the shelters.⁶⁶

For the people still living and working in Munich, the city bore more resemblance to a corner of Hell than the beautiful city and cultural center it had once been. Karl Ude, serving as a soldier in Munich, remembered the night of January 7, 1945, when he was on fire watch:

I had never experienced such a threatening and unnerving night during the air war. It was the only time we laid on our stomachs on the cellar floor, helmets covering our necks, our faces pressed against the stone floor. The power was out-and as far as we could see the area was in flames. Our boots crunched on broken glass, phosphorous licked at the supports and made the softened asphalt sticky. Also fire in all the window frames, the rattle of falling roof tiles, under which the rafters were burned through, sparks flying and poisoned air.⁶⁷

The outlying areas of the city felt the effects as well. In Tutzing, Hausenstein wrote on March 1, “We cannot escape the air raid alarms. We feed ourselves more and more with potatoes.”⁶⁸

The coal and fuel situation in 1945 continued to reflect how the retreat of the *Wehrmacht* and Allied bombing had changed the lives of Munich’s citizens. Coal scarcity worsened in February and March, mainly because trains had difficulty getting through. In a letter addressed to the city’s coal dealers on February 26, 1945, the Fuel Department of the Munich Economic Office (Decree #123/45):

⁶⁶ Permooser, 385.

⁶⁷ Karl Ude, “Soldat in einer verdunkelten Stadt,” in Hermann Proebst and Karl Ude, eds., *Denk ich an München: Ein Buch der Erinnerungen* (München: Gräfe und Unzer Verlag, 1966), 255.

⁶⁸ Hausenstein, *Licht unter dem Horizont*, 312.

The possibilities for importation to Munich have continued to shrink over the past few days. We can therefore expect a very small delivery of fuel. The remaining available supplies must be used to support nutrition. As of now fuel cannot be used for heating. Users may still get coal for cooking purposes when they proved in writing that they have no supplies remaining.⁶⁹

Two weeks later, on March 12, as the City Council discussed the situation, its transcript provides insights into how the remaining coal was being used:

The coal situation is as serious as ever. We should be getting 140,000 tonnes. Of that 64,000 is meant for munitions factories, 4000 for the gasworks, and a lot for other areas, so that only 11,000 tonnes are left for the remaining industries. It is not all certain that the 140,000 tonnes will come at all. We will try to get coal from Upper Bavaria for household heating. 100 wagons full of wood have arrived, and been partially distributed.⁷⁰

Above all other factors, the railroad situation had become critical. Tracks blown up, and locomotives destroyed severed the city from its fuel sources. The GLB reported on February 17, 1945, “In spite of all efforts, empty open freight- and coal-trains are stopped again and again as a consequence of air raid damages. Strafing attacks in stations and trains are increasing. Locomotives were shot to a greater extent.”⁷¹

Two weeks later, new raids cut the connections in the rail arteries serving the organism of Munich. Munich became isolated. Room to maneuver fuel to the marooned city grew smaller and smaller. Four Munich rail stations--Munich Main Station, Munich East, Munich-Laim, Munich-Ludwigsfeld--plus Nuremberg, Augsburg, and other junctions, ceased to operate. Damage to telephone lines meant Munich could not be contacted for three days. “Systematic enemy attacks broke up temporarily the railroad system into individual islands, causing complicated detours

⁶⁹ Stadtarchiv München, *Kriegswirtschaftsamt* 452.

⁷⁰ Stadtarchiv München, *Stadtrat Dezernatbesprechung*, March 12, 1945.

⁷¹ US National Archives, RGB 260: Records of the US Strategic Bombing Survey, folder 200a/148.

for the remaining freight and empty trains.”⁷² As soon as these connections were reestablished, advancing Allied armies and continual bombing raids would cut them again soon. By April 14 there was “no through passage from north to south and east to west.” Rail managers found “the southern districts of the RBD’s Karlsruhe and Stuttgart, RBD Augsburg and the west part of RBD Munich constituted a closed island.”⁷³ Isolated, cut off from its supplies of food and fuel, Munich was ready to expire as a fighting city.

Conclusion: Surrender

Sixteen days later, on April 30, American forces arrived. Munich surrendered. Munich at the end of April 1945 was a vastly different place than it had been at the outbreak of war in September 1939. High explosive and incendiary bombs had radically altered the urban environment, creating a place of smoke, dust and darkness. The streets were choked with rubble and full of holes. The railroads did not run, and streetcars barely functioned. Electricity, water and gas services were haphazard at best, and coal could not reach the city. People did find stocks of food, but once they had been looted (see the next chapter) the possibility of feeding the people without the aid of the Americans was distant at best.

Allied bombing planners and pilots had grievously wounded the organism of Munich by breaking connections that limited access to outside resources. Unable to live in the city, exiles deprived Munich of a substantial part of its population. Those remaining were more exposed to the forces of nature, especially weather. Bombing, seen two decades before as a way to overcome the hell of trench warfare and the

⁷² US National Archives, RGB 260: Records of the US Strategic Bombing Survey, folder 200a/148.

⁷³ US National Archives, RGB 260: Records of the US Strategic Bombing Survey, folder 200a/148.

poisonous environment it created, simply transferred environmental degradation from the trench to the city. Bombing raids, along with the war in general, damaged and disconnected a city from its food, energy, and transport. Red Cross nurse Maria Schneider's words accurately reflected the situation faced by Munich's remaining residents, "I did not reckon with this level of warfare. I was doubtful. I said to myself: 'this will never end, we have no cities, we do not have any more left. Everything is bombed out. We have no housing. Many of our children are crippled.'"74

Despite the interwar theorists' promises, changes in the urban environment and disrupted connections to natural resources had not forced Munich's people to demand their leaders surrender. They simply endured the hardships. Münchenerers adapted to the new conditions, finding new ways, such as substituting wood for coal, to survive. They sent their children to the countryside. They endured coal and electricity shortages while watching their city turn into a burned-out wreck.

After the bombs stopped falling, Munich's citizens faced an even bigger dual challenge: rebuilding the city and reconnecting it to the natural resources required not only for their personal survival, but to the survival of the city itself. While the physical destruction caused by exploding bombs and fires had ceased was over, defeat in war and occupation would unleash new privations. Key connections to natural resources serviced by the transport system present in 1939 had been severely damaged, even amputated. A vengeful enemy, the Soviet Union, now occupied the Eastern provinces, sources of coal and food. The Allies controlled both the Ruhr coalfields and the electricity produced by Alpine rivers. Coal, in many ways the city's

⁷⁴ Quoted in Eva Berthold and Nobert Matern, eds., *München im Bombenkrieg* (Düsseldorf: Droste Verlag, 1983), 78.

lifeblood, had been dwindling since 1942. Americans attacked the transport system and accelerated the environmental crisis caused by fuel shortages. To return to the man who started this chapter, could Helmut Dotterweich and his family recover what they had lost and rebuild their livelihood?

The next three chapters, each focused on one year of the occupation, reveal the answers to this and other questions. Together they analyze how Munich and its occupiers rebuilt some of these connections, lost a connection to the East, and built a new one to the United States. They also tell the human story of those years, of how all of these changes in connections affected everyday life in Munich. These chapters will highlight Munich's dependence on connections to natural resources, other cities and regions, the impacts of the changes in these connections, and its vulnerability to the forces of nature.

Chapter 5

Occupation Year One: Starting Over

When I came back into Munich from our evacuation in Summer 1945, it had given up the ghost, lay prostrate, was ruined...there were hardly any people around, the streets looked like they had been swept clean. We went through the city dumbstruck. Behind the empty window holes stood only the thin chimneys, sticking out into the blue sky; that couldn't be! Was that really our Munich?¹

The Munich that Konrad Vitalowicz found was indeed the same city, at least officially. It had the same political boundaries, but physically it was not as he remembered it, nor would it ever return to that form. Münchener and their leaders would have to rebuild the ruined city, not only its physical infrastructure, but also its connections to natural resources. During the first year of the occupation, the connection to the Ruhr became even more crucial, the connection to the Alpine rivers weakened, the connection to the now-occupied Eastern provinces almost disappeared, and the first seeds of the new connection to the United States were sown.

These changes were determined to a large extent by the new political realities Munich faced as an occupied city in a country carved up into Occupation Zones controlled by wartime allies with different agendas and ideologies. Munich's connections to natural resources, especially coal, were controlled by outside forces and subject to the demands of others. This had happened during the war, as Munich's access to coal and other resources was linked to the demands of the military, the health of the transport system, and to a lesser extent, success on the battlefield. In the

¹ Konrad Vitalowicz, "Mein München gibt es nicht mehr," in Landeshauptstadt München, ed., *Münchner Nachkriegsjahren: Lesebuch zur Geschichte des Münchner Alltags* (München: Buchendorfer Verlag, 1997), 49.

postwar period, a military power still made the decisions, but now it was a foreign one, the American occupiers. For example, they had the power, as discussed below, to force Bavaria to send more hydroelectricity to Austria.

In all of these changes, coal would play a crucial role. As the most important fuel in Germany and the rest of Europe, its distribution by the victorious allies greatly affect the lives of people all over Europe, and especially in Munich. As discussed in Chapter 3, coal was a key ingredient in heating, cooking, gas production, electricity generation, industry and railroads. Located in an area with limited coal supplies, Munich, always reliant on outside sources, faced an even more precarious situation after the war. With the Ruhr controlled by the British, and the Red Army occupying Silesia and Saxony, the city was more than ever subject to events and decisions beyond its control. The United States' abundant coal reserves offered one possible solution. The attitudes of the American occupiers and the need to transport coal overseas, however, made it a chancy prospect at best. Coal would most likely have to come from Germany, with the Allies controlling supplies and distribution. With the Ruhr as its main source of coal, Munich's supplies would be subject to the political and material needs of the occupiers. The social and economic situation in the Ruhr would also have great impact. These factors, along with weather and the state of the transport system, could very well determine whether a Munich housewife could heat her home or send her children to school.

Munich had to compete for coal not only with the rest of Germany, but also the rest of Europe. The victors, especially the Soviet Union and France, demanded reparations. Other formerly occupied countries, having been stripped of their

resources during the war, were also in bad shape and looked to the Ruhr for coal. The Americans, following the dictates of the State Department policy known as JCS 1067, were not necessarily interested in Germany's well being. Drawn up in September 1944, the policy stated that

Germany will not be occupied for the purpose of liberation but as a defeated nation. The clear fact of German military defeat and the inevitable consequences of aggression must be appreciated by all levels of the German population. The German population must be made to understand that all necessary steps will be taken to guarantee against a third attempt by them to conquer the world.²

Given the importance of coal to industrial production as a key component in a modern "total" war, Germany was at the bottom of the list in terms of receiving its own coal supplies. As part of a defeated nation that no one trusted, Munich's need for coal would also be a low priority and limited at best. If enough coal could not be found, other sources of fuel would have to take its place. As coal shortages continued, coal would become not just a fuel but also a means of exchange. The shift from coal to wood that began during the war in Munich accelerated and expanded in the postwar period, ultimately threatening local forests. The local and regional governments, assisted initially by the Americans, carried out a series of yearly "wood actions" (*Holzaktionen*) that continued the process of turning back the clock to the pre-industrial era. It was one of many adaptations that Münchenerers would have to make to survive after the war.

² Quoted in Carolyn Woods Eisenberg, *Drawing The Line: The American Decision To Divide Germany, 1944-1949* (Cambridge [England]: Cambridge University Press, 1996), 47. Eisenberg's main argument is that the actions of the United States Government pushed Germany towards division and helped create the Cold War.

When Germany officially surrendered on May 8, 1945, the American occupiers and the citizens of Munich were no longer at war, but they had a huge struggle ahead of them. The people of the damaged city did not need defense from bombs, but from the natural forces--in particular weather--bomb damage exposed them to. They had to be fed, housed and kept warm in a city whose connections to sources of fuel, food, water, and electricity had been heavily damaged or completely severed. The distribution systems and government structures of the Third Reich were gone along with its leaders. No one was sure where the food and fuel would come from, or how it would get there. Could they rebuild this and other connections to natural resources? If so, would these connections look the same or have the same significance as before? Would the occupiers allow them to do it, assist in the process, or just let the city die?

The first year of occupation, running from May 1945 to May 1946, provided answers to these questions, and set the pattern for the following two years. It was a chaotic time when shortages, restrictions and the struggle to get enough to eat and stay warm, all present during the war years, became more severe. Munich began to repair the physical damage, but the damage to its connections to natural resources remained. This year also gave a taste of how vulnerable the city could be to changes in climate and natural forces. Munich's citizens and their leaders would have to find new ways to get the resources they needed. At the same time, they had to put their city back together and deal with a population that was hungry and in poor health, and most of all, growing. Refugees and expellees poured in to Munich from all over what was once Greater Germany, putting a strain on scarce resources. This chapter tells the

story of this year in Munich, focusing on the coal situation and its related areas of gas, electricity and railroads. It also analyzes the food situation, highlighting the impacts felt by Munich's citizens.³

While the American occupiers would offer some assistance, they had their own priorities and needs. Their plans for the use and transport of natural resources often superseded those of Munich's citizens. The U.S. Third Army, in charge of Munich, formed the local Military Government (MG), commanded by MGO (Military Government Officer) Lt. Colonel Walter W. Kurtz. He served from May until September 27, 1945, when Major Eugene Keller took over after Kurtz died in a freak accident. Keller, of Alsatian origin and a fluent German speaker,⁴ wrote reports from the first year of occupation that provide a valuable source, along with memoirs and interviews, for understanding life in Munich during this time. In his Annual Report dated July 3, 1946, Keller echoed JCS 1067 as he described the difference between war and peacetime on the first day of occupation: "It was the end of one necessary phase of war-military power and destruction of the enemy and at the same time the beginning of a new phase-rehabilitation, reconstruction and re-education of

³ During the war, the Nazi government was able to access food resources from conquered nations such as France, Poland and the Soviet Union. Unfortunately, very little data regarding Munich's food supplies during the war exists. There have been some useful studies of the overall food situation such as Rainer Gries' *Die Rationen-Gesellschaft: Versorgungskampf und Vergleichsmentalität; Leipzig, München und Köln nach dem Kriege* (Münster: Verlag Westfälisches Dampfboot, 1991). The book describes the supply chains employed by the Nazi government and the use of food as a way of boosting morale. According to the four eyewitnesses I interviewed, food supplies during the war were more abundant and reliable than afterward.

⁴ For a more detailed description of the MG's and their personnel in the American Zone, see Rebecca L. Boehling, *A Question of Priorities: Democratic Reforms and Economic Recovery in Postwar Germany; Frankfurt, Munich and Stuttgart under U.S. Occupation 1945-1949* (Providence, RI: Berghahn Books, 1996). A stone falling off a damaged building killed Kurtz. In a curious link to pop culture, Kurtz shares a name with Marlon Brando's character in "Apocalypse Now".

the German people and the city under the control of American Military Government.”⁵

The key question was exactly what would be reconstructed and rehabilitated, and how would Münchenerers be “re-educated”? This study is more concerned with the impacts rather than the origins of the actions of the occupiers. It is important, however, to understand that during the first year of occupation the Americans were, officially at least, there to punish and educate, not necessarily help the Germans materially.⁶ The character of the connection to the United States was hard to define at this point. It was unclear exactly how much help the Americans were willing to offer. How many resources was the U.S. willing to send a defeated enemy who needed to be taught a lesson?

Despite the strict control implied by JCS 1067 and Keller’s report, the approach in American Zone was much more hands-off. The occupiers quickly re-constituted local and regional governments. These entities had a fair amount of autonomy, although all of their decisions had to be approved by the MG. There was also the stipulation that staffs must consist of officials who had not been Nazi Party members or supporters. In Munich, the Americans called Karl Scharnagl, Lord Mayor before the Nazi seizure of power in 1933, out of retirement to head the Munich City

⁵ Eugene Keller, “Annual Historical Report for Military Government SK-LK Munich, dated July 3, 1946,” US National Archives, RGB 260: Occupation Records, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 406, 2. There is some confusion as to Keller’s rank. In some documents, he is listed as a Major, in others as a Lt. Colonel. The documents I used listed him as a Major, so I have used that rank.

⁶ For an analysis of the “broad range of interests” that drove American occupation policies in Germany, see John Gimbel, *The American Occupation Of Germany; Politics And The Military, 1945-1949* (Stanford Calif., Stanford University Press, 1968). Boehling also points out that actions and motives on the local level often differed from those in Washington and Berlin. See Boehling, *A Question of Priorities*, 6-7.

Government. His first Deputy Mayor was Dr. Franz Stadelmeyer. Thomas Wimmer replaced him on November 10, 1945 when Stadelmeyer resigned.

As occupation began in May 1945 the future of occupied Munich was anything but clear. It could be reconstituted as a nation, split into separate states, or dissolved altogether. The Soviets occupied the largest agricultural areas in the East. The British had the industrial heartland of the Ruhr. The Americans had Bavaria, primarily an agricultural area, but also a source of hydropower and wood. The relationship between these Zones and the distribution of their resources had huge impacts on everyday life in Munich. It is essential to understand this “big picture” in order to explain the events of the first, second, and third years of Munich’s occupation. Events occurring and decisions made outside of Munich were crucial in determining what happened to the city and its inhabitants. This next section offers an overview of the coal situation in Europe, Occupied Germany, and Bavaria. It shows just how important the coal resources of the Ruhr were to Germany and the rest of Europe. A discussion of the local impacts of the coal situation on Munich and its citizens in terms of fuel and food follows.

The Big Picture: Europe and its “Coal Mine,” The Ruhr

Like Munich, Western Europe depended on the Ruhr for coal, especially hard coal. With supplies from the East doubtful, Ruhr coal and the people who mined it assumed even greater importance. One of the best guides to understanding the situation in the Ruhr and the British Zone in general is Mark Roseman’s 1992 *Recasting The Ruhr, 1945-1958: Manpower, Economic Recovery, And Labour Relations*. Roseman analyzes how the British authorities ran their Zone until it was

joined with the American Zone in January 1947 (discussed in the next chapter). He assesses why they failed to increase coal production during that time. An in-depth analysis of British policies is beyond the scope of this project. Roseman's political history nevertheless provides valuable insights into Ruhr coal production.

From the beginning, Roseman explains, the occupiers were concerned about the shortages of labor in the mines. They took "measures to restore the workforce" immediately. They faced daunting challenges in recruiting but also keeping workers. They knew that Europe needed Ruhr coal to recover from the war, that the overall coal situation in Europe was very grim.⁷ In June 1945 C.J. Potter and John Hyndley of the Allied Control Commission prepared a report (known as the Potter-Hyndley Report) to the British Government described the crisis facing the Continent. It began by presenting a dour assessment of current conditions and predicted disaster in the near future. They wrote, "unless immediate and drastic steps are taken, there will occur in North West Europe and the Mediterranean next winter a coal famine of such severity as to destroy all semblance of law and order, and thus delay any chance of reasonable stability."⁸

The Report recommended an increase in the food rations to miners and gave advice on how to structure the occupation bureaucracy. Its most important points, however, are related to Germany's crucial role in avoiding the disastrous projected future:

⁷ Mark Roseman, *Recasting The Ruhr, 1945-1958: Manpower, Economic Recovery, And Labour Relations* (New York: Berg, 1992), 34-35.

⁸ "The Coal Situation in North West Europe: Report by the Potter/Hyndley Mission to North West Europe June 1945," The National Archives: PRO FO 943/681. This situation sounds remarkably similar to what Douhet and Mitchell thought would happen after bombing raids.

The main solution must lie in stimulating German production and the availability of the necessary transport. The conditions generally in Germany are such that this will not be achieved without quite extraordinary measures which can, and will, be taken only as a result of a general appreciation that coal is by far the most critical item.⁹

The authors estimated that at minimum Northwest Europe and the Mediterranean would need 30 million tonnes of coal by April of 1946. The US, UK, and South Africa could supply 5 million tonnes. Germany must provide the remainder, with the first 10 million tonnes delivered by the end of 1945. Directives issued to American and British commanders enforced this demand. They also required that Germany provide an additional 15 million tonnes during the first four months of 1946. The Report made it clear that the overall health of Europe came first, that the needs of Germany were secondary at best.¹⁰ Not only were the western Occupation Zones expected to meet this demand for coal, but also do it “irrespective of the consequences to Germany, and irrespective of plans for other industries or the internal economy of Germany.” Since Germany was producing roughly 6,000 tonnes of coal per day and had 5.5 million tons in reserve, the authors saw production as the main obstacle: “The bottle-neck, therefore, is the actual production of coal at the face, and this is likely to remain so; indeed, transport facilities show every sign of increasing more rapidly than coal production.”¹¹

Some weeks later on July 19, 1945, a Cabinet Report (report by the British Cabinet) considered the implications of the scenario presented in the Potter-Hyndley

⁹ Potter/Hyndley Report.

¹⁰ Countries dependent on German coal exports included: France, Norway, Holland, Denmark, Belgium, Luxembourg, Greece and Italy, It was estimated that they would all need 25 million tonnes from Germany, which was many times the current (Sept 1945) production. “Besserung im Ruhrgebiet: Kohlenknappheit und volle Halden”, *SZ* October 30, 1945

¹¹ Potter/Hyndley Report.

Report in terms of supplies outside of Europe. It described the coal situation as “serious in the United States, worse in the United Kingdom, and desperate in liberated Europe...Bad though our outlook is, the Continental outlook is immensely worse.” The Report also strongly reiterated Germany’s central role, and lowered expectations for the UK’s contribution. It read, “To sum up the general situation, it appears extremely doubtful whether the United Kingdom can continue to supply coal, save in very low grades...aid should be sought from the coal resources of Poland and Silesia.” Obtaining coal from these Soviet-controlled areas would be difficult. It involved international negotiations and the good will of the Soviet Union, a country not keen on giving up conquered resources.¹²

Given the uncertainties of postwar Germany, the predictions and demands in the Potter-Hyndley report were questionable. The Report’s content, however, demonstrates the larger context of the overall coal situation. It helps explain why Munich was in such a difficult position. The needs of Europe outweighed the needs of Germany and Munich. The Allies seemed determined to exploit the coal resources of the Ruhr to their fullest extent.

The Ruhr region was at the center of concerns regarding Europe-wide, regional and local coal supplies. First priority was overcoming the production limitations imposed by wartime damage and labor shortages. As the mines began working again, transportation became the biggest obstacle to distribution.

¹² Cabinet Report, “Coal: Increased Bunkering Requirements. Memorandum by the President of the Board of Trade and Minister of Production. Annex 1: Survey of General Coal Position by an Official Working Party Arising from an Investigation of C.P. (45) 60 and 66: July 19, 1945,” The National Archives: PRO FO 371 Relief: 1946 Supplies, File #144.

The production of Ruhr and Aachen coalmines suffered significant damage during the war. A report to the Combined Resources and Allocations Board dated July 12, 1945 reveals the impact on production. Thirty-two pits, normally producing 20.5 million tonnes per year, were shut down. This reduced the potential annual production by 15 percent, from approximately 133 to 113 million tonnes. Of the 135 pits still functioning, only six were undamaged. The rest suffered minor to major damage. Output per man-shift also suffered, sinking from 1.5 tonnes in 1938 to 1.2 in 1943, .92 in 1944, and .42 in July 1945.¹³ By fall 1945, labor shortages caused Ruhr production to drop to 10 percent of peacetime levels. A rise in production from an all time low of 40,000 tonnes per day at the time of surrender to 100,000 tonnes (or 25 percent of normal) per day in October 1945 did offer some hope.¹⁴ The Report optimistically forecasted that once the situation in the mines stabilized, the significant reductions in productivity would be made up. In contrast to the Potter-Hyndley Report, the Cabinet Report concluded that transport, not supply, was the greater coal distribution problem.

The Transport Problem

Without trains, trucks and boats to transport it, the Ruhr coal could not get to those who needed it. This alarmed the British authorities controlling the Ruhr. In a letter to the British Foreign Secretary Ernest Bevin dated January 1, 1946, John Hyndley described the problem in the Ruhr as “a transport problem...Coal is already piling up at the pitheads for lack of transport to move it to France and elsewhere.”

¹³ Allied Zones to Combined Resources & Allocations Board, “Coal Report US/Br/Fr Zones Germany July 12, 1945,” The National Archives: PRO FO 371.

¹⁴ “Besserung im Ruhrgebiet: Kohlenknappheit und volle Halden,” *SZ*, October 30, 1945.

This occurred partly because of a production rise from 2 million tonnes per month in August to 3.7 million in November. Output per man-shift also rose from 0.63 to 1.14 tonnes during that period.¹⁵ Most of the transported coal did not stay in Germany. In a later letter (January 10, 1946) Hyndley reported that between November 1 and December 28, 91 percent of coal produced (1.9 million tonnes) went to other countries. These included Belgium, Denmark, France, Luxembourg and Norway.¹⁶ While this was good news for the occupiers and the formerly occupied, it was not for Munich and other German cities. Natural forces also intervened to make more bottlenecks. In February 1946 a flood interrupted rail traffic and shut down boat transport on the Rhine, its canals and tributaries.¹⁷

Hard Times: The Coal Situation in Bavaria and Munich

Such interruptions worsened the already precarious coal situation in Bavaria and the rest of the American Zone. In 1945, the American Zone contained only one percent of the brown coal and less than one percent of the hard coal of all the Zones. The British Zone had 89 percent of the hard coal, and 45 percent of the brown coal. The Soviet Zone had the majority--52 percent--of the brown coal, the type most often used for household heating.¹⁸ Munich and other Bavarian cities controlled neither the imported coal, nor the local coal supplies in Upper Bavaria. The MG for Bavaria--OMGBY--based in Munich, supervised coal distribution. It gave first priority to

¹⁵ John Hyndley, "Letter to Rt. Honorable E. Bevin, M.P., Foreign Office, Control Office for Germany and Austria in London, January 1, 1946," The National Archives: PRO FO 371 File # 144.

¹⁶ John Hyndley, "European Coal Organisation: Loadings, ex Ruhr, Cologne and Aachen for period 1 Nov. 45 to 28 Dec. 45 inclusive January 10, 1946," The National Archives: PRO FO 371 File # 144.

¹⁷ "Hochwasser stört Kohlenversorgung," SZ, February 22, 1946.

¹⁸ Hyndley Letter, January 10, 1946.

military, i.e. American, users. For example, in August 1945, the Third Army took approximately 80 percent of the Upper Bavarian coal for military uses, leaving the remaining 20 percent (about 10,000 tonnes) for civilians.¹⁹

Local production, especially from the Peissenberg mine, still needed to rise, and fast. To fill the expected 50 percent increase in production at all the mines, local governments and mine owners improvised, drawing on often-overlooked sources. As in 1920 and 1923, Bavarians open closed mines unprofitable in normal times. In fall 1945 brown coal production began in many small mines in the area between Regensburg and Schwarzenfeld in Upper Palatinate (*Oberpfalz*).²⁰ One example was old brown coal mine near Schwanendorf in the Bavarian Forest. Lying in relatively shallow ground in three flat troughs, it held a deposit estimated to yield 2 to 3 million tons. Sufficient labor--200 miners--could produce 300 to 400 tonnes daily.²¹

These new coal sources offered some hope for Münchenerers faced with a weakened connection to vital coal supplies. During the first year of occupation, restricted supplies from the Ruhr and the occupiers' use of local coal would significantly impact their lives. Coal shortages affected not only gas, electricity and heating, but also food supplies.

When Major Keller arrived with the Third Army in May of 1945, he faced some big problems. The trains did not run, gas service had ceased since the previous summer, and electricity service was restricted. The population was ill housed, hungry,

¹⁹ HQ Regional MG Bavaria, Economic Branch "Solid Fuel Allocation Procedure," August 9, 1945, US National Archives, RGB 260, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 408.

²⁰ "Wettrennen Nach Kohle: Gibt es Neuentdeckungen? "Zauberer" und Geschäftemacher," SZ, November 27, 1945.

²¹ "Kohle aus dem Bayerischen Wald?," SZ, January 16, 1946.

and restless. His unit was essentially in charge of a disaster area. His Monthly and Annual Reports reveal the conditions he faced. Shortages of coal “continued to be the most serious problem confronting the economic life of the city.” For example, the amount delivered--5,071 tonnes--in June was only 58 percent of what was needed. Factories shut down, and very little coal remained for civilian uses or electricity generation. The food situation was also precarious. When occupation began in May, the city limits contained an overall ten-day supply of food stocks. German officials had, however, located enough wheat and flour stocks for a thirty-day supply outside of Munich. Bombs destroyed 350 of the 800 bakeries in the city, and only 250 of the 450 remaining were operating. By the eighteenth of May the estimated food supply in the city of Munich would last five days, with a twelve-day supply in the immediate area.²²

Coal shortages also affected food supplies. In a July 16, 1945 Memo, Thomas Buchanan, the Civilian Supply Officer for the Munich MG, estimated that Munich needed 500 tonnes of coal per month to provide bread for its citizens. He recommended consolidating production into large bakeries. Buchanan warned that without extra coal, bakeries would be forced to shut down in a week. He called for coal from Army stocks.²³

Like the bakeries, the railroads depended heavily on coal for fuel. As during the war, repairing rail lines was the easiest part of getting the transportation system moving again. The railroad repair shops at Freimann and West Munich started up on

²² Eugene Keller, “Annual Historical Report for Military Government SK-LK Munich, dated July 3, 1946,” US National Archives, RGB 260: Occupation Records, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 406, 110.

²³ Thomas Buchanan, “Memorandum,” US National Archives, RGB 260: Occupation Records, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 406.

May 7, 1945, eight days after surrender.²⁴ Despite the heavy bomb damage to the *Hauptbahnhof*, trains began running within four weeks of surrender. On May 23, 1945, the first freight train since the surrender left Munich. Soon afterward trains ran to Heilbronn, Stuttgart, Heidelberg, Salzburg, Nuremberg, Moosburg, and Berchtesgaden. There was, however, no passenger traffic. While passenger traffic soon resumed, in the coming months, freight, especially food and fuel, had first priority to use the limited available amount of railcars and locomotives. For example, on December 15, the occupiers halted almost all passenger traffic (except for some commuter trains) indefinitely to help transport food and coal.²⁵

Munich was putting its transport system back together, but using it was still doubtful. The occupiers also took up the bulk of the railroads, using them to transport goods, equipment, and personnel for their own use. For example, in June 1945 the U.S. Third Army used the line running north and south from Hanau-Aschaffenburg-Würzburg-Nuremberg-Regensburg-Munich-Passau-Linz to move men and materiel.²⁶

For citizens returning to Munich from the countryside or other cities, this meant hardship. The trains often did not run all the way to Munich or to the *Hauptbahnhof*. Theo Rosendorfer and his family reached Munich from Kitzbühel in Austria via the following route: by truck to Kufstein, on foot over the border, then to Munich with a refugee train made up of cattle cars, which stopped at Munich's East Station (*Ostbahnhof*), then on foot to their apartment.²⁷ Ingeborg Schluckbier recalled how since the few available trains only ran to Rosenheim (50km outside of Munich),

²⁴ Keller, "Annual Report", 143.

²⁵ Stadtarchiv München, *Chronik Der Stadt München 1945-1948* (Dillingen/Donau: G.J. Manz AG, 1980), 53, 116.

²⁶ "Eisenbahnen fahren wieder," *Münchener Zeitung*, June 23, 1945.

²⁷ Rosendorfer, interview.

her family hitched a ride on the back of a wood-powered truck. She sat “near the cab, where it hissed and smoked. The stench surrounded us. Wood, our fuel to Munich, sat in the corner.”²⁸

Getting around within the city limits was also a formidable challenge. Streetcars had to serve over 500,000 patrons daily with only half the number of cars available in 1939. New streetcars had been ordered, but shortages of materials and equipment delayed production. The system consisted of 306 kilometers of track in 1939, and by the end of the war there were damages to the tracks in 342 places, with 50km of unusable track. Experts estimated that it would take 80,000 kg of materials and circa 1000 daily shifts to repair the damage.²⁹

As with many other sectors of the local economy, restrictions in goods traffic on the railroads affected public transport in Munich. In December, 1945 a report by the City of Munich on transportation explained that not only were the citizens of Munich wondering when the buses and streetcars would be in order, but that “Because of the division of Germany into zones and the resulting limitations in compensation...the shipping of materials and spare parts from outside was severely restricted.”³⁰ This led to overcrowding on the functioning streetcar lines, which could be hard on the passengers. This cartoon from the *Süddeutsche Zeitung* in 1946 depicts a “regular commuter” (*Stammfahrer*) who arrived at his destination considerably worse for wear.

²⁸ Ingeborg Schluckbier, “Zurück nach München,” in *Münchner Nachkriegsjahren*, 33.

²⁹ “Unser Sorgenkind: Die Strassenbahn: Pläne zur Besserung der Verkehrsverhältnisse,” *SZ*, October 19, 1945.

³⁰ Stadtarchiv München, *Bürgermeister und Rat* 2068, Dec 28, 1945.

Figure 5: “Der Stammfahrer”



Moving people and goods to, from, and within Munich continued to be a challenge as the months passed.

The rail lines themselves were not the main obstacles to rebuilding Munich's arteries. Shortages in equipment, manpower and fuel, especially coal, slowed reconstruction. The same was true for electricity generation. The year began on a positive note. On May 12, 1945, the nightly blackouts, in place for 2077 nights since September 3, 1939, ended. Six days later, streetlights functioned again. Something other than fire now lit the city at night. What those lights revealed was not very pretty.³¹

³¹ *Chronik Der Stadt München*, 51.

When the U.S. Army entered Munich twelve days earlier, it found a city plagued by an electricity supply about as unreliable (and frustrating) as the coal supply. In his Quarterly Report, Major Keller described the situation: “The electrical system was operating on limited basis, the coal plant in Munich furnishing the entire output. There was sufficient coal to operate for three weeks.” Workers were repairing the city hydroelectric plant at Maximilianstrasse and lines to hydroelectric plants in Moosburg.³² The overhead power cables took the worst of the damage, with the underground lines still more or less intact. Critical shortages of spare parts and personnel meant that only the most critical repairs were made. In many neighborhoods, less than 50 percent of the previous power lines had been restored by 1948, and those often got overloaded. The situation could have been worse. Near the end of the war the Nazi Party leadership ordered the bridges over the Isar to be blown up. The accompanying destruction of heavy power lines running through the bridges, would have cut Munich off from outside sources of electricity. Recognizing the danger, Director Hindelang successfully resisted these orders.³³

With no gas and very little coal, people turned to electric heaters to keep warm. This overloaded the existing power lines, quadrupling demand, especially in areas that had taken heavy damage during the war. The arrival of cold, rainy weather in late August of 1945 worsened the situation, forcing the local government to implement conservation measures. Echoing wartime blackouts, the city went dark at least one day a week.³⁴ The neighborhoods of Bogenhausen, Schwabing, Neuhausen and Sendling experienced the worst interruptions in 20 years. Electricity consumption

³² Keller, Annual Report, 119.

³³ C. Zell, *Geschichte der Elektrizitätsversorgung Münchens*, 43.

³⁴ *Chronik*, 73.

had already almost reached last year's peak. The demand on one underground cable matched a month's worth from 1944 in just a few days.³⁵

It seemed that even though the bombs no longer fell, the people still had to do without electricity. An October 31, 1945 article in the *Münchener Stadtanzeiger* (*MS*) newspaper highlighted the differences between wartime and the current situation. It called for cooperation and shared sacrifice:

Since July of 1944 all of Munich has had no gas. The people have gotten used to cooking with electricity. The fuel in winter 1944 was just about as short as now...we had light and electricity for heat despite the continual and sometimes severe bombing raids...The problem is not so much energy conservation, but the time distribution (when the electricity was consumed) of electricity consumption.

Basically, the system could no longer handle the spikes in consumption caused by people using electric heaters. Münchenerers would have to change long-held habits in the interest of all:

if we voluntarily share cooking times and abstain from using electric heaters, everybody at least has something. If one believes that he can risk the power spikes by sticking to the customary cooking times and electrical heaters, then we all have nothing.³⁶

The coal shortage led to a change in habits, the use of electrical appliances. This was nothing new. The greatest change was the reality of life in an occupied city short of supplies and subject to U.S. Army priorities. A good example of this is the exchange of electricity with Austria. As previously discussed, the city received about 13.4 percent of its energy from outside sources in 1941. This included Saxony and Austria. In January of 1946, the Austrian connection, much to the consternation of Munich's citizens, shifted more towards exports than imports. An article in the *SZ*

³⁵ Stadtarchiv München, *Stadtratsbesprechungen*, Aug 30, 1945.

³⁶ "Erst lesen, dann erteilen!," *Münchener Stadtanzeiger*, October 31, 1945.

entitled “Electricity as export good: Bavaria lights Vienna” told how the occupying powers decided that Austria needed the power more.

The article started off with some good news. In Bavaria, the *Föhn*--a warm winter wind that often melts the snow and ice in Alpine watersheds--arrived, releasing water for hydroelectric power plants. In January 1946, workers at the Ering power plant on the Inn river rejoiced that “We have water again!” meaning that Bavarians could have more electricity, or so they thought. The resulting electricity, however, went to Vienna, not Munich. The Allied Control Council ordered that Bavaria send 1 million kWh daily to Austria. This delivery reduced Bavaria’s supply in winter, a time of severely reduced hydropower supplies. For example, electric-powered locomotives using the so-called “*Einphasenstrom*” (single-phase current) were in danger.³⁷ Supplies flowing into Bavaria from Tyrol were insufficient to fill the gap left by the exports to Vienna. The Austrian capital, its own coal-fired plants not operational, was in dire straits. The natural world, in the form of the *Föhn*, had cut Munich a break by providing more hydropower. Unfortunately, since neither the Bavarian nor the Munich authorities made the decisions, they could not take advantage of this late Christmas gift. The American occupiers reconfigured Munich’s connection to the Alpine rivers. There was very little Münchener could do except adapt to the change.

Hydropower aside, the fuel that Munich ran on was coal. The railroads would have to compete with the electricity generators and the citizens themselves for the limited supplies. The occupiers also constantly redistributed coal supplies. For example, in his January 1946 report, Major Keller related that 2,000 of the 5,000

³⁷ “Strom als Exportware: Bayern beleuchtet Wien,” *SZ*, January 18, 1946.

tonnes of Bavarian coal received that month were diverted to the Electricity Works. This forced other users to rely on promised, but not delivered, Ruhr supplies.³⁸

The demands on Ruhr coal and the transport problem forced Munich to heavily rely on Upper Bavaria for coal throughout the first year of occupation. For example, in March of 1946, of the 8500 tonnes of coal imported, 6,200 (73 percent) came from Upper Bavaria, 800 (9.4 percent) from the Ruhr, and 1,500 (17.6 percent) as briquettes.³⁹ If this proved insufficient, which seemed likely, Munich's leaders would have to find other coal sources and other fuels.

Local leaders in Munich assessed the situation during the summer, looking worriedly towards fall and winter. They realized the crucial importance of access to the Ruhr coalfields. In a June 30, 1945 letter Lord Mayor Scharnagl pointed out that the gasworks needed hard coal imported from the Ruhr or Saar. He had heard that because of transportation shortages, these regions had 6 million tons of coal sitting idle. His estimate was probably inaccurate, but the transportation problem was real. Scharnagl explained that coke shortages were also a serious problem, as "most public buildings, all hospitals, private clinics, school-buildings...have central heating which can only be done using coke."⁴⁰

For households, no coal or coke meant almost no heating or cooking. While some houses and apartments had electric heaters (remember how the overuse of them had caused electricity shortages), many were still heated by coal-burning stoves. The

³⁸ Eugene Keller, Letter dated January 9, 1946, US National Archives, RGB 260: Occupation Records, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 406.

³⁹ Dr. Sauter (Wirtschaftsamt der Stadt München), "Bericht über die Brennstofflage des Stadtkreises München im Monat März (1946)," US National Archives, RGB 260: Occupation Records, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 406.

⁴⁰ Karl Scharnagl, Letter to Military Government dated June 30, 1945. US National Archives, RGB 260: Occupation Records, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 406.

City Council, meeting in August 1945, heard a report on the fuel situation in Munich. Apparently there was no fuel set aside for heating purposes. With households almost out of fuel, Münchenerers could not cook food. Even worse, no coal supplies were expected from Soviet-controlled Saxony or Silesia. The report linked the shortages to reduced production and labor shortages in the Ruhr. In prewar years, daily coal production had been 420,000 tonnes, but by July 1945 it dwindled to 70,000 tonnes, with 25,000 tonnes used at the mines. Daily coke production had sunk from the prewar level of 90,000 tonnes to just 9,000 in July of 1945. The number of workers dropped from 510,000 men in prewar years to just 145,000 in July 1945. Those miners left were in poor physical shape and struggled to find food for themselves and their families. They had a “small inclination for work” and a 30-50 percent absenteeism rate.⁴¹

Before the war, such problems caused concern, but not fear of impending disaster. In the summer and fall of 1945 the coming winter looked perilous. Unless coal and wood supplies increased, the city would only have enough fuel for food and health facilities and household cooking. None would remain for heating. Since the occupiers saw coal for civilian use as a secondary priority and the transport system was clogged, coal supplies remained limited. Increasing the supply of wood seemed the best available solution. The MG and local authorities turned to local wood supplies. Coal had replaced this centuries-old fuel source in the years since the Industrial Revolution.

⁴¹ Münch, City Economic Office, “Present State of the Fuel Supply of the Capital of Munich (translated),” US National Archives, RGB 260: Occupation Records, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 406.

Turning Back to Wood: Holzaktionen

As during the war, wood had powered cars, so during the occupation the forests of Bavaria proved a vital source of wood for fuel. The MG and City Government implemented the first of their yearly “wood actions” (*Holzaktionen*) in fall 1945 to obtain fuel for winter. These actions continued in 1946 and 1947. They kept many people alive, although not without consequences, as will be discussed in Chapter 7.

The process began in August when local contractors cut 100,000 raw meters (*Ster*). A raw meter consists of pieces of wood whose length adds up to roughly one meter. For example, five pieces of wood, each 20cm long, constituted one-fourth of a raw meter according to regulations.⁴² The City Council knew this would not be nearly enough, particularly if the promised coal did not arrive. In an August 30, 1945 report, Councilman Münch estimated that the city would need two to three million raw meters of wood to make up for coal shortages. He stated, “procuring of such quantities is entirely out of the question,” and thus fuel consumption needed to be limited. Furthermore, the city government could only acquire 50,000 raw meters of wood at that time due to a shortage of workers, equipment, fuel and transportation.⁴³ Also in that month, the MG expected to have 500-700,000 raw meters of wood by mid-November, or roughly half of the 1,000,000 raw meters required.⁴⁴ To increase production, in September the City Council called all able-bodied men aged 16-55 to be available for wood collection for the winter.

⁴² Der Oberbürgermeister Sagte,” *SZ*, February 12, 1946.

⁴³ Münch, “Present State of the Fuel Supply of the Capital of Munich.”

⁴⁴ Keller, Annual Report, 106. The MG and the City Government had different ideas about how much wood the city would need. This was a cause of substantial tension between the two.

At first the MG expected the local government to undertake the entire *Holzaktion*. It quickly became clear that the city had neither the equipment nor the transportation capacity to reach its goal of 500,000 raw meters by January of 1946. As with many supply issues, the MG had to step in and assist the local government. A breakdown of the 365,000 raw meters, delivered by December 15, 1945 from 19 Forest Offices in a 50km radius around Munich demonstrates the role of the MG:

cut by city government: 95,000
by the Army with POW's: 60,000
from the mayor's stock: 60,000
individuals: 70,000
stocks of wood in the forests: 80,000

The MG also provided the trucks and trains to transport the wood to collection points at the Theresienwiese (site of the Oktoberfest) and Oberwiesenfeld. From there coal dealers distributed it to the populace.⁴⁵

While the availability of wood was helpful, it was not a perfect solution, and merely softened the blow brought on by limited coal supplies during the winter. As early as September, local authorities predicted a fuel shortage for the coming winter and announced fuel rationing. Similar to the situation during the war, citizens received fuel coupons along with food coupons. A winter without coal, especially if as severe as the previous one, could be fatal to many of Munich's citizens.⁴⁶

The Winter of 1945-46

Fortunately, the winter of 1945/46 was comparatively mild, featuring the warmest December for eleven years. Temperatures reached 10 degrees Celsius (52

⁴⁵ "Die Münchener Holzaktion," *Münchner Stadtanzeiger*, January 9, 1946.

⁴⁶ *Chronik*, 78.

degrees Fahrenheit) and over.⁴⁷ Nevertheless, the impacts of the war still made life very difficult in a city where most of the housing had been damaged or destroyed. Keeping urban dwellers from freezing to death was a top priority for the local government. Officials made plans to set up “*Wärmestuben*” (“warm rooms”) as “refuges from uncomfortable living spaces.” By December 1st, 70 of the 140 planned “warm rooms” were in operation.⁴⁸ In the past, citizens had often gone to public baths to keep warm in winter, but the coal shortage also affected this practice. More importantly, shuttered bathhouses posed a public health threat. In a January 9, 1946 letter, Scharnagl reported that if the two-thirds of the city’s bathhouses closed due to lack of fuel were not reopened, “the danger of lice and typhus will become acute.” For example the Müller Volksbad, heated with coal, provided 70 to 80,000 baths monthly.⁴⁹

On December 22, 1945, the City council met to discuss the city’s fuel situation. Deputy Mayor Wimmer reported that the government likely would not be able to distribute the planned 10 kg of coal per capita, and would substitute wood.⁵⁰ Some days later, on January 2, 1946, his fears were confirmed. The demand of 14,880 tonnes did not match the supply of 8000 tonnes.⁵¹ By the end of January 1946, the City Government met the goal of 500,000 raw meters of wood, and each citizen received 0.75 raw meters.⁵² Wood, while useful, was not an ideal fuel for heating households. Major Keller pointed this out in a January 9, 1946 letter: “Considering

⁴⁷ *Chronik*, 121.

⁴⁸ *Chronik*, 109.

⁴⁹ Karl Scharnagl, Letter to Military Government dated January 6, 1946. US National Archives, RGB 260: Occupation Records, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 406.

⁵⁰ *Chronik*, 119

⁵¹ *Chronik*, 125.

⁵² Keller, Annual Report, 108.

the unfavorable climatic conditions of Munich, wood fuel can only be regarded as a poor substitute, as the heating value of the green wood is extremely low and it is highly desirable therefore that the Munich households should be supplied with at least some coal.”⁵³

As with so many other necessities, many people found the amount of wood the government supplied insufficient. Whether out of desperation or desire for profit, people took to removing wood from ruined buildings and cemeteries. This was a dangerous business, as people were injured and/or killed in the ruins (especially after a heavy rain)/ Taking wood from cemeteries carried a penalty of up to five years in jail.⁵⁴ The *MS* reported in September that such thefts were becoming common with the onset of cold weather. In recent days someone had cut and removed ten trees with an average diameter of 25 centimeters (10 inches) from the Southern Cemetery (*Südfriedhof*). Authorities threatened the perpetrators with “severe punishment” and confiscation of their tools and equipment.⁵⁵ Konrad Vitalowicz, an evacuee who returned in August 1945 at the age of 14, remembered the hazards of gathering wood from ruined houses: “It was especially dangerous when I had to pull balconies out from their moorings without pulling down the walls. Sometimes I had to jump away. If the piece of wood was underneath, I chopped the burned wood off until the unburned wood was gleaming.” Later he would look for “especially good” wood such

⁵³ Keller, Letter dated January 9, 1946.

⁵⁴ *Chronik*, 229

⁵⁵ “Holzfrevl in den Friedhöfen,” *Münchener Stadtanzeiger*, September 19, 1945.

as parquet strips or doorframes.⁵⁶ Finding wood could also be deadly. On November 20 ruins crushed and killed an old man and woman as they dismantled a staircase.⁵⁷

Shifting to wood for heating also diverted supplies from other sectors of Munich's economy. The January 18, 1946 edition of the *SZ* reported that there was not enough sawn wood (*Schnittholz*) for construction and other uses. Most of it had been taken during the *Holzaktion* for heating. The article reported that with woodcutting now at 150 percent of normal, forests could suffer serious damage.⁵⁸ At a time when fuel was scarce, though, this was not a huge concern, as it would be in 1947.

For local and occupying authorities, relying on wood was at best a temporary solution to the coal problem. For Munich's citizens, substituting wood for coal was a hardship, and they hoped to get more coal rather than cut down their forests. In a set of interviews with "prominent people," the *SZ* reported the prevailing opinion in its January 1, 1946 issue: "In the coming year, coal production in the entire state (of Bavaria) should be at full tilt; even the last small mine will be back in production." Many people hoped that this would be true, not only for themselves but especially for their children.⁵⁹

Children were one of the most visible groups hit by these shortages, especially when they attended school. In January and February many problems plagued school heating. In his Annual Report, Keller described most school buildings as "cold, gray

⁵⁶ Konrad Vitalowicz, "Mein München gibt es nicht mehr," in *Münchener Nachkriegsjahren*, 50.

⁵⁷ *Chronik*, 105.

⁵⁸ "Zu wenig Schnittholz," *SZ* Jan 18, 1946.

⁵⁹ "Güte Vorsätze-für 1946: Aufbau in allen Gebieten," *SZ* January 1, 1946.

and dreary, with temperatures often below zero centigrade.”⁶⁰ Harriet Weber remembered sitting in class “all bundled up” and getting frostbitten hands.⁶¹ Helmut Dotterweich recalled how “everyone had to bring a briquette so that the room could be heated...in school, the classrooms were often cold.” School days were limited or eliminated altogether, Young Helmut took advantage of the “coal vacation” (*Kohlenferien*) days to go “hamstering,” i.e. looking to trade valuables for food with farmers in the countryside. Home life was no easier. Dotterweich also and his family “sat in the bathroom...four people on the bathtub in chairs...you could heat the bathwater with two briquettes of coal...when one had visitors, you would say, ‘come into the bathroom.’”⁶²

Others revealed how coal and wood became currency. Thilde Grüber related how she celebrated her fourteenth birthday in 1945: “ I received two pieces of wood and a (coal) briquette. With this ‘currency’ I was able to go to the hairdresser and have my braids cut off. No hairdresser at the time would have served customers without the fuel.”⁶³ Others told of using coal briquettes as tickets for cinemas.

The railroads could also be a source of fuel for residents. Max Fuchs, who was six when the war ended, remembered how he used to find coal chunks in the ash from locomotives, which were dumped by the railroad near the Hirschgarten. “In the very early morning my mother and I would go the cinder heap with four baskets. With our

⁶⁰ Keller, Annual Report, 78.

⁶¹ Harriet Weber, interview by the author, February 6, 2010.

⁶² Dotterweich, interview.

⁶³ Thilde Grüber, “‘Fragen stellen-unerwünscht,’” in *Münchener Nachkriegsjahren*, 52.

hands, which would soon be cut by sharp-edged cinders, we searched for unburned pieces of coke.”⁶⁴

Theft was also an acceptable way to heat one’s home. Daniel Beckh, who was seven years old when he returned to Munich from the countryside in 1945,

began to steal coal from locomotives. . . . I brought coal home in all my pants pockets and was never scolded for having dirty clothes. After this success my mother knitted a small sack for me that was just big enough for me to carry when it was filled with coal. . . . with my little sack I became a real ‘coal thief’ (*Kohlenklau*).⁶⁵

These short anecdotes reflect how the war changed the value of coal and wood. Already an indispensable material in people’s lives, coal became a part of their survival. It became valuable both as fuel and currency. People tried to beg, borrow or steal enough coal to keep warm. Failing that, wood was the most available substitute, but it came at a cost. People risked injury, death, or jail time to pry wood out of damaged houses and cemeteries. They no longer had the easy access to fuel that city life had afforded them. They were forced to become “hunters and gatherers” like the country folk to which they would soon turn for food.

Hunting and Gathering: The Food Situation in Munich

The food situation during the first year of the occupation presented comparable challenges and changes to Münchener. It also demanded similarly creative and often desperate solutions. During the war, increasing food scarcity pushed people to other methods of increasing their rations. Many turned to the black market for necessities or luxuries, or used it to make some money on the side. Ersatz

⁶⁴ Max Fuchs, “Der lange Weg zur ‘Süssen Ecke,’” in *Münchener Nachkriegsjahren*, 77.

⁶⁵ Daniel Beckh, “‘Mohren’ Zigarren und Kinderspiele,” in *Münchener Nachkriegsjahren*, 60.

foods such as coffee made from chicory replaced many staple parts of their diets.

With access to the resources of conquered lands, however, the Nazi government had managed to keep people fed, albeit not in the manner they were accustomed to.⁶⁶

After Munich surrendered, the connection to food from the East was cut. No central government distributed food at first. People had to “hunt and gather” to get something to eat. They often took the same risks as people looking for coal and wood. In the first days of the occupation, Müncheners looted caches of food stored in underground cellars and aboveground food dumps. Müncheners looted and emptied the *Bürgerbräukeller* (site of the 1923 *putsch* and now the home of a Hilton hotel), on May 3. That same day, across town at the *Löwenbräukeller* two people were trampled to death in the mad rush for food. An eyewitness, Thea Strehler,¹⁵ at the time, described the scene at the *Bürgerbräukeller*: “these masses of people, pushing and shoving; I have never experienced such a thing...falling down, being pushed, getting a breath in between, I got to the basement cache, where foodstuffs were stacked to the rafters. As I saw this, it was a mystery to me why we all had to starve.” Anger led to panic as “hunger superseded any kind of reason. People were in a panic just to grab something. From above it looked to me like a horror film.”⁶⁷

Once the local food sources had been plundered, the city had to find supplies from other cities and regions. This was a problem faced by almost all European nations, including the victors. France had been bled dry to feed the German Reich. Britain and the Soviet Union continued to receive shipments of food arriving from America in Liberty Ships that fed them during the war. Only the U.S.A., it seemed,

⁶⁶ Gries, *Die-Rationen-Gesellschaft*, 27.

⁶⁷ Thea Strehler, “Der “Kavalier,”” in *Münchener Nachkriegsjahren*, 269, 271.

had access to large food supplies, plus the wherewithal to transport it. Supplies from the U.S., other than packages from relatives, however, were still small at this time. It was not clear how generous the Americans would be with their defeated enemy. Munich's citizens would have to rely more on local resources and get what they could from the local government. Unfortunately, the war had also made this difficult.

In the weeks following surrender, hunger and food shortages created a vicious cycle that would likely have led to widespread starvation without the intervention of the occupiers. Because so many men had either been killed or taken prisoner (some did not return until the 1950s), there was a shortage of farm labor. Foreign prisoners of war (POWs) and forced laborers who had previously done agricultural labor were no longer available. The local government issued appeals for more labor, calling for the unemployed to help with farm work. Many of the unemployed city dwellers available for work were often malnourished or unable to complete the work. More hunger made the labor shortage more acute, which in turn led to smaller food supplies.

The rations the MG and local government provided only covered basic survival. Depending on the ration period, Münchenerers could expect meager weekly portions. The following figures are for one "normal consumer" (*Normalverbraucher*) from December 1945: 100g meat, 30g fats, 50g processed foodstuff, and 150g bread.⁶⁸ It was, Helmut Dotterweich explained, enough to live on, but not much more. Hunger was a constant companion. He related how his mother was happy that he slept until noon most days so that she did not have to make him breakfast.⁶⁹ Münchenerers

⁶⁸ *Chronik*, 116.

⁶⁹ Dotterweich, interview.

would have to find solutions both in the countryside and closer to home. They had to make difficult changes in their lives.

Problems normally associated with food supplies, such as pests and crop diseases, became more pressing in a time of food and labor shortages. For example, on July 7, 1945, the local government called upon all unemployed adults and children over 12 to hunt for potato bugs in the city's outskirts. The newspapers carried the message that "everyone must take part in the hunt for insects: it concerns our daily bread."⁷⁰

New Food Sources

The terrible postwar conditions made pursuing strategies to get food even more important than during the war.⁷¹ One option was using urban land and surrounding areas as extra food sources. City dwellers continued to grow food in gardens, forage in surrounding forests, and keep animals in their houses and yards. During the war, the Nazi government restricted keeping animals either as pets or food sources. This policy became progressively harsher as food supplies became scarcer. The idea was to save grain and other foods for human, rather than animal, consumption. Engelbert Burger, born in 1921 and released from army after wounds in 1943, explained how his family did this:

In such times of need, everyone tried to improve his menu, such as it was. In the garden, flowers had to give way to vegetables. Where beautiful lawns once stood, potatoes and turnips grew. One more or less became a self-

⁷⁰ "Arbeiter für das Land!," *SZ*, December 4, 1945.

⁷¹ It is important to point out that while conditions were difficult in Munich and the rest of the American Zone, they were significantly worse in the other Zones, especially the Soviet Zone. An extensive analysis of these differences is beyond the scope of this project. See Gries, *Die Rationen-Gesellschaft*.

provider...my stepfather, called Grandpa Wittl, worked hard to improve his standard of living. He had chickens, rabbits, a goose, and also two ducks. The garden produced vegetables, fruit and potatoes. Grandpa Wittl also knew the surrounding forests well. He knew where the most raspberries or mushrooms were...He also knew someone in Perlach...he was a farmer who had a surplus of pears.⁷²

While people like Grandpa Wittl successfully used urban space, food shortages created serious problems. For example, there was huge increase in the crime rate. Many were not above stealing from a local farmer or a neighbor to feed their families or make a profit. As Burger related: “there were also people who understood ‘self-provider’ in such a way that they stole from fruit gardens, robbed chicken coops, and provided for themselves illegally.”⁷³ Many people did not have the available space or skills to grow their own food, and would have to find other options.

Dietary Changes

Another way for Münchenerers to get more nutrition with fewer resources was to change what they ate. Altered diets were nothing new. People ate less meat and choked down ersatz foods during the war, but on a much smaller scale. The Nazi government’s access the resources of the occupied nations kept such inconveniences to a minimum. Meat continued to be scarce in postwar, more so because the MG controlled the meat supply. To the horror of Bavarians, the occupiers sent meat to other parts of the American Zone and Berlin. In October of 1945, to add insult to injury, the MG implemented a moratorium on brewing beer. The purpose was to save

⁷² Engelbert Burger, “‘Permit’ für die Firma Hunger,” in *Münchener Nachkriegsjahren*, 102.

⁷³ Ibid.

grain for food production. Needless to say, the first Christmas market since 1942, held at the *Viktualienmarkt* (Food Market) in December of 1945, was considerably less cheery.⁷⁴

The American occupation also introduced foods at which most Germans would have earlier turned up their noses. For example, Theo Rosendorfer told the story of how his mother fed him cornmeal mush, which surprised him, as cornmeal was seen as food for chickens and birds.⁷⁵

By January 1946, changing one's diet was no longer an option. It was the law. The Allied Control Council mandated switching to a more vegetarian diet (albeit rather short on vegetables) in the coming year. They justified this action by citing statistics on the amount of resources needed to feed livestock. For example, "A hundredweight of hogs (70 pounds of meat after processing) needed about 10 cwt of potatoes, 1.5 cwt of barley and special protein feed. The human body (over time) obtains about 175,000 calories from the cwt of pork, whereas the feed used to produce the pork would provide 541,000 calories."⁷⁶

Fish, available in local lakes and imported from the U.S. via the port of Bremen, which was in the American Zone, also became a more important part of Munich's food supply. There was, however, some resistance, as reported by the OMGB (Office of Military Government Bavaria) in April of 1946:

Fish handlers are reluctant to accept fish arriving in Munich from Bremen because of fear that it will spoil before it can be sold...If consumers still do not accept fish at this ration, (500g substituted for 50g of meat) it may be necessary to declare remaining stocks ration free in order to avoid waste.

⁷⁴ *Chronik*, 111.

⁷⁵ Rosendorfer, interview.

⁷⁶ "Was soll der Bauernhof erzeugen? Die veränderte Produktionsrichtung in der Landwirtschaft," *SZ*, February 8, 1946.

The report continued that since Bavarians balked at the idea of substituting fish for meat, in the future fish rations would supplement rather than substitute for meat.⁷⁷

These changes not only made many Münchenerers *de facto* vegetarians, they added to everyday concerns. In March 1946, reporters from the *SZ* visited a typical Munich apartment building to get a sense of what people were eating. They found very little meat on the tables, but plenty of worries. One resident responded, “Worries? Wood gives me the most pain. Sometimes I don’t know how I will be able to cook.” Another said, “My greatest concern is always food. Every day the same question: what will I cook today?” A neighbor expressed similar concerns, “I ask myself again every day, how I should cook potatoes for my husband. There is nothing else, absolutely no vegetables! And then there’s the standing in line for bread.”⁷⁸

Those unable to cook at home (assuming they had a home) had another option. The local government ran soup kitchens to feed hungry Münchenerers. On August 18, 1945, seven soup kitchens opened, followed soon after by three more. For many citizens, these facilities were key to their survival. A look at the weekly menu from the soup kitchen in Rosenheimer Strasse for December of 1945 gives some insights into a typical Münchener’s diet:

Monday: vegetable soup, roast beef with salted potatoes
Tuesday: semolina soup, mashed potatoes with sauce and red cabbage
Wednesday: lungs with potatoes, sweet pearl barley dessert
Thursday: noodle soup, ox meat with potatoes, carrots
Friday: mushroom soup, croissant with sauce and red turnips
Saturday: pearl barley soup, potato goulash⁷⁹

⁷⁷ Office of Military Government Bavaria, “After Action Report for the Period 1 March 1946 to 31 February 1946,” US National Archives, RG 260: Occupation Records, Records of the Land Director: Historical Reports 1944-48, Box 260.

⁷⁸ “Sorgen um den Kochtopf: Was ein Haus in der Orleansstrasse erzählt,” *SZ*, March 26, 1946.

⁷⁹ “Grosskuche München,” *Münchener Stadtanzeiger*, December 19, 1945.

“Hamstering”

Those not wishing to exist on the meager rations doled out by the MG and local government innovated other, less respectable options to feed themselves and their families. Black markets thrived in places like the Museum Island, home of the Deutsches Museum. Working for the Americans also brought in some extra food. One of the most popular methods was “hamstering” (*Hamstern*). Basically, this involved traveling on foot, bicycle or by train to the surrounding countryside. The “hamsterer” carried a sack or wheelbarrow full of goods to trade farmers for food. This practice represented a significant shift in the relationship between urban and rural residents. Rather than dutifully supplying the cities with food, farmers now controlled food supplies. They could dictate their prices to the desperate city-dwellers who came knocking at their doors. Now not only did farmers have more food, they also had more money and valuables.

For these urban residents, one of the keys to getting more food was knowing both the farmers and the countryside itself. Having a relative or friend living on a farm was crucial. Failing that, the hungry urbanite had to be a savvy trader. Daniel Beckh (the “coal thief”), recalled how his family used the contacts made during their time in the countryside, and employed him as salesman:

We still had contacts among the farmers where we had been evacuated... We took the train to Halfing and then walked from there. I always had to go the farms and ask ‘lady farmer, don’t you have something to eat for a hungry city dweller’? My father thought that if a child asked, it would melt the hardest heart of a farmer. And so during the time we would collect some eggs, bread and butter.⁸⁰

⁸⁰ Daniel Beckh, “‘Mohren’, Zigarren und Kinderspiele,” in *Münchener Nachkriegsjahren*, 60.

Friedegunde Reissner, born in Munich in 1932, and her family managed by knowing what farmers wanted in exchange for food:

with the restrictions (imposed by) the military government villages near Munich were the only possibilities...it had become evident that the rural residents were not short of clothes or jewelry, but of vinegar. We had this in Munich. From then on the whole family went around to the available grocery stores and bought vinegar.

Her mother would then take the vinegar to the farmers and exchange it for food. Most of the time the food only lasted 14 days, and then she would make the same difficult circuit again. Friedegunde's mother came from farm country in Upper Palatinate, so she knew how to talk to farmers, and was thus able to get more food. "In July of 1945 we carried home 13 eggs, 20 pounds of flour, 250 grams of meat coupons, bread coupons for 10 pounds, 2.5 liters of milk, 5 cucumbers, 10 pounds of apples and 1 pound of butterfat." Friedegunde's mother made her final hamstering trip on July 2, 1949.⁸¹

Such trips could be dangerous, or as with Maria Schätz's parents, fatal. In her piece in *Münchener Nachkriegsjahren* she related the following story:

Our parents were riding back on their bikes with full backpacks and wanted to get home fast. Almost in front of our door they were robbed. Papa naturally did not want to let his hard-earned treasures be stolen, and both of them were shot. By the time the neighbors hurried over, the criminals had disappeared with the bikes and backpacks.⁸²

The food situation during the first year of occupation for most people was desperate. There was less food overall, and what was available was difficult to get. Many factors contributed to this situation; labor and equipment shortages, transportation problems, the loss of the Eastern grain-growing regions, and the

⁸¹ Friedegunde Reissner, "Hamsterfahrten," in *Münchener Nachkriegsjahren*, 263, 265.

⁸² Maria Schätz, "Trotz alledem," in *Münchener Nachkriegsjahren*, 188.

occupiers' actions. People survived using strategies that forced them to rely more on local resources, change their diets, and do what they could--legal or illegal--to get enough to eat. The urban/rural relationship changed greatly, as farmers traded food for money, jewelry, furniture and other luxuries of urban life. The citizens of Munich became very aware of where their food came from and what they needed to do to get it.

Conclusion

This lesson also applied to the other resources (coal, electricity, gas) Münchenerers needed to survive. Reestablishing the connections that supplied these resources would demand sacrifice, flexibility, and accepting the consequences of the occupiers' actions.

On January 1, 1946, Lord Mayor Scharnagl gave a radio address that reminded Munich's citizens of past sacrifices and urged them to push through the current ones. While it referred only to the first 8 months of occupation, the words were equally applicable to the situation in May 1946:

You have endured six years of war with terrible consequences for life and livelihood practically without resistance, so I ask you now to endure a few years of transition that are necessary to build a better future. We must all first regain the trust of the entire world, and that will take time and cooperating to overcome the current difficulties.⁸³

During the first year of occupation, Münchenerers experienced shortages of food, fuel, power and heat. The mostly-rebuilt transportation system was still plagued

⁸³ "Der Oberbürgermeister sagte: aus der Rundfunkrede Dr. Scharnagls," SZ, January 1, 1946

with problems, especially within the city itself. Coal had become an even more rare and precious commodity. During the winter, coal shortages led to blackouts and electricity conservation measures. Available coal-fired electricity supplies could not offset the seasonal reduction in hydropower. Shifting back to wood, plus the good fortune of relatively moderate weather, lessened the impacts of coal shortages. The *Holzaktion* was a return to pre-industrial sources of fuel. It reversed of the shift from wood (i.e. solar) power to fossil fuels like coal the Industrial Revolution brought. The war and its aftermath had turned the clock backwards. To reverse this process, Münchenerers would have to first deal with the limited coal connections during the initial postwar years. Along the way, they would have to create new connections to sources of coal and other fuels.

Getting food remained the biggest everyday challenge. The local government, with the occasional assistance of the MG, provided enough for bare survival, but not much more. Knowing the countryside and its inhabitants, useful during the war, became essential. Those who did not go “hamstering” relied on their own ingenuity or the black market. Meat, while not plentiful during the war, was now scarce. Most Münchenerers willingly or unwillingly shifted towards a more vegetarian diet.

In terms of physical damage, things were improving. Less rubble clogged the streets, gas again flowed to homes again, and the trains resumed running. On a larger scale, however, there were still problems. The connection to the Eastern provinces, was still not rebuilt, and would likely remain so. By deciding to supply more electricity to Austria, the occupiers lessened the flow of electricity to Munich from the Alpine hydro plants. Coal basically came from the Ruhr and Upper Bavaria, each

under the control of a different occupying government. The Ruhr also had to supply the rest of Western Europe.

Münchenerers would endure similar experiences during the second and third years of occupation. The weather would show Munich's citizens just how much they were subject to natural forces. The bitter winter of 1946-1947 dashed hopes of another mild winter. The drought of summer 1947 that followed reduced the Alpine rivers and the electricity they provided to a trickle. The situation in the Ruhr, Munich's main coal source would have a greater impact. It became clear that Great Britain could not offer the level of support that the USA could. The next chapter analyzes these changes and continues the story of life in Munich.

Chapter 6

Occupation Year 2: Cold and Hunger

We had electricity and gas only part of the time, and it was usually dark when they were turned on. My mother and I passed this time in bed, huddling close together to warm ourselves. My mother often complained: 'Hunger is bad and freezing is bad, but hunger and freezing and together is dreadful.' We were always hungry. We had no contacts and no possibility to buy something on the black market.¹

For Traudl Martini, as well as most Münchener and Germans, the central event of the second year of the occupation was the winter of 1946/47. Often called the "*Hungerwinter*" ("Winter of Hunger"), the season brought record low temperatures in a series of cold snaps that began as early as October 1946, and did not finally end until March 1947. The cold brought misery all over Europe, disrupting transportation systems and blocking access to natural resources even in the victorious countries. Not enough coal meant that people froze to death in unheated homes. Food shortages caused people to die of hunger in their beds. Frozen ports slowed imports of food and fuel from the United States, still the victorious power most able (and willing) to provide substantial aid. Frozen rivers and locomotives could not carry what coal and grain did reach Germany.

As in the previous year, the occupiers' actions had substantial impacts on connections to natural resources and everyday life. During the second year of occupation the actions of nature (the weather) amplified the impacts of these human actions. They revealed the extent of the damage to Munich's connections to natural resources and its vulnerability to natural forces. Transport interruptions and coal,

¹ Traudl Martini, "Es war eine harte Zeit," in *Münchener Nachkriegsjahren*, 37.

electricity and food shortages intensified. Müncheners suffered greatly. In this chapter, the changes in the relationship between Bavaria and the Ruhr and the growing importance of food aid from the U.S. represent the human actions. The winter of 1946/47 shows the actions of nature. Both had substantial impacts on everyday life in terms of connections to natural resources, in particular coal and food.

One of the most important actions was combining the American and British Zones into the area known as “Bizonia” in January 1947. It affected the two Zones politically and economically by treating them as one administrative area and economy. Unity of a sort offered some hope of a stronger economy by easing trade between Bavaria and the Ruhr, while improvements in efficiency came from streamlining the administration of the two Zones. Political unification also highlighted the renewed connection between Ruhr coal and Bavarian agriculture and food production, which John E. Farquharson has referred to as the “coal-food cycle.”² It also marked a step towards a permanent division of Germany, as Eisenberg has argued.³ Munich’s access to the food and fuel resources of the Eastern provinces would continue to be limited, subject to the Soviet Union’s goals.

A better economy and more efficient administration could, in theory, improve deliveries of coal from the Ruhr to Bavaria (thus increasing electricity production) and food from Bavaria to the Ruhr. American money and resources could perhaps increase Ruhr coal production. The resulting strengthening of Munich’s connection to Ruhr coal could ease the pressure on the connection to Alpine hydropower. More

² John E. Farquharson, *The Western Allies and the Politics of Food: Agrarian Management in Postwar Germany* (Dover, NH: Berg Publishers, 1985), 28. This work provides a good analysis of food policy in the British Zone and tells the story of the relationship between Bavarian food and Ruhr coal from the point of view of the British Zone.

³ See Eisenberg, *Drawing the Line*, 234.

reliable coal and electricity supplies could ensure that in Munich and other Bavarian cities, food production facilities would not suffer blackouts or shut down due to coal shortages.

The creation of Bizonia, while it did serve the political and economic goals of the occupiers, did not bring any of these improvements to Munich. In fact, it worsened the food situation in Munich and Bavaria, and did not improve coal deliveries. It could not offset the effects of the extreme cold weather on the coal supply, electricity production, and the transport system, three crucial elements to keeping Munich functioning. Rolling stock and locomotives continued to be in short supply. Other European nations kept on demanding Ruhr coal, whose production had not recovered from wartime damage and labor shortages. Administrative efficiency did not help miners produce more coal or city dwellers use less of it, nor did it stop them from substituting wood for coal. Fewer trade barriers did not stop the rivers, locomotives, and even some of the coal freezing during the harsh winter, thus worsening electricity and coal shortages.

Allied and German leaders realized this connection between food and coal. They knew that boosting the health and nutrition of Ruhr coal miners and their families held the key to increasing coal production. The occupiers, however, obtained the extra resources needed not by increasing imports but by drawing more heavily on resources allocated to or produced in the rest of Germany.⁴ To increase rations for miners, imports from Bavaria, the part of Bizonia with the most food, had to rise. This placed an additional burden on Bavaria's agriculture, but also on its people, including the citizens of Munich. Wilhelm Hoegner, the Bavarian Prime Minister

⁴ Roseman, *Recasting the Ruhr*, 68-69.

from 1945-46, remembered the demands on Bavarian agriculture: “I angrily warned the occupying powers against a plundering of Bavaria in the State Parliament, saying that one cannot milk the Bavarian cow until blood comes out... We had to deliver foodstuffs to the other Occupation Zones at a level we could not sustain.”⁵ For Ruhr miners in Essen and other cities to eat more and dig more coal, Münchenerers would have to eat less. Although they traded food for coal to heat their homes and generate their electricity in winter, when the Alpine hydropower was in short supply, Munich’s people realized few immediate benefits from the renewed “coal-food cycle.”

Another occupier action, completing a new electricity contract with Austria, further restricted Munich’s access to hydropower. The contract, signed in 1946, demanded more hydroelectricity for Austria than the 1945 agreement. This added to electricity shortages created by the record cold temperatures that froze the Alpine rivers. Forced to rely more on coal-fired plants in a time of coal shortages, Munich faced a daunting electricity situation in the second year of the occupation. The weather and coal shortages meant substantially worse need than during the previous year or even during the last winter of the war. Along with increased food for Ruhr miners, electricity shortages also highlighted the important connection between coal, electricity and food. No power meant that factories could not operate and food, especially dairy products, could spoil.

Not all occupier actions had negative consequences. Leaders in the United States realized that feeding miners, while it improved the economy, was not enough to accomplish their political goal of “re-educating” Germans. Just as hungry miners

⁵ Wilhelm Hoegner, *Der Schwierige Aussenseiter: Erinnerungen eines Abgeordneten, Emigrante, und Ministerpräsidenten* (München: Isar Verlag, 1959), 258.

would be less motivated to dig coal, hungry citizens would be less inclined to support the values, especially democracy, of their occupiers. To fulfill this political mission and bring democracy to western Germany, the Americans had to raise the people's morale enough to avoid a return to fascism. The repulsive Nazi regime had fed its people, albeit at the expense of conquered nations. The increase in private food aid, in the form of CARE (Cooperative Aid for Remittances to Europe) packages and other charitable giving helped, but the U.S. Government had many more resources to draw on. In Munich U.S. government food aid, in particular to children, increased during the second year of occupation, and evidenced the growing connection between Munich and the United States.

A Zero-Sum Game: Coal, Wood and Electricity

Having made it through one year of peace, Munich was still a long way from the "normality" of a peacetime economy and living conditions. The story begins, again, with coal. As the second year of the occupation opened in May 1946, local officials in Munich had to deal with the unpleasant reality that coal was still short, and would continue to be so for months, likely years, to come. This was especially true for coal for household use. Even the statistics from 1944--not exactly a banner year for coal deliveries--made the current situation look dire. Coal deliveries to Bavaria in June 1946 totaled 399,763 tonnes versus 925,819 tonnes in July 1944. This was not even a third of the 1944 tonnage. It looked as if wood would once again have to take the place of coal.⁶

⁶ "Wieder keine Hausbrand-Kohlen?," *SZ*, August 6, 1946.

The City Government realized this, and began planning for that year's *Holzaktion* in August. The effort would be different from the previous one in two important ways. First, due to a larger population, the city would need more wood (670,000 raw meters). Second and more important, the U.S. Army would not be stepping in to help. Munich was on its own. With no coal for household heating expected in the winter, citizens would have to help out if they expected to stay warm. At an August 20 meeting, Lord Mayor Scharnagl explained that "I must advise that if we do not get the necessary workforce in autumn, we will stand before an extraordinarily large calamity, as the Americans' help is no longer available."⁷

The Council took action starting on August 28, when Deputy Mayor Wimmer suggested compelling workers without valid identification from the Labor Office (*Arbeitsamt*) to volunteer to help with wood gathering. This suggestion became a requirement three days later on September 1 after only eight people volunteered. The same day Wimmer appealed to the rest of the populace to sign up for wood gathering. At the time workers had felled 122,000 raw meters of wood, with 550,000 still needed.⁸ The local newspapers published this appeal, and the titles of the articles reflected its personal nature and also the potential impacts of not cutting enough wood. For example, the *Münchener Stadtanzeiger*, in its article entitled "Munich, Do You Want to Freeze This Winter?" included the following proposed measures in addition to the aforementioned drafting of workers sans ID:

1. Encourage everyone working in Munich, in their own interest, to register all able-bodied males who were unemployed or worked only sporadically at the Labor Office.

⁷ Stadtarchiv München, *Stadtratsbesprechungen*, 1946.

⁸ *Chronik*, 190.

2. Those unable to work or not working are honor-bound to take part in the emergency measures.
3. All firms that can offer workers for the wood action should register at the Labor Office, Wood Action Division.⁹

These measures were timely, as the first cold weather arrived in October, bringing the first major crises in coal and electricity. The impacts of shortages and bottlenecks brought on by continued limited coal supplies multiplied as temperatures dropped and rivers providing hydropower froze. The occupiers and local and regional officials faced hard decisions. Distributing coal was a zero-sum game: diverting coal from one sector hurt another. More coal for industry meant less for households, so people could freeze to death. If leaders responded to this problem by shifting supplies to household use, then industry contracted, putting people out of work and harming the economy. For example, in his Monthly Report for August 1946, Military Governing Officer Eugene Keller explained that coal deliveries to Munich were down (60 percent less brown coal briquettes from the Ruhr, 10 percent less coal from Upper Bavaria). This would not improve in September and October, “as vehicles will be required for transportation of crops, potatoes, etc... distribution of coal will be severely handicapped.” In addition, more coal would have to be diverted for electricity generation “so that a serious shortage of coal and briquettes is feared right from the beginning of the winter.” Even without severe weather, Munich would be short of coal in the coming winter.¹⁰

The occupiers set the priorities, and as during the 1945-46 winter, schools (at #114) and households were nowhere near the top of the list. In October, the coal

⁹ “Münchener, wollt ihr im Winter frieren?,” *Münchener Stadtanzeiger*, September 4, 1946.

¹⁰ Eugene Keller, “Monthly Historical Reports for Military Government SK-LK Munich: August 1946,” US National Archives, RG 260: Occupation Records, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 419.

ration for citizens was .25 cwt per month. By order of the MG, coal for civilian uses could only come from volunteer Sunday shifts.¹¹ Schools were already freezing, as reported in the *SZ* on October 29. The article began with the line: “Our Munich schoolchildren stand before new, difficult concerns about winter!” It continued on with numbers on the normal demand for a schoolhouse, which varied from 200 to 300 cwt of coke monthly, according to size. If room temperature could be maintained at 15 degrees Celsius (59 Fahrenheit), “one coal train from the Ruhr could supply all the schools for the winter!” The students and teachers should expect a “coal holiday” after mid-January. The article concluded, “We cannot allow the teachers and students, clad in patchwork coats and worn shoes to freeze through another winter in ruined schoolhouses.”¹²

The overall situation was, according to reports received by the MG from the Munich Economic Office, “becoming precarious.” If deliveries from the pits did not improve, the City government would get no more coke, and supplies in hospitals would last only to the end of December 1946. Owing to lack of railroad cars, no coal or coke had arrived from the Ruhr. The *Holzaktion* continued, but the Office regarded the current wood supply as insufficient.¹³

Deliveries, however, did not improve. In fact they continued the decline that began in September. In his Monthly Report for November, Lt. Colonel James H. Kelly, Keller’s replacement as head of the Munich MG, reported that whereas the Munich Economic Office had received roughly 18,000 tonnes of coal and coke per

¹¹ *Chronik*, 206-208.

¹² “Das frierende Klassenzimmer,” *SZ*, October 29, 1946.

¹³ James Kelly, “Monthly Historical Reports for Military Government SK-LK Munich: October 1946,” US National Archives, RG 260: Occupation Records, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 419. Kelly served as MGO until 1949.

month during the summer, since September it was only receiving 4,500 tonnes per month. Furthermore, no hard coal or raw brown coal had been delivered at all.¹⁴ To give an idea of how bad the coal situation had become, on November 23, the city had only received one-third of the Upper Bavarian coal received during the war and one-fifth of the Ruhr coal. The most disturbing statistic was that Lower Silesia, which had supplied one-sixth of total coal supplies during the war, had sent no coal at all.¹⁵

As they had during the last winter, Munich's citizens acted on their own, finding wood in buildings and surrounding forests. The weather provided a brief windfall in the form of an October thunderstorm in the forest near the town of Fürstenfeldbruck outside the city. Citizens were allowed to travel to this area and gather tree branches, pinecones and wood from treetops at designated places. They had to transport it themselves and pay a fee of one Reichsmark. The early morning train that terminated at Fürstenfeldbruck-Buchloe station earned the name the "*Holz Scheitl-Express*" ("Piece of Wood Express"), and was overfilled daily.¹⁶

Coal shortages also meant a return to electricity rationing. As usual, colder weather brought a decline in hydropower and increased reliance on coal-fired power plants. This winter, however, was different. More rivers froze more often, and blackouts became longer and more severe. The weather, combined with the actions of the occupiers, threatened not only heating and railroads, but also industry and food production.

¹⁴ Total coal for summer per month: 2200 cwt coke, 7200 cwt of Upper Bavarian coal, 4000 cwt briquettes, 800 cwt pit-coal, 4000 cwt raw brown coal. Since September per month: 900 cwt coke, 1200 cwt Upper Bavarian, and 2400 cwt briquettes. James Kelly, "Monthly Historical Reports for Military Government SK-LK Munich: November 1946", US National Archives, RG 260: Occupation Records, Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 419.

¹⁵ *Chronik*, 214.

¹⁶ *Chronik*, 211.

In terms of electricity supplies, the first months of the second year of occupation started off on a positive note. The summer and early fall of 1946 were good months for hydropower. Bavarian facilities produced their highest output--July: 313 million kWh, August: 318.5 million kWh--since before the war. Almost all the facilities were operating, and there was even a surplus for export to the other Zones. Soon afterwards, however, rainfall began to decline, leading to below normal stream flow in the Alpine rivers driving the plants. The subsequent drop in hydropower output--282.6 million kWh in September--meant more power from coal-powered plants. With industrial and consumer use continuing to rise, this meant trouble once the weather got cold.¹⁷

A report given at the August 20 meeting reminded the City Council of their dependence on hydropower: "The City of Munich, with an approximate yearly demand of 350 million kWh needs to replace 120 million kWh of hydropower in winter with coal-fired electricity, occasionally from the Bayernwerk and steam plants." These steam-powered plants needed about 0.7 kg of Ruhr coal for each kWh. Dr. Hencky, who presented the report, said that improvements in steam condensation, heating, and turbine operation could reduce this to 0.2 kg of Ruhr coal per kWh.¹⁸

There was, however, neither time nor equipment to make such changes. The immediate goal was to keep the electricity flowing as hydropower gave way to coal power with the approaching winter. Unfortunately, the October cold weather, no

¹⁷OMGBY, Public Utilities Section, "Annual Report from July 1946 until June 1947," US National Archives RGB 260: Occupation Records, Records of the Intelligence Division: Research Branch: Historical Reports, Box 52. Gas consumption also continued to rise. On September 4, the city's gas authority threatened cutoffs if customers did not stick to their quotas. Gas usage rose substantially with the beginning of the canning season. *Chronik*, 190.

¹⁸ "Zusammenfassende Beschreibung des Münchener Systems der Nah-Heizkraftwerkenach den Vorschlägen von Prof. Dr. K. Hencky: I. Allgemeine Beschreibung," Stadtarchiv München, *Bürgermeister und Rat 2747: Stadtwerke -Elektrizitätswerke (EW)*.

respector of calendars, led to a critical situation by the middle of the month. As in 1945, people turned to electric heaters to keep warm. The increased consumption caused the level of power in Bavaria to drop below the minimum needed for “efficient service,” and the inevitable conservation measures followed.¹⁹ In Munich, this meant blackouts, as the northern part of the city was blacked out from 8 to 11 am on Mondays, Wednesdays and Fridays. The southern part did the same on Tuesdays, Thursdays, and Saturdays.²⁰

The New Austrian Contract

Increased consumption, however, was not the only factor leading to conservation measures. Some had nothing to do with rainfall or coal supplies, but the impact of losing the war. One such example, the breaking of an electricity contract with Austria, also revealed another connection between Munich and what was now a foreign country. By imposing a new contract that formalized the deliveries of electricity to Austria begun provisionally in 1945, the occupiers were adding to Munich’s troubles by demonstrating who was in charge.²¹

The story of the contract began in 1926, when *Bayernwerk*, the main power utility for Bavaria, signed a contract with the Tyrolean Hydropower Company (*Tiroler Wasserkraft AG*) in Austria. The contract, which was to last until 1951, imported Austrian electricity to the Achensee power plant in Bavaria. Twenty years

¹⁹ OMGBY, Public Utilities Section, “Annual Report from July 1946 until June 1947,” US National Archives RGB 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 52.

²⁰ *Chronik*, 203.

²¹ While JCS/1067 called for the “severance of all ties between Germany and Austria” this applied only to political ties, which did not stop German hydro plants from shipping electricity to Vienna. Lucius Clay, *Decision in Germany* (New York: Doubleday, 1950), 17.

later on the first of October 1946, the new Austrian government, without prior negotiation, broke the contract by issuing a moratorium on electricity exports from Austria to the Achensee plant. This reduced the previous level of imports to *Bayernwerk* from 73,000 to 23,000 kW. Furthermore, even contracted power would only be delivered 10 hours a day. Bavaria and Munich were suddenly without 50,000 kW (circa 45 million kWh) of power during the winter.²²

Austria's action dominated discussion at the October 15, 1946 Munich City Council meeting. In his report on the overall electricity situation, Councilman Zell, head of the Economic Office, warned of the consequences. The reductions, he said, would soon lead to a "catastrophic situation in energy production." *Bayernwerk*, the regional electricity provider, had projected the energy situation in the coming winter "with great concern." People should expect electricity rationing and blackouts at the same levels as the previous year (they were wrong-it was worse). Blackouts would occur if water flow did not improve by mid-November. Looking to the future, Zell recognized the continuing problem with coal: "[Given] the limited coal supply that will exist in the coming years, perhaps in the next decades, we must make sure above all else that fuel [coal] for household heating will be available in Munich...and can be used for electricity generation."²³

Things got worse when the OMGBY stepped in a few days later. On October 22 and 23, OMGBY representatives signed a contract with the Austrian government forcing Bavaria to export 27 million kWh per month to Austria beginning on

²² OMGBY Economics Division, "After Action Report for Period October 1st to October 31st, 1946," US National Archives, RGB 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 49.

²³ "Lage der Stromversorgung im Zusammenhang mit der bevorstehenden Stromrationierung," Stadtarchiv München, *Ratssitzungsprotokolle* 719/2.

November 1. Coal-fired plants would have to make up the shortfall, but with limited coal supplies, this seemed unlikely. This compounded shortages caused by reductions in Austrian imports. Even before the new deliveries were due to begin on October 28, the electricity system suffered a “complete collapse” leading to losses in food factories. The loss of power made service much worse than previous year.²⁴ A few weeks later, on November 19, blackouts expanded to 8am-11:30am and 1:30pm-5:00pm Tuesdays and Wednesdays in the north and the same times on Thursdays and Fridays in the south. These blackouts were not just an inconvenience: they also threatened public safety. Streetlights were shut down, leading to problems with law-enforcement, and a shortage of light bulbs meant that streetcars would have to operate in the dark or shut down.²⁵

Deep Freeze: The Winter of 1946/47

The impacts of the blackouts caused by the new contract and the weather on food production illuminated the close link between electricity generation, coal supplies, and nutrition. On December 10, the *SZ* reported on the effects of blackouts on food production: “The blackout has...become an acute danger for maintaining a functioning nutrition economy. The effects on dairy and fat production are particularly severe: approximately 800 dairies in Bavaria are no longer able to process the milk delivered, which means an average fat loss from 0.2 to 0.3 percent.”

Examples of impacts in Munich included a margarine factory, where 4000 kilos of margarine had almost completely decomposed into soap, a noodle factory, where the

²⁴ *Chronik*, 206.

²⁵ *Chronik*, 212.

machines were stopped because of a blackout, ruining 600 kilograms of noodles, and a bakery, where 300-400 kg of bread were burned, as the ovens could not be shut off.²⁶ The first snowfall occurred (ten days *later* than average) that same day, followed by the first recorded frost two days later (four days earlier than the average).²⁷ The most serious effects occurred after winter officially began in December, when the first of a series of cold spells bringing record low freezing temperatures arrived. The first occurred on December 14, as freezing temperatures and the first heavy snow fell in Bavaria. Some days later on the 22nd, hydropower generation dropped to 127,000 kW.²⁸ The next day brought a 10-hour blackout, shutting down all dairies, bakeries and food processing plants. Fortunately, cold weather prevented the milk from spoiling. The blackouts also affected grain deliveries, shutting down electric threshing machines. Fuel shortages restricted operation of non-electric machines.²⁹

While this weather-induced crisis was unfolding, the American and British Occupation Zones officially merged into Bizonia (a.k.a the Bizone) on January 1, 1947. For the citizens of Munich, the New Year and the new political arrangement brought no improvement in the coal and electricity situation, only colder temperatures and more misery. As the previous winter demonstrated, it was difficult enough to live in a coal-starved city when the usual cold temperatures arrived. This winter, with its

²⁶ "Stromsperre gefährdet die Ernährung," *SZ*, December 10, 1946.

²⁷ "Das Münchner Wetter 1946," *SZ*, January 14, 1947.

²⁸ OMGBY, "Cumulative Quarterly History, Public Utilities Section, Industry Branch, covering Period 1 October to 31 December 1946," US National Archives, RGB 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 52.

²⁹ OMGBY, Economics Division, Food and Agriculture Branch, "Cumulative Quarterly History covering period 1 October to 31 December 1946," US National Archives, RGB 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 52.

unusual bitter cold, presented an even bigger challenge. Also as before, the schools felt some of the biggest impacts, but they were not the only ones.

Another cold spell on January 7 greeted the New Year. Temperatures sank as low as -26 Celsius (-15 Fahrenheit). With coal diverted to other uses, power plants relied solely on hydropower. The Isar River, which supplied some power to Munich, had sunk to its lowest observed level ever. The local government increased electricity restrictions, adding another blackout day, and mandated a 20 percent reduction in household use. Theaters and cinemas could open only after 6pm on blackout days.³⁰

Working at his office that day at the AOK Insurance Company, Ludwig Wolf recalled that

Most of the schools were closed, and public buildings were no longer heated; the streetcars ran only sporadically and with long delays, businesses recorded a sick rate of up to 35 percent and a third electricity blackout day was added... The employees sat, wrapped up in winter coats and shawls—those that owned them that is—freezing at their desks in the big service hall... The ink was often frozen.³¹

Two days later, power cuts again endangered food supplies, as bakeries, butchers and dairies could not produce in the limited hours of electricity service. Some worked at night or only until Wednesday, shutting down for the rest of the week. The next day, the 10th, businesses were forbidden to operate in daylight. On the 11th, coal deliveries ceased to local governments, schools, theaters, cinemas and other entertainment venues, and most schools closed. Temperatures in old peoples'

³⁰ *Chronik*, 230.

³¹ Ludwig Wolf, "‘Verschreims Eana net so oft!’: Ein Tag in der AOK in München," in *Münchener Nachkriegsjahren*.

homes sank to 8-10°C (46-52°F). Four days later, the school day shrank to 30 minutes, and temperatures in classrooms averaged -4 to -6°C (25-21°F).³²

Reporters from the *SZ* visited various places in the city to get an idea of how everyone was coping with the cold and shortages. The article entitled “Leere Oefen, Kalte Räume” (“Empty stoves, cold rooms”), published on January 11, 1947, provides poignant insights into how people lived and worked in a frozen disaster area. Touring a large Munich coal firm full of empty containers, reporters interviewed a “member of the management” who said: “In the 35 years I have worked here, I have never seen such a situation.” An officer of the city government characterized the situation: “We are living, if I may say so, from hand to mouth in regard to supplying the coal for electricity plants.” At the Hirschbergstrasse School, the children met with their teachers for an hour a week. Students at the Polytechnic in Lothbergstrasse sat in lecture halls where the temperature was 10°C (52°F), that is, when the school was open at all. A housewife recalled: “the coal distribution is insufficient for cooking, and so expensive...that because of my husband’s small income I am always afraid and concerned. We heated up our attic for Christmas just so we could have a warm room.” Coal at the city soup kitchens would only last four to five days, then they would have to be closed. At a mechanical firm with 1600 employees, workers sat in a room at 8°C (46°F), most wearing their overcoats. The illness rate was 35 percent. Only two bathhouses were open. A baker said that he had only a few days supply left, while many of his colleagues’ bakeries were closed.³³

³² *Chronik*, 231, 233.

³³ “Leere Oefen, Kalte Räume,” *SZ*, January 14, 1947.

The reporters did not have leave their offices to experience the misery brought on by the cold. Most already felt like they worked in a cave, not a building. An editorial published in the *SZ* on January 28, 1947 described working conditions there:

This newspaper, dear reader, is written, edited, set and printed in ice-cold rooms. Therefore we have declined to post a sign on our building that says “closed due to coal shortage.” Instead we have labored, with clammy fingers and dressed most strangely, to reduce mountains of news so that they fit in our confined space.³⁴

As during the previous winter, the main problem was coal shortages, in particular of Ruhr coal.³⁵ While the local Bavarian mines did increase production, it was too little to offset the severe shortage of coal in Munich and the rest of Bavaria. On January 15 the Bavarian MG declared a coal emergency for all of Bavaria, lasting until March 1. During that time coal only went to seven priority groups. It was forbidden to supply fuel to local governments, doctors and similar users. The priority list, published in the *SZ* and other newspapers, read as follows:

1. Electrical plants, gasworks, waterworks
2. Food production (bakeries, butchers, dairies, the entire food and fertilizer industries)
3. Hospitals
4. Railroads and repair facilities
5. Pharmaceutical and chemical firms
6. Production facilities working for the U.S. Army
7. Civilian production facilities³⁶

³⁴ “Eiszeit Zeitung,” *SZ*, January 28, 1947. They got some warmth by burning correspondence from the previous year.

³⁵ A substantial amount of the Ruhr coal never reached its destination due to theft. For example, the January 14, 1947 edition of the *SZ* reported that: “bands of up to 400 people have attacked the coal trains from the Ruhr to get fuel to heat their homes. 230 arrested in Hamburg... Food trains have also been attacked... a report from the MG says that in the past week about 600 tonnes of Ruhr coal were taken from freight trains in the American Zone.” “Kohlenzüge geplündert: Die Folgen der Kälte,” *SZ*, January 14, 1947.

³⁶ “Wer bekommt Kohle?,” *SZ*, January 16, 1947.

Yet another cold spell arrived on January 29, bringing temperatures between -10 and -25°C (14 and -13°F), exacerbating the crisis in electricity and coal and deepening pessimism at the Munich City government. The Lord Mayor expressed his concerns at an address to the City Council the next day. He began by reminding the Council of the city's dependence on hydropower: "Like every year the frost has made this [the dependence on hydropower] tangible in a highly unpleasant way." Frozen rivers could not drive turbines at hydro plants. The freezing was so bad that day and the plants needed night observation squads to try to keep the ice at bay. The tributaries feeding the rivers were also frozen or slowed to a trickle, reducing the water available for generation. The reduction cost 54,000 kW, and together with the loss of generation at the steam-powered plants from coal shortages, made for a total reduction of over 90,000 kW. The necessary reductions in supply were especially difficult for households.³⁷

The combination of shortages of both coal and electricity brought misery to Munich's citizens. To highlight the "the strain on the populace" that had "reached a peak due to the shortage of fuel for heating and electricity," the *SZ* sent reporters to government offices and local businesses to hear the opinions and stories of people in the frozen city. Most shops had reduced hours or shut altogether, their doors sporting a "Closed due to coal shortage" sign. The post office was "not taking any mail in, and in the offices, we could safely leave our hats on the stove, as it was, like the entire room, ice-cold." Deputy Mayor Wimmer, the "Head Heater of the city," offered a grim assessment of the overall fuel situation. In terms of electricity and gas,

³⁷ "Schwierige Lage der Elektrizitätsversorgung: Bekanntgabe," Stadtarchiv München, *Ratssitzungsprotokolle 720/1*: Jan-June 1947.

industrial and commercial users with demand over 10kW would shut down over the next few days. Exceptions applied to food facilities, coalmines, streetcars, and hospitals (The U.S. Army also took part in these restrictions). The gasworks were in danger of shutting down from lack of coal imports. Regarding the *Holzaktion*, only the City of Munich had met its quota of 200,000 raw meters. The Forest Offices in Upper Bavaria and Lower Bavaria/Upper Palatinate were still short (60 percent and 40 percent complete respectively). The Mayor hoped that the remaining wood would be delivered by February or March, or perhaps the coal deliveries would come in.³⁸

Even though these shortages were worse than those caused by bombing and reduced life in the city to a primitive state, the city did not shut down, the citizens did not riot. A sign posted on the *SZ* building exemplified the willingness to carry on, albeit in solitude: “We have no coal! We urgently request that visitors not come! The editors can be found in the boiler room, entry door 2.”³⁹

Several days later, the *SZ* assessed the situation from a historical-political perspective, joking, “The west sends us food, the east the cold!” In January, the average temperature in Munich was -5.4°C (22.3°F). Since the turn of the century, the temperature had only been colder five times, for example in 1942 (average temperature -9.6°C or 14.7°F). The lowest temperature recorded was -21.4°C (-6.5°F) in the city center and -25 °C (-13°F) in the outskirts. The highest temperature was 13°C (55°F). The forecast for February offered no clues: “meteorological signs

³⁸ In terms of heating, one raw meter of wood was equivalent to eight cwt of Upper Bavarian coal. Production of peat (expected 850,000 to 1 million cwt) in the Bavarian moorlands, ceased the previous year due to lack of equipment and personnel, would hopefully begin when the weather improved. In terms of heat, 1000 cwt pressed peat equaled 400 cwt of coke. “Grossstadt ohne Strom und Kohlen,” *SZ*, February 1, 1947.

³⁹ “Grossstadt ohne Strom und Kohlen.”

highly contradictory-cannot make a sure forecast. Expect another cold front in the latter third of the month.” Normally February was warmer, but there were exceptions, for example in 1928/29, when the average February temperature of minus 11.2°C (12°F) was lower than the average January temperature of minus 6.9°C (19.5°F). The article ended on a depressing note: “We can only hope that we have passed the halfway point of this winter.”⁴⁰ In Munich, this meant that the first priority for any coal on hand was heating, not hygiene. Daniel Beckh recalled: “the winter was so terribly cold. Maybe I remember it that way because we had hardly any fuel for heating. Only our kitchen was slightly warmed; the other rooms stayed cold.” Because wood for heating water was so scarce, he did not bathe very often, and when he did, he had to use the same water after his sister bathed.⁴¹

Local mines in Upper Bavaria remained crucial to supplying coal to Munich to combat the cold, but their bounty was limited. The connection to the Ruhr remained the most important. On the streets of Munich, people wanted to know how much they could rely on local sources, both at the time and in the future. The February 8, 1947 edition of the *SZ* provided some answers in article relating the results of interviews with the Lord Mayor’s Office, and the State Coal, Economic, and Coal Distribution Offices on the theme “Upper Bavarian Coal.” The officials pointed out that at best, Upper Bavarian coal, as before the war, was a supplement, not a major source. While some industries had specialized to run on Bavarian coal, the main sources still lay outside of Bavaria. Unfortunately, local coal still had to fill the gaps left by restricted supplies from the Ruhr and Central Germany.

⁴⁰ “Ist die Kälte vorüber?,” *SZ*, February 4, 1947.

⁴¹ Daniel Beckh in *Münchener Nachkriegsjahre*, 60.

The situation remained grim for household users. While the “pitch coal” (*Pechkohle*) produced in the local mines was especially good for household use (long burning, rich in gas), it was only available when miners worked special “Sunday shifts.” The bulk of the production still went for industrial use. The outlook for future increases in production of Upper Bavarian coal was not promising. While it was encouraging that the 1946 production of brown coal had slightly exceeded peacetime production in 1938 (1.4 million tonnes versus 1.36 million tonnes respectively), officials opined that: “We have reached the peak; a meaningful increase is no longer possible. Even the opening of new mines will not take effect for several years.”⁴²

The arrival of another cold front in March also cooled optimism about the future. In fact, it brought the coldest temperatures of the winter all over Europe. All of Germany suffered, further endangering Munich’s external food and fuel sources. Ice in the North and Baltic Seas reached their highest level since 1903. Ice on the Dutch coast stretched 60 nautical miles from shore. An ice sheet 60 centimeters thick formed on the Weser River at Bremen, the main port for American imports to the rest of the American Zone. The Associated Press reported that in the Bizone 316 freight trains were stopped, their locomotives frozen. The ice-bound trains jammed rail centers at Nuremberg, Frankfurt, Kassel, Münster, Hannover and Hamburg. The bridge over the Rhine between Neuwied and Weissenthurm collapsed after being hit by ice in the river, cutting a gas line and more importantly, blocking ship traffic on the Rhine. This of course slowed coal shipments from the Ruhr. Transport was

⁴² “Wo bleibt die oberbayerische Kohle?,” *SZ*, February 8, 1947.

limited to foodstuffs, coal and military deliveries, while wheat deliveries from Bremen to the Ruhr were stalled.⁴³

For Munich, transport and weather presented only two aspects of the problem. The cold had exacerbated transport problems, but even warmer weather could not change the fact that poor health conditions among the miners and the rest of the population in the Ruhr affected coal supplies. When the cold spell broke and the coal emergency ended during the second week of March, it brought only temporary relief, and little hope. The Munich Economic Office still expected poor deliveries from all mines. The Ruhr and Soviet Zone situations were still “catastrophic,” so the priorities set during the emergency would remain in force for the rest of the month. Deliveries during the emergency had barely covered the priority needs. The slow increase was welcome, but no cure-all.⁴⁴ While food could now get through from Bremen, Ruhr coal, freeze or thaw, was still as important and scarce as it had been before to Munich’s people. Münchener found during the winter of 1946/47 that people they depended on in the Ruhr were suffering as much or more as they were. Furthermore, how the Ruhr residents reacted to their living conditions now affected living conditions in Munich.

⁴³ The cold also affected other areas of Germany, Europe and the world. In central England four-meter high snowdrifts blocked the roads. In North America, the lowest recorded temperature on the continent (minus 80 F) occurred in Dawson, Canada. Washington, DC reached: 8.5 F, New York 12 F. “Niedrigsten Temperatur des Winters,” *SZ*, March 1, 1947.

⁴⁴ “Kohlennotstand beendet,” *Münchener Mittag*, March 15, 1947.

The Winter in the Ruhr

Like the citizens of Munich, those living in the Ruhr were most concerned about food and fuel. The experiences of the previous year had forcefully educated Münchenerers about their coal's place of origin. During the second year of the occupation, people and their leaders now learned to monitor closely the situation in the Ruhr. Miners were essential to coal production. A healthy, well-fed miner could produce much more than a sick, malnourished one.

Both occupiers and the occupied realized this. In a speech before the Economic Committee of the State Parliament of Württemberg-Baden on July 26, General Draper, Director of the Economic Office of the OMGUS (Office of Military Government, US, which commanded all US forces in Germany), considered options to bring Ruhr coal production back to wartime levels. In his opinion, the British Zone needed to copy what was done in the American Zone by providing miners more food.⁴⁵ Newspaper editorials were more blunt, but a bit unrealistic. As one article in the *SZ* put it: "Without a Ruhr region that is able to produce the foundation of the Germany economy (coal), there will be no recovery for all of Germany...give these people the normal amount of human nutrition, that is, 4000 calories."⁴⁶ Daily ration levels for miners, while higher than average, did not reach more than 3,400 calories during 1946-47, and had actually dropped to 2,900 in March 1946.⁴⁷

The state of the labor force available at the time, as well as British policies, limited the ability to produce more coal, even with extra rations. Many young men

⁴⁵ "Kohle-Schlüssel zur Wirtschaftsbelebung," *SZ*, July 26, 1946. The Americans introduced an incentive scheme based on points for the miners in the American Zone in August, 1946. See Roseman, 65.

⁴⁶ "Krise im Ruhrbergbau," *SZ*, July 12, 1946.

⁴⁷ Roseman, 45.

had been lost during the war, so most of the working miners were older. In 1946, the Ruhr miners' average age was 41 years, whereas in 1930 it had been 33 years.⁴⁸ Miners were also weaker, as their workload had increased substantially when the German war effort faltered. Shifts had lasted ten to twelve hours, and miners, like the rest of Germany, grew weaker as the food situation worsened. The approach taken by the authorities in the British Zone had not helped improve the quality of work or the workers' health. As Roseman explains, because the British conscripted miners and forced them to work, many of those who did sign up were not willing to work hard. Others worried more about feeding their families. Since the miners' families received no extra food, many miners were missing shifts to find food.⁴⁹

The occupiers and their German subordinates came up with creative solutions to recruit more miners and increase coal production. One traded prisoners of war (POWs) for coal with France. Another imposed a moratorium on coal exports from Germany. Both ideas originated with British officials and were picked up by Germans, in particular Economic Minister Nölting of North Rhine-Westphalia. On January 31, 1947 in Düsseldorf, he opined that the 45,000 German POWs producing only 10,000 tonnes of coal for France, would produce much more for their own country, which then could be exported to France. He also called for a moratorium on coal exports.⁵⁰ The British had taken a similar approach, first in August 1945 with "Operation Coal-scuttle," which conscripted 35,000 released POWs for mine work, and later in July 1946, when Sholto Douglas, the British Commander-in-Chief, called for a halt to coal exports from the Ruhr. Both Douglas and Nölting recognized that

⁴⁸ Roseman, 24.

⁴⁹ Roseman, 34-35.

⁵⁰ "Kohlen gegen Kriegsgefangene," *Münchener Mittag*, January 31, 1947.

coal that stayed in Germany could be used to produce goods for export, earning much more money than raw coal. Ruhr coal would be a catalyst for the European and the German economy, and ease Great Britain's financial burden of supporting its Occupation Zone.⁵¹ Nölting's proposal came too late. Bizonia was now a fact. American money, not German coal production, had taken on the task of improving life in the Ruhr. The Allies rejected all of Nölting and Douglas's proposals.

General Lucius Clay, Military Governor of the western Occupation Zones, proposed a different solution, one that more directly impacted Bavaria and reflected its dependent relationship with the Ruhr. Two key elements of his plan were sending Bavarian miners to the Ruhr and using incentives to get miners to work harder. Food was not the only thing that Bavaria could offer to the Ruhr. In a February 1947 interview, Clay demanded that the Bavarian State Parliament work out a plan to send 50,000 southern German miners to the Ruhr. "Northern Germany had done its part," he argued. "If southern Germany wants coal, it also needs to do its part. In southern Germany there is unemployment, in northern Germany, labor shortages." Clay went on to say that the occupiers would not want to force the miners to go, but given his position as Military Governor, persuasion was enough to force action. Of the miners expected from American Zone, 27,500 would come from Bavaria, with the rest from Hessen and Württemberg-Baden.⁵²

While the importation of miners from outside the Ruhr took time to organize, more immediate actions, i.e. incentives, tried to meet the health needs of miners and their families. The occupiers set up the so-called "Points System" in January 1947,

⁵¹ Roseman, 25. See also: Farquharson, *The Western Allies and the Politics of Food*, 121-122.

⁵² 50000 Süddeutsche für die Ruhr," *SZ*, February 8, 1947.

based on a system already in place in the American Zone. Miners could collect up to 150 points per month to trade for scarce items such as tobacco, brandy, coffee, and sugar. Many miners took advantage of this scheme to sell these items on the black market, allowing them to obtain more food for their families. The scheme worked, attracting more miners in 1947 (87,235) than in 1946 (61,988).⁵³

These incentives, like the increased rations, made miners' lives easier and increased production but they were also a zero-sum game. The extra resources came at the expense of others, especially in the Ruhr. Miners were only one piece of the puzzle. Just as a city had connections to resources and finished products, there was an infrastructure, a "supporting economy," around mining that was just as crucial to coal production as healthy miners. As Clay would later point out: "Transportation, mine equipment, and mine supplies were as essential to coal-mining production as the coal mines, and the workers in the supporting economy could not be expected to produce as effectively as the better-fed and better-clothed miners."⁵⁴

Giving miners extra rations and perks created resentment amongst the "workers in the supporting economy" and was one of the factors, along with low ration levels, that led to a wave of strikes and demonstrations in major Ruhr cities in February 1947. In Düsseldorf, protesters in an estimated crowd of 100,000 people overturned British military vehicles and threw stones at other autos. In Bochum and Wuppertal 80,000 industrial workers staged a four-hour strike to protest unfair food distribution. Gas, electricity and water service ceased during the strike.⁵⁵ The

⁵³ Roseman, 65, 68.

⁵⁴ Clay, 193.

⁵⁵ "Hungerdemonstrations und Streiks: 800 Kalorien statt 1550/Politische Hintergründe," *SZ*, March 29, 1947.

demonstrators' main concerns were about food, not wages. Slogans from placards carried by demonstrators included: "We are Hungry!" "We demand bread!" "Promises do not fill the stomach," and "We want to eat so we can work."⁵⁶ Coal production dropped sharply during this time: the "supporting economy" could not be ignored.

Concerns about miners' health and strikes in the Ruhr during the *Hungerwinter* highlighted the close connection developing between coal and food. This connection also linked the British and American Zones. When considering reasons to join the Zones during 1946, the occupiers realized that the resources of each zone complemented the other very well. Clay, in his analysis of the arguments in favor of Bizonia, wrote, "The United States Zone had a greater agricultural production and required fewer imports per capita than the British Zone...the great industrial area in the British Zone had to have food to produce the exports which would bring both zones to self-sufficiency."⁵⁷ Basically, the American Zone had the food, the British Zone had the industry (and the coal). They needed each other to survive. Joining them made sense in political and economic terms. American money would pay for administering the British Zone, and Bavarian food could be more easily distributed in the Ruhr and other areas. For the citizens of Bavaria and Munich, however, it meant less food. Since the food was now in a common pool and the British Zone had no reserves, Bavaria and the rest of the American Zone had to make up the shortfall.

⁵⁶ *Hungerwinter*, 183.

⁵⁷ Clay, 170.

Potatoes and “America Meals”: Food in Munich

Of course food was still scarce in the American Zone and Munich in later 1946, before Bizonia became a reality. The same food shortages, lack of variety and bare rations persisted during the entire second year of occupation. This was especially true once the cold weather began in October 1946. The 94th ration period, which ran from October 14 to November 8 of 1946, provides insights into the food situation in Munich. The Bavarian State Government, under the direction of Dr. Baumgartner, Minister for Food, Agriculture and Forestry, surveyed households during the same period. The November 25, 1946 report compared allotted consumption (rations) with actual consumption, and included Munich.

Comments from the surveyors in Munich, where the average ration was 1,641 calories per day (2,000 being the minimum for good health) show the difficulties faced by Munich's citizens. This was particularly true for the housewives, many of whom were widows. Supply problems, food from America, and potatoes, which came from Bavarian sources, were all subjects of concern. American food was crucial. One surveyor reported, “With regard to the great needs of the coming winter, which will bring many hardships with it, foods from America, either in form of care parcels or special allocations will find grateful consumers.” One food, peanut butter, which served as a source of protein and fats, became particularly important and eagerly anticipated. For example, during the first week of the ration period, many complained about the reduction of the fat ration, and asked why peanut butter was not delivered to make up for it. Another surveyor reported in early December that with winter coming on, people were “awaiting painfully the release of peanut butter.” Eating American

foods continued the changes in diet that occurred during the first year of the occupation. With shortages of fat, sugar and meat, fish, some of it from America, (“fish conserves”) continued serving as a protein source.⁵⁸

The potato continued to be central to nutrition in Munich, both as a staple food and replacement food. A June 25, 1946 *SZ* article gave some statistics on how many potatoes had to feed Münchenerers for a day: “Daily City consumption reaches 3800 cwt, composed of 2800 for normal rations and 1000 cwt for the 250,000 meals in roughly 1200 work canteens and taverns. This is the equivalent of a freight train with 19 cars.”⁵⁹ Potatoes had been the bedrock of the German diet since the nineteenth century. They could grow in country’s harsher soils, provided a valuable source of carbohydrates and Vitamin C, and could substitute in times of poor harvests for commodities such as wheat and vegetables.⁶⁰ People often used potato flour to make bread when grain was scarce, as was the case in postwar Munich. Also, with fruit and vegetables in short supply, many people ate more potatoes to supplement their diets. This threatened the limited potato supplies in Munich. The Bavarian State Government survey reported that households on average were eating 50 percent more than they should. Many people assumed that they would receive more potatoes in

⁵⁸ OMGBY, “Cumulative Quarterly History, Public Utilities Section, Industry Branch, covering Period 1 October to 31 December 1946,” US National Archives, RG 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 52.

⁵⁹ “*Der Bauch der Grossstadt*,” *SZ*, June 25, 1946.

⁶⁰ Many authors have pointed out that in the nineteenth century, the potato was key to European population growth and economic success. In an 1892 book, Dr. Alwin Oppel remarked that during the nineteenth century, the potato was “had taken on such an important meaning for northern European countries, that it had become not only important to nutrition but also commercial success.” He listed potatoes alongside corn as one of the “gifts of the New World” that had changed the face of Europe. See Alwin Oppel, *Das Getreide und die Kartoffel in ihrer gegenwärtigen Bedeutung für das Völkerleben und die Weltwirtschaft: übersichtlich dargestellt von Alwin Oppel* (Bremen: Max Nössler, 1892), 49. Two more recent works about the significance of potatoes are William H. McNeill, “How the Potato Changed the World’s History” *Social Research* 66:1 (Spring 1999): 67-83, and John Reader, *Potato: A History of the Propitious Esculent* (New Haven: Yale University Press, 2009).

spring, so why not eat them now? To add insult to injury, a good portion of the potatoes delivered were green. During the first week of November, 0.5 cwt of the 7.5 cwt (7 percent) delivered were green, which meant that they were planted too deeply or harvested too early. Many potatoes were also delivered wet, increasing the risk of rot. Most households had no space for drying.⁶¹

In a weekly report from November 1947 to the MG, Councilman Weiss of the Department for Food and Economics also commented on the problems with potato supplies. Normally, by October people would have received their potatoes for the winter, which they would store in the cellar. Shortages of boxcars and fuel now delayed shipments. Farmers were most likely not meeting their quotas because they were “unmistakably inclined to retain the potatoes they have already stored in frost-proof sheds.” This led to “no complete success” in supplying big cities like Munich with potatoes.⁶²

The Bavarian report also discussed the physical and psychological effects of hunger on Munich’s citizens. One surveyor reported an average weight loss of 10-15 kilograms (22-33 pounds) among older people “within the last months.” He also found two women, one age 30, the other 65, who weighed 45 kg (99 lbs.), and 42kg (92 lbs.), respectively. Another found “the population just vegetates from one ration period to the other, animated by the hope for an early improvement.”⁶³ During the winter, the physical consequences of hunger became particularly severe as the body’s

⁶¹ OMGBY, “Cumulative Quarterly History, Public Utilities Section, Industry Branch, covering Period 1 October to 31 December 1946,” US National Archives, RGB 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 52.

⁶² Councilmember Weiss, “Weekly report on the food situation,” U.S. National Archives, RGB 260: Field Operations Division, Munich Resident Liaison & Security Office 1945-49, Box 421.

⁶³ OMGBY, “Cumulative Quarterly History, Public Utilities Section, Industry Branch, covering Period 1 October to 31 December 1946.” US National Archives, RGB 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 52.

resistance to disease weakened because it lacked the necessary unmodifiable proteins, fats, vitamins and minerals. Sick people could not get the special diets and vegetables they needed to heal. There was often not enough medicine, fresh milk, potatoes, fruits and vegetables.⁶⁴

For high-level occupation leaders like General Clay, the psychological effects of hunger were of greater concern. Adequate food would bolster morale and help foster democracy in Germany. Clay recalled in his memoirs, “I did not believe that the American people wanted starvation and misery to accompany occupation, and I was certain that we could not arouse political interest for a democratic government in a hungry, apathetic nation.”⁶⁵ Allied leaders feared that starvation would lead to moral decline and strangle the growth of democracy in Germany. Hungry people would invest little faith in fledgling democratic institutions, particularly since they were better fed during the Third Reich.

While Allied authorities worried about hunger leading to Marxism, the average Münchener worried more about where the next meal was coming from, and what he or she would have to do to get it. During the second year of the occupation, the government could still only provide basic nutrition. Münchener continued employing their survival strategies (hamstering, changes in diet, the black market, etc.) from the previous year. With the harsh winter and the joining of the American and British Zones in 1947, the situation became direr. Munich’s citizens came to rely even more on outside food sources, mainly from the United States. As during the previous year, schoolchildren were one of the most visible and hardest hit groups as

⁶⁴ *Hungerwinter*, 171-173.

⁶⁵ Clay, *Decision in Germany*, 262.

ration levels tumbled and food shortages grew more severe. Also one of the groups that most benefited from outside help, they provided a useful example for understanding the food situation in Munich during the second year of occupation. Some statistics gathered in the summer of 1946 provide a good starting point.

During the war, children had been evacuated to the countryside to spare them the privations and dangers of living in a city under attack. With the war and bombing over with, children, many without fathers, filled Munich again. Leaving their homes (such as they were) every day to go to school, often poorly fed and clothed, they attracted the attention and concern of the local authorities and foreign charities. In July 1946, the local government surveyed schoolchildren to examine their housing and food situations. In the village of Ramersdorf in the outskirts of Munich, a survey of a school revealed that children between the ages of six and fourteen had poor clothing and living conditions. Only 30 percent had their own bed, 50 percent had no winter coat or adequate shoes, and 65 percent came to school without having had breakfast or packing a between-meal snack. Since food was generally more available outside the city, conditions in the inner city were most likely worse. Another survey, this one of all of the city's 55,000 schoolchildren aged 6 to 14, confirmed this. The survey revealed that 55 percent of the children were undernourished, and only 20 percent were "totally healthy." The remaining 25 percent suffered from diseases such as tuberculosis, bronchitis, and skin ailments. Unfortunately, the local government did not have the resources to provide more food. A school meal program from the Munich Nutrition Office that was supposed to start in March 1946 and provide 160 calories per day still had not begun in July. Other big cities (Berlin, Hamburg, etc.)

were ahead of Munich in doing this. Relief, it seemed, could only come from private financial sources.⁶⁶

Since the local governments were moving too slow, private charities in Switzerland and the U.S. stepped in and began a school-feeding program in October.⁶⁷ Locally known as the “America Meal,” the program fed 100,000 schoolchildren in Bavaria with supplies totaling 100,000 kg flour, 150,000 kg powdered milk, 18,000 kg zwieback, 50,000 kg oats, 50,000 kg “nutrition mix” and 20,000 kg sugar. The children in Munich received 400 calories a day and were divided into three groups: “normally nourished,” “undernourished” and “extremely undernourished.” Only the latter group, totaling 17,000 students, would receive the supplement, even though many more were undernourished.⁶⁸

While this program benefited certain students, a second medical survey conducted at the beginning of the 1946-47 school year in autumn, revealed that the overall situation remained very poor. The survey found that of the 60,000 children in *Volkschule* (elementary schools) and the 30,000 in middle and trade schools, 85 percent were “undernourished,” with 20 percent in danger of permanent physical damage from hunger. Only 15 percent were designated as “well nourished and healthy.” The decline had begun roughly six months earlier, and things looked no better for the oncoming winter. There were not enough shoes, soap, and warm clothes to go around, so that on bad weather days, 30 percent of the students were absent.

⁶⁶ “30,000 unterernährte Schulkinder,” *SZ*, July 2, 1946.

⁶⁷ “Gift packages” had begun arriving in small amounts from the U.S. in July, via the port of Bremen. They were often poorly packaged, leading to breakage and the mixing of chocolate and washing powder into an “unusable new product”. The packages did not always make it, and were sometimes stolen from the trains en route or at the station. “Kalorienpakete rollen an,” *SZ*, August 13, 1946.

⁶⁸ “Kalorien für Kinder,” *SZ*, October 22, 1946.

Many had skin and lung diseases. Since there was not enough space in children's hospitals, many children shared a bed with another sick child.⁶⁹

In December 1946 reporters from the *SZ* visited one of the 78 schools picked to receive the "America-Meal." They found, "the happy noise that goes with a healthy group of children, seemed almost foreign and unexpected, because the children had pale, thin faces and terribly thin bodies." The students received milk or broth with bread or crackers. The article cited thank you letters from the children, such as the following: "it is a blessing when one sits in an ice-cold classroom and receives something warm. We thank the Americans for the great food."⁷⁰

The U.S. government, however, did not directly step to offer direct food aid until after the harsh winter was over. In April 1947 the military government began a program with the goal of providing a 350-calorie meal to over 3.5 million children in Bizonia. Nevertheless it proved crucial in both medical and political terms. Clay remarked in his memoir that, "It saved the health of the German youth. Without this aid in a critical period I do not know what would have happened...[it] did more to convince the German people of our desire to recreate their nation than any other action on our part."⁷¹ Put simply, it proved Clay's assertion that the occupiers created more goodwill with real food than with ideas of democracy.⁷²

⁶⁹ "Zahlen, die zu denken geben," *SZ*, November 30, 1946.

⁷⁰ "Lieben Amerikaner!," *SZ*, December 10, 1946.

⁷¹ Clay, 268.

⁷² Harriet Weber remembered the school meals, which featured tomatoes (scarce in postwar Munich) and potatoes; "it was wonderful." Harriet Weber, interview.

CARE Packages

It was not just schoolchildren who received aid from the United States. One of the most popular and anticipated arrivals from the U.S. was the CARE package. These first arrived in summer of 1946, but only 1 person in 146 received one that year. By January 1947, Germans had received five million packages.⁷³ A central clearinghouse in Stuttgart distributed packages to the three states (Bavaria, Württemberg-Baden, Hessen) in the American Zone. These reached the populace via distribution stations in the thirty-six postal zones. Four thousand packages had reached Münchenerers by November, but most were sent to specific people. Free packages, often addressed only to “a Munich father wounded in the war,” were rare.⁷⁴ The contents of a typical package, listed below, meant a godsend for hungry families or a windfall for a black marketer:

340 grams “breakfast meat”
170 grams soap
1 pound liver sausage (*Leberkäse*)
1 pound stewed beef
2 pounds sugar
2 pounds plant oil
2 pounds flour
2 pounds dried fruit
1 pound coffee
One half pound powdered eggs
2 pounds chocolate
1 pack of chewing gum⁷⁵

Since most people subsisted on bread and potatoes, the meat, coffee, and especially the chocolate were considered luxury items, not to mention ideal trade goods.

⁷³ *Hungerwinter*, 128. This also led to familiarity with American brands.

⁷⁴ “Das Packl aus Amerika,” *SZ*, November 12, 1946.

⁷⁵ *Hungerwinter*, 130.

The practice of hamstering, the black market, and the barter economy continued to thrive all over Germany during this period, and could get quite complicated.⁷⁶ The following example of “compensating” (*kompensieren*) did not occur in Munich, but it was typical of the skill needed to get more food all over Germany.

A hungry friend was offered a pound of butter for 320 RM. He took it on credit, as he had insufficient funds, and would pay in a few days. His wife got a half-pound of butter; we went “compensating” with the rest. In the tobacconist’s you can buy 50 cigarettes for the half pound of butter. We kept ten cigarettes for ourselves, and took the rest into a bar. We smoked a cigarette, and the deal was perfect; for 40 cigarettes we got a bottle of wine and a bottle of schnapps. We took the wine home and went to the countryside with the schnapps. Soon we found a farmer who traded us two pounds of butter for the schnapps. Next morning my friend brought the first butter dealer his butter back, as it was too expensive. As compensation we had one and a half pounds of butter, a bottle of wine, ten cigarettes, and the pleasure of a tax-free business deal.⁷⁷

Those who were not lucky enough to receive a CARE package or clever enough to game the system had to rely on the U.S. government, the local MG, and the Munich City government. Cold weather, the actions of the occupiers, and the continuing problems with the transport system meant that often these authorities or private charities could not deliver the needed food. In the hard year 1946-47 people in Munich and all over Germany suffered. Only solemn hope offered a glimpse of a better future. Perhaps when the terrible winter finally ended, things would get better.

⁷⁶ A popular saying went: “Wer hamstert, gehört ins Zuchthaus, wer nicht hamstert, ins Irrenhaus! Those who go hamstering belong in jail, those who do not go hamstering, in the lunatic asylum!” *Hungerwinter*, 70. Clay would later write in his memoir that without the black market, ten percent more Germans would not have survived the postwar period. Clay, 79.

⁷⁷ *Hungerwinter*, 89.

Conclusion

When the winter did end in spring 1947, soon followed by the final month of the second year of occupation, the freezing cold was over, at least for a while. Most Münchenerers had survived, and perhaps the weather had made them suffer enough. Just as the creation of Bizonia had not made life notably better for Munich and its people, the end of the cold weather did not end the problems with coal, electricity and food. The city still heavily depended on its tenuous connection to Ruhr coal. Freezing temperatures revealed the natural risks inherent in the connection to the Alpine rivers. And while increased American aid had increased the food supply, it had not changed the inequality of the “coal-food cycle” that strained the connection between Ruhr coal and Bavarian food.

Many factors--weather, living conditions in the Ruhr area, and the policies of the occupiers--determined how much Ruhr coal reached Munich’s factories, food production facilities, homes and power plants. Coal shortages had not only interrupted electricity supplies and made heating homes difficult, but also threatened food production. The city once again had to rely on wood to heat homes during the winter, and in greater amounts. This threatened local forests and relied on a workforce culled from city dwellers who were not keen on volunteering for hard labor. Local coal production in Upper Bavaria, while it had increased, was limited. The efforts of coal miners working Sunday shifts were admirable, but insignificant in the long run. Munich’s citizens had watched their children freeze at school (if they went at all) and had gone to work in offices more similar to igloos than modern workplaces. Occupiers and occupied had not devised good answers to the questions

of coal supply. And the occupiers' undeniable supremacy kept the people of Munich from primary decision-making about distribution.

Electricity revealed the imbalance. The new Austrian hydropower contract demonstrated bluntly how the occupiers' diplomatic priorities came first. And natural phenomena only confirmed Munich's dependent status. Record freezing temperatures had endangered the already reduced amount of hydropower, further weakening the connection to the Alpine rivers. Blackouts, closed shops, and interrupted food production were just some of the conditions brought on by cold weather and coal shortages.

Although the cold ended in spring 1947, hunger continued to gnaw. The food situation during the second year of occupation demonstrated how dependent Munich and its citizens remained on outside sources of food as well as coal. The January creation of Bizonia meant that more food left Bavaria, but not that more Ruhr coal came in. Even potatoes, always plentiful in Bavaria, were in short supply. Surveys showed that children were malnourished and poorly clothed. Only the generosity of the American people and the occupation policies of its government ensured that they got at least one good meal a day. Freezing temperatures, however, held up the transport of food from the U.S. and within Germany. Diets still consisted mainly of potatoes and bread, with the occasional piece of fruit or vegetables, fats, and a bit of meat. Luxury items--coffee, butter, and chocolate--could be found on the black market or in surrounding farms, or nestled in a CARE package from America. While the winter earned the name "Winter of Hunger" (*Hungerwinter*), the same moniker,

slightly altered, applied to the entire second year of occupation. It truly was a “*Hungerjahr*,” a year of hunger.

The coming of spring did, however, bring some cause for optimism. While giving a speech in Stuttgart on March 15, 1947, the day the coal emergency was lifted, General Clay made some hopeful remarks on the coal situation. The return of warm weather improved railroad operations and resumed water transport. Freed from nature’s icy grip, transport problems no longer delayed food shipments and coal distribution to industry. Transport was flowing the best it had during the occupation. Clay ended his speech on a cheerful note: “I am sure that you (all) have survived your hardest winter.”⁷⁸ As the rivers melted and the hydropower’s “white coal” began to flow again, Müncheners hoped could look forward to some relief from these conditions. What they (and General Clay) did not know is that this “hardest winter” would be soon followed by one of the worst droughts to hit Germany in many years.

⁷⁸ “Der härteste Winter ist überstanden,” *SZ*, March 15, 1947.

Chapter 7

Occupation Year 3: From Despair to Hope

It has been almost eight years that the German people have been cut off from other peoples. Just two years ago even the last frail nerve fibres that connected us with the world's pulsating life were suddenly disrupted...Our cathedrals have gone to pieces, our houses were destroyed; rain and snow pour into the lecture-rooms of our universities. Do they know abroad that the children in uncounted German cities go to school with bare feet even in the hardest winter, unless they are too emaciated and weak for walking?¹

Bavarian Prime Minister Hans Ehard spoke these words at the Closing Session of the Conference of German States (*Länderkonferenz*), held in Munich on June 7, 1947. This was the first meeting of the leaders of the new German states that made up occupied Germany. While it included those in the Soviet Zone, they left the conference on the first day, and did not participate in drafting the eleven Resolutions the Conference produced. The Resolutions expressed the leaders' concerns about the future of Germany. They covered many subjects, including coal and food supplies and the impact of the shift from coal to wood on Germany's forests. Ehard's words expressed the isolation of Germany, its broken connections to the intellectual and cultural life of the rest of the world. They reminded the occupiers of the terrible conditions Germany's people faced after six years of war and two years of occupation. People were still feeling the effects of the "*Hungerwinter*" of 1946/47, and many German cities had not recovered from the damage of Allied bombing and

¹ Translated in U.S. Military Government for Land Bavaria, Annual Historical Report Covering Period from 1 July 1947 to 30 June 1948: Volume 3. U.S. National Archives RG 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 264.

invasion. While, as discussed below, the Resolutions asserted Germans' growing self-confidence, they were also a cry for help. Germany needed aid from other countries to help put shoes on the bare feet of schoolchildren and rebuild the cathedrals. Who would step up to help?

The inhabitants of Munich, like the rest of Germany, had still not recovered from the damage the war and its aftermath had done to its physical infrastructure and connections to natural resources. As the third year of occupation began in May 1947, the city, it seemed, had reached a new low. Müncheners were still feeling the impacts of the actions of nature (weather) and humans (occupation policies, transport and supply decisions, the creation of Bizonia) from the previous year. This combination frayed the still rudimentary new connections to natural resources, especially coal, bringing misery to the citizens of Munich. The future looked no better. The cold weather would inevitably return in autumn, and the same political arrangements would likely endure. Bavaria still exported large amounts of food to the rest of Bizonia and received insufficient coal from the Ruhr. Yet another new contract with Austria siphoned more hydropower off to Vienna.

Few anticipated, however, that heat and drought, not icy cold, would have the most impact on Bavaria and Munich in the coming months. Fewer still expected that the United States would offer its vast resources as a path to national German recovery. From May 1947 to May 1948, connecting Munich to the Alpine rivers and Ruhr coalfields intensified. At the same time, Munich's connection to the food and fuel resources of the Soviet Zone frayed almost to the breaking point. A new connection to the resources of the United States--especially food--became much more

important. The Marshall Plan and German currency reform would offer the best hope to make Munich a healthy, thriving city again.

In the meantime, the situation in terms of electricity, food and coal supplies continued to be unstable and subject to the actions of the occupiers and the weather. The major event of the third year of the occupation was the drought of summer 1947, which produced an even more precarious electricity situation than during the previous winter and again threatened food supplies. As the rivers dried up, less and less power became available in a time--summer--when Bavaria and Munich mostly ran on hydropower. With coal still in short supply, the blackouts and restrictions returned with more severity. Leaders proposed expanding hydropower and local coal production, but Munich's electricity supplies continued to depend on the uncertain coal shipments from the Ruhr and unpredictable rain in the Alps.

The drought also seriously disordered the food supply by causing a poor harvest that reduced Bavaria's agricultural production. Bavaria had less food to meet the demands of the other states in Bizonia, and this development highlighted the connection between Ruhr coal and Bavarian food. Even before the drought, Bavaria had been forced to export food that its citizens would rather have kept at home. This created tension between Bavarians, the occupiers and the British half of the Bizone. Leaders at the state level became more assertive in their dealings with the occupiers at meetings of the Bavarian Parliament and the *Länderkonferenz* in 1947. They knew the food-coal system in place was not working, and began to push the occupiers to take action. As the effects of the drought set in, angry words, protests and strikes followed. Ration levels throughout Bizonia sank and people continued to substitute

wood for coal. It became clear that the combined resources of the two Zones were not sufficient to feed its people or supply them with enough coal. Bavaria could not continue to trade food for coal; more resources had to be found.

All of these developments showed how important connections to natural resources were to the functioning of the city of Munich and their impacts on everyday life. This chapter analyzes how the drought starkly highlighted Munich's dependence on Alpine hydropower and vulnerability to shortages of Ruhr coal. Both exposed dangerous weaknesses in the city's energy system. It explains how the food situation deteriorated, but then recovered with help from nature and the Americans. Good weather led to a bumper harvest, and increasing U.S. food imports deepened the growing connection to the United States. The three events of June 1948--Marshall Plan, currency reform, and Berlin Airlift--that end the chapter offered concrete proof that the connection to the U.S. was solid, and would continue to expand. They also began the Cold War, which resulted from, in Tony Judt's words, "the ultimately incompatible goals and needs of the various interested parties."² For Munich, this meant the severing of the final remaining fibers connecting the city to the former Eastern provinces. U.S. resources had the ability to make up for the lost wheat and coal. Munich would be regenerated not by the old connections to the East, but the new one to the west.

² Tony Judt, *Postwar: A History of Europe Since 1945* (New York: Penguin Books, 2005), 104.

Mortgaging the Future: Coal And Wood

In Munich, there were many problems to solve and crises to deal with, especially regarding food and fuel. Deputy Mayor Wimmer dealt with these issues in a May 1947 speech published in the *Münchener Stadtanzeiger*. He prefaced his assessment of the situation with a comment on Munich's growing population. He reported that the population went from 750,000 in September 1946 to 780,000 in April 1947. This increase did not include 30-40,000 unregistered residents, a special concern. The character of the city was changing: "Munich has become, one can say, an international city." Feeding this growing population and keeping them warm in winter would be a great challenge, and the city government could only do so much. Food was a problem for "at least 95 percent of the city's population," which also was short of housing. The solution had to come from bigger entities, namely the Bavarian State Government and the occupying powers. The city government had "simply become distributors" that tried to "accomplish this task through a set of measures with great objectivity and justice." Furthermore, the "distributors" also knew that "entire food supply has become too small." The meat supply was an especially big problem. If Bavaria had to continue to deliver the same levels of meat to Berlin and the British Zone, it would lead to meatless weeks in the coming months, a situation that must be avoided.³

Coal was, as before, a grave concern. The gasworks were still short of coal, and none was available for household heating. Wimmer did not believe that coal would come for the winter. This meant even more woodcutting. Even if a generous distribution of 200,000 tonnes of coal miraculously arrived, the city would still need

³ "Unsere täglichen Sorgen," *Münchener Stadtanzeiger*, May 21, 1947.

360,000 raw meters of wood. Promises were not good enough: the Bavarian State government had to “ensure that a higher coal delivery for the state capital of Munich, be it for the gasworks or the Economic Office [it distributed the coal] becomes a reality. Higher distributions on paper help no one.”⁴

In terms of fuel, one of the harsh new realities Munich faced was that the city and its surrounding state of Bavaria were treated the same as other states in Bizonia when it came to coal deliveries. No provisions were made for Munich’s colder climate or more rural character. Living in the shadow of the Alps, Münchenerers experienced longer and more severe winters than other areas in the Bizone, for example along the Rhine. This meant that coal had to arrive earlier, with the best time being summer. Transport was still the main problem, and the occupiers set the priorities for the diminished rolling stock. Coal, if it arrived at all, came into Munich in the fall, a time when most of the trains were hauling food from the harvest. Stepping backwards in time to wood, it seemed, was going to once again be the answer to the fuel problem. For the first time, however, leaders looked at the larger consequences of this practice and realized that something had to change.

Over the past two winters Münchenerers and other Bavarians were compelled to substitute wood for coal in ever-increasing amounts, threatening the future of the forests in Bavaria and the rest of Germany. At high-level meetings at the Bavarian Parliament in May and the *Länderkonferenz* in early June, leaders gloomily assessed the state of Germany’s forests. On May 28 Dr. Baumgartner, the Bavarian Minister for Food and Agriculture, began his speech to the Bavarian Parliament with an apocalyptic vision:

⁴ Ibid.

The shadow of death looms over the German forests. A frantic hurricane of exploitation and destruction rages like never before in European economic history through our forests. Let us not forget the future amongst our everyday pressing needs, and not overlook the most important things ...the hunger will, like after the First World War, be overcome...our lives will, albeit slowly, be put back in order, and new life will bloom from the ruins. The slaughter of our forests, the destruction of our forest resources, however, that is the real thing, that is the biggest national tragedy of the present and the future. Whoever keeps silent sins against the lives of future generations.⁵

Basically he was thinking long-term, of not sacrificing the future to meet the needs of the present. While Baumgartner's speech was negative overall, the fact that he did see a future represented a change in Germany's fortunes since the surrender two years earlier. Leaders were now focusing not just on meeting immediate needs. They could imagine a future that needed looking after.

Forecasts for the future aside, Baumgartner did not have much hope for the present, and sought to clear up some misconceptions about the state of the German forests. He put forth that people who believed that Germany possessed a great wealth of forests or that the forests represented a war resource were greatly mistaken. Germany had to import 15 million raw meters of wood annually, making it, along with England, one of the great wood importers of Europe. German forests had been "exploited," he explained, ever since the Nazis took power. The ceasing of imports in the postwar years had accelerated this "exploitation." Bavarian forests were being reduced at such a rate that the wood available for cutting would be gone in six years if nothing were done. This would lead to a "pauperization and impoverishment" that could not be imagined at the time. He cited the results of a 1946 wood inventory ordered by the MG that turned up "facts that were so alarming that neither the officers

⁵ Stadtarchiv München, *Bürgermeister und Rat* 2067.

of the occupation forces nor the German officials could not let things go on for even one day.” Ruined cities were a “minor concern” compared to the wood situation. The statistics showing forest area per capita in western Germany, when compared to the rest of Europe, painted a grim picture. With 0.14 hectares per capita, western Germany (Bavaria had 0.25 hectares per capita) had significantly less than the rest of Europe (0.34) and the lower 48 States of the USA (1.94). The average wood supply needed for Central European countries was 0.5. Germany, Baumgartner argued, was in trouble without outside help.⁶

For Bavaria, the results of the 1946 wood survey illustrated a problem of demand outstripping supply. The “wood yield” (*Holzverrat*) per hectare had to be 180 to 200 raw meters to meet Bavaria’s needs. Instead, it was 90. Old growth forests were also scarce, making up only three percent of Bavaria’s badly needed forests. New growth in Bavaria’s forests amounted to six million raw meters annually, while consumption topped 14.5 million raw meters, or 240 percent of new growth. Any consumption over five million raw meters amounted to “exploitation.” This could not go on, Baumgartner warned, because this “exploitation” would degrade the forests in general, the culture of Bavaria, and even the German climate. Forest mining threatened to fundamentally change people’s relationship to the land. Unchecked, forest mining in Bavaria might result in South Germany resembling Greece or Italy, where most of the trees were gone.⁷

Baumgartner also presented a plan of action to the Bavarian Parliament. This included conserving forest resources, setting a limit on wood consumption, and

⁶ Ibid.

⁷ Ibid.

substituting coal, peat, and electricity for the 10 million cubic meters of wood burned for heating annually. Eight daily shifts in the Ruhr could produce the necessary two million tonnes of coal and save the Bavarian forests. The occupiers must also stop cutting wood for export. For example, in 1946, Bavarian forests provided 490,000 of the 650,000 cubic meters sent to Great Britain from the American Zone as war reparations. Wood also went, like coal, to formerly occupied countries like the Netherlands.⁸

While the occupiers would most likely not meet these demands, such stipulations highlighted the difficult wood supply situation for Bavaria and Munich. Amounts of wood cut and delivered to Munich had grown steadily in each winter after the occupation, from 500,000 in 1945/46, to 620,000 raw meters in 1946/47. As Munich's population increased, the city needed more fuel to keep people warm. Whether it would come from wood, coal or some other source was unclear. The fact was that local supplies were limited. Munich had to find a new fuel connection.

The other states of western Germany also recognized that wood supply problems were linked to coal. Limited coal supplies meant relying too much on wood, and cutting down too much wood now meant that there would not be enough in the future. In the long run, Bavaria and other states would continue to experience shortages and the suffering they brought unless coal supplies increased and wood consumption decreased to restore the balance in fuel supplies. After the privations of the *Hungerwinter*, Germans and their leaders were determined that this would not happen again. Furthermore, they wanted a say in the decision-making process. The leaders meeting at the *Länderkonferenz* produced The Resolution on the Coal

⁸ Ibid.

Problem and the Resolution to Save the German Forests. Both called for increased coal supplies and reduced wood demand. The Resolution on the Coal Problem declared that the leaders of the *Länder* wanted more coal to stay in Germany and that “The export of coal must be limited to such an extent as to take proper allowances for the German vital interests.” Remembering the *Hungerwinter*, the Resolution also demanded “the German population must be granted a minimum quantity of coal to heat their homes in the next winter, lest the catastrophe of the last winter occur again.”⁹

Since most of the coal had not come the previous winter, substituting wood as household fuel represented not only a change in habits, but also a threat to Germany’s forests. Echoing Baumgartner’s May speech, the Resolution to Save the German Forests highlighted the damage done to Germany’s forests, and proposed measures to fix the problem. The Resolution strongly pointed out “the progressive ruthless exploitation of the German forests” that threatened German water and food supplies. It asked the MG to “restrict future cuttings for the occupation powers and the export of this vital raw material to such an extent as Germany is able to bear.” For their part, the leaders pledged to “take suitable measures against waste and illegal storage of wood, to start the immediate and systematic re-forestation of the deforested areas and to better adapt the methods of wood control to the supply potential.” Basically, as the occupiers reduced demand, the German authorities increased supply.¹⁰

These were, however, long-term nationwide solutions. At the local level, Munich’s people had to deal with immediate problems of coal and wood supplies. As

⁹ “Elf Resolutionen zur Deutschen Not,” *SZ*, June 9, 1947.

¹⁰ “Elf Resolutionen zur Deutschen Not,” *SZ*, June 9, 1947.

before, railroads played a key role in problem solving. In many cases, there was simply not enough rolling stock to transport coal and wood, even in favorable weather conditions. A look at the monthly reports on woodcutting prepared by the Munich City Fuel Office from May 1947 to May 1948 demonstrates this problem. The May 1947 report stated that while there had been enough fuel, wood, at number 11 on the list, was still a low priority item for the State Railway (*Reichsbahn*). While coal was number 1, this offered little consolation because most of the coal was not going to Bavaria. The bigger problem remained the shortage of boxcars. The reports for November and December 1947, and January and February 1948 all pointed to “starker Waggonmangel!” (“Huge shortage of boxcars!”) as the main problem in meeting wood supply goals. The first report to find enough boxcars was May 1948, a time of the year when wood supplies needing transport was usually lower.¹¹

Munich’s city officials still had some faith that coal supplies might cover the demand for household heating and spare Germany’s forests. Wood had certainly made the difference in the previous winter, but it would take a lot of coal to reduce demand for the coming winter. In a letter on the projected fuel supply for winter written in early June, Deputy Mayor Wimmer expressed this concern. He also had some hope that the promised coal supplies would arrive. Summing up the last winter, he said: “All in all, we muddled through the awful winter months...we had the one satisfaction that no one froze in Munich.” He estimated that with a population of 780,000, Munich would need 860,000 raw meters of wood (up from 670,000 the

¹¹ “Bericht über die Brennholzaktion im Monat Mai 1947,” “Bericht über die Brennholzaktion im Monat November 1947,” “Bericht über die Brennholzaktion im Monat Dezember 1947,” “Bericht Januar 1948,” “Bericht Februar 1948,” “Bericht Mai 1948,” all from: Stadtarchiv München, *Kriegswirtschaftsamt* 446.

previous year) if coal supplies failed to arrive. He also reported that local Forest Offices and state authorities believed that brown coal could cover the fuel demand. They reckoned that one raw meter of wood substituted for 4 cwt of Ruhr hard coal or 5.7 cwt brown coal. If brown coal met the entire winter demand, it would take 4.9 million cwt or 245,000 tonnes to match the 860,000 raw meters of wood. Wimmer reported that on May 31, the same officials promised that brown coal would meet two-thirds of demand. That still left 287,000 raw meters of wood to cut. The month of June would be critical. With sufficient coal deliveries, Munich would only need 287,000 raw meters of wood. If not, they would need to cut more. People with no gas or electric cookers would get wood during the summer, but must realize the importance of consuming it sparingly.¹²

As the critical weeks of June passed, promised coal supplies did not come. As before, the transport problem was the main culprit. Munich city officials now more firmly expressed their concern to the Allies. Mr. Aschenbrenner (“ash-burner”, an appropriate name) head of the Fuel Section of the Economic Office, wrote two letters to Lord Mayor Scharnagl in July 1947 regarding the fuel situation, transport, and wood supplies. The first, from July 3, contained background information for Scharnagl to use at the upcoming meeting of the League of German Cities. In it, Aschenbrenner gave some statistics on Munich’s fuel supplies and assessed the outlook for winter. During the previous “coal year” (May 1, 1946-April 31, 1947), Munich received approximately 600,000 raw meters of wood, 28,000 tonnes of brown coal, and 5,700 tonnes of brown coal briquettes. All of this was split among 250,000

¹² “Voraussichtliche Hausbrandversorgung der Stadt München für das Jahr 1947/48; Stand Anfang Juni 1947,” Stadtarchiv München, *Kriegswirtschaftsamt* 454.

households, 70,000 single renters, 12,000 infants, 13,000 disabled persons, 37,000 people over 70 years old and 10,000 sick people. During the first half of 1947, deliveries of coal, coke and briquettes were less than during the same time in 1946, even though the city now sported a larger population. As Munich's population continued increasing, coal deliveries were anything but certain. In fact, in the coming winter they would again most likely disappoint. The biggest problem remained the "catastrophic" shortage of boxcars. It was unclear, he concluded, whether wood could make up the shortfalls. It was certain, however, that the transport problem would play the most important part.¹³

Aschenbrenner echoed this sentiment in another letter two days later, stating that: "The coal problem has been a transport problem for decades." Locomotive shortages and transport delays were common even before 1939. The war worsened this situation by destroying tracks and facilities. The chaotic nature of postwar German railways and the occupiers' demands further exacerbated the problem. While current demand for rolling stock totaled 220,000 tonnes, only 160-170,000 tonnes were available. If this did not change, areas in Bavaria furthest from coal production would still not be able to receive more coal.¹⁴ Aschenbrenner was not afraid to shame local forest offices into delivering their quotas. In a June 30, 1947 letter to Schwaben Forest Office he wrote,

The conditions for coal distribution for household use have gotten so bad lately that we must fear the worst for the coming winter if we are all not willing to grasp all available opportunities to stop it...It is my responsibility to ensure that Munich's citizens will not have to endure a winter like the last

¹³ "Material für die Sitzung des Deutschen Städtetages am 18./19. Juli 1947," Stadtarchiv München, *Kriegswirtschaftsamt* 454.

¹⁴ "Kohlenversorgung/Transportlage," Stadtarchiv München, *Kriegswirtschaftsamt* 454.

one, or perhaps an even worse one, and therefore I ask you when you will be able to deliver the 20,000 raw meters of wood.¹⁵

As the summer went on, it became clear that once again coal for the winter was falling short. At a Bavarian Parliament meeting on August 1, members learned that the occupiers had cut the coal allowance (10 million tonnes of brown coal) for households by two-thirds. Local sources of coal and wood had to make up the shortage. On a positive note, Bavarian production had exceeded expectations by reaching 110 percent of its quota, out-producing the rest of Germany in percentage terms. The Bavarian government took the opportunity to optimistically promise cities over 20,000 inhabitants deliveries of 10 cwt per household.¹⁶

The Munich City Council had not put much faith in this flimsy--and ultimately broken--promise. Reporting once again on the fuel situation at the August 21 City Council meeting, Deputy Mayor Wimmer confirmed fears that transport problems had slowed coal deliveries to Munich. Between May 1 and July 31, 1947, the Fuel Section of the Munich Economic Office had received 46,642 tonnes of coal for households. This was about half of the 92,000 tonnes promised by the State Coal Office. Munich would need an additional 300,000 raw meters of wood to cover the deficit. What coal they did get would have to be strictly conserved.¹⁷

Realizing that wood was going to be the answer again, Wimmer repeated his efforts to enlist the help of Munich's citizens to collect enough wood for the winter. During the previous year many people complained that the distributed wood was wet. Because of labor shortages, it had been cut too late, and thus did not have time to dry

¹⁵ Stadtarchiv München, *Kriegswirtschaftsamt* 454.

¹⁶ "Zehn Zentner Kohle für den Winter," *Münchener Mittag*, August 1, 1947.

¹⁷ "Ueberblick über die derzeitige Brennstofflage", Stadtarchiv München, *Hauptausschusses*.

out. In a July 31 speech, Wimmer expressed his determination that he would not allow such a situation to occur again. He urged Münchenerers to remember the misery of the previous winter and heed the call for more laborers. Since the Labor Office could not provide unemployed people to work, it was up to Munich's citizens to volunteer in accordance with the old saying that "God helps those who help themselves." He called on anyone not engaged in full-time work to register and help out. Again reflecting Münchenerers' growing political self-confidence, he reminded everyone that the occupiers would not help: "The decision on whether we will freeze again this winter is entirely up to us."¹⁸

Water And Power

During the summer of 1947, however, winter's freeze was far from the minds of Münchenerers and other Bavarians. The weather, in the form of a drought, once again showed how dependent the state and city remained on the Alpine rivers for electricity. Drought would also endanger the food supply, leading to much political unrest, even after the rains came in December. The drought began in June with hot and dry conditions, "unusual weather" for the city. In Munich there had only been seventeen years since 1881 where the temperature in June reached or exceeded 30°C (86°F): temperatures reached this level after five days. The forecast predicted little change in coming days. Observation had shown that a warm July in Munich always followed warmer weather between March and June.¹⁹ In the Alps, lower rainfall brought immediately dropped electricity production. Hydropower production in

¹⁸ "Wollen wir wieder frieren?," *Münchener Stadtanzeiger*, August 6, 1947.

¹⁹ "Trockener Juni-heisser Juli?," *SZ*, July 5, 1947.

Bavaria fell from 285,000 kW in July to 125,000 kW in October (a new low). With many of the steam plants under repair and no coal available, steam power could only make up half of the 160,000 kW deficit.²⁰

To add to these difficulties, the Bizonia MG signed a new agreement with the Austrian government on July 7, 1947. Superseding the 1946 contract, the so-called Vienna Agreement, which ran from October 1947 to March 1948, increased Bavaria's hydropower exports to Austria. Bavaria had to supply one-third of the 30 MW Bizonia had to deliver to Austria. Bavaria also had to export one-half of the output of the hydro plants at Ering and Obernberg to Austria. Both of these plants were located on the Inn River, now the border with Austria. The Austrians had initially wanted 45 MW, but accepted 10,000 tonnes of hard coal to make up the deficit.²¹ This meant that less hard coal was available in Bizonia, Bavaria, and Munich. The Vienna Agreement solidified the transfer of German electricity to Austria, further stressing the connection between Alpine rivers and Bavarian cities.

The new hydro agreement brought no good news for Munich, which depended on Alpine hydropower during the summer. At the July 15 City Council meeting, Herr Günter of the Economic Office assessed the current dire electricity situation and the reasons behind it. His report offered little hope. The main causes of the problems were rooted in the changed connection to Alpine hydropower and the broken connection to coal-fired steam power in central Germany, now in the Soviet Zone.

²⁰ U.S. Military Government for Land Bavaria, Annual Historical Report Covering Period from 1 July 1947 to 30 June 1948: Volume 3. U.S. National Archives RGB 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 264.

²¹ U.S. Military Government for Land Bavaria, Annual Historical Report Covering Period from 1 July 1947 to 30 June 1948: Volume 3. U.S. National Archives RGB 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 264.

Günter explained that before the war plenty of hydropower flowed from secure sources. A smattering of coal-fired steam plants in Bavaria and similar plants in central Germany met Munich's remaining electricity needs. During the war, dry weather and bombing damage to canals and power plants shrank hydropower production. A big increase in imported power resulted, up to 33 percent in the last two years of the war. Now the situation was worse. In addition to the reduction in hydroelectricity imports from the Alpine rivers, the Soviet authorities had dismantled the central German plants in the Soviet Zone. Furthermore, the transport system remained unreliable, subject to the occupiers' demands. Gunter reported "no one knows right now how this coal can be brought to Bavaria when the transport infrastructure has been given over to transporting the harvest. We will have to reckon with severe shortages in the coming winter." The end result left Munich's formerly reliable electricity sources a receding memory. The city now depended on the unreliable hydropower production in Bavaria, itself subject to interruptions in the region caused by Occupation policies.²²

Rain, a natural phenomenon, determined the level of hydropower production. Given the difficulties with coal supplies in the postwar period, Munich depended even more on sufficient rainfall. Summer 1947 clearly demonstrated the vulnerability of Munich's electricity supplies to the forces of nature. Simply put, more rain meant more electricity, while less rain meant less electricity. For example, Günter reported

²² Stadtarchiv München, *Ratssitzungsprotokolle* 720/2 July-Dec 1947. There was some good news: if repairs to the Südwerk III were completed, an additional 8 million kWh would be available in fall. Repairs to substations (of the 250 in Munich, 25 were destroyed during the war) were finished, adding 6,000 kW of power. The greatest problem remained the state of the wires, many of which still needed repair. In peacetime there were roughly 12 to 15 interruptions annually; in the past year there had been 540 interruptions in the wire network, over 300 in the overhead wire network, and 12,000 in junction boxes serving households.

that on June 22 and 24, rainfall reached 40 millimeters, doubling the production of the hydro plants and slightly reducing the amount of imported power. What would happen if the rain did not fall? Günter described a disaster scenario: a winter where it rained but did not snow, causing no spring 1948 snowmelt. Should no rain or warm wind (*Föhn*) follow, natural forces could prompt a total hydro shutdown.²³

July brought no relief from the heat, which peaked at 35.1°C (95.2°F) on the 29th.²⁴ The *SZ* reported on the weather that day: “the dog days weather grew under blue skies over the weekend.” The lowest overnight temperature was 19°C (66°F). Münchenerers, enjoying a 40-hour workweek, “escaped to the swimming pools, forests, and lakes, or just stayed home. The banks of the Isar were one long bathing beach.”²⁵ This was a good idea, as many Münchenerers had little or no access to water at home. Reduced deliveries from the drinking water source in the Mangfall Valley were so bad that many apartments in the fourth or fifth floors had no more water in their pipes. The ground water level had sunk two meters in the past ten days. In the Mangfall Valley, river levels had sunk to 25 centimeters. In good times, it would be two to three meters. A solution could only come “from above” in the form of rain. The city waterworks had to further reduce supplies in August, with an estimated one-third of the delivered water still flowing unused into ruins and narrow pipes.²⁶

In August, rainfall hit a new low of 17 millimeters. Electricity conservation measures took effect, more severe even than during the previous winter. As during the later years of the war, the first conservation measures gave customers some

²³ Ibid.

²⁴ *Chronik*, 281.

²⁵ “32 Grad-bei leichter Brise,” *SZ*, July 29, 1947.

²⁶ “Viel Schweiss und Wenig Wasser,” *SZ*, July 29, 1947.

leeway, but soon gave way to more severe and precise requirements. An August 20 the local government required commercial users to reduce consumption “as much as possible” between 7am and 11am, and altogether between 11am and 2pm. It also required households to cut consumption as much as possible between 7am and 1pm. Any user, commercial or household, exceeding electricity allotments would be immediately shut off. Exceptions were public welfare facilities, transport, hospitals, bakeries, milk and fat producers and refrigeration units. Still, even these entities were still encouraged to limit use between 7am and 1pm.²⁷

During the next two weeks, the drought/water/power complex continued to deteriorate. On August 28, authorities completely shut down electricity from 7am to 1pm in the southern half of the city, and from 1pm to 7pm in the north. Industrial and commercial firms were allowed one-third of their consumption from April, and theaters and cinemas could not use electricity from 7pm to 10pm.²⁸ Two days later, the water level of the Isar River, measured at the Bogenhausen bridge (connecting the old city to the Bogenhausen neighborhood) was falling five to six centimeters per day, reaching a low of 78 centimeters. This was a few centimeters lower than during the worst days of the electricity crisis of the past winter.²⁹

September brought no relief. Blackouts continued expanding, along with the city government’s concerns. The electric utility could only provide a small portion of the electricity needed. The average temperature was 17.1°C (63°F), or four degrees over the yearly average. There had been six days with temperatures over 30 degrees,

²⁷ “Stromeinschränkungsmaßnahmen den Städtischen Elektrizitätswerken München,” *Münchener Stadtanzeiger*, August 20, 1947.

²⁸ *Chronik*, 292.

²⁹ “Stromnot-Stromsperre,” *SZ*, August 30, 1947.

and the level of rainfall was 20 liters per square kilometer, only 30 percent of normal.³⁰

The city government warned that any power consumption exceeding the prescribed limit result in a total blackout. It reminded citizens that everyone in Munich would have to live within this limit:

The City Government and the management of the electric power plants are enduring these great and unusual difficulties along with the electricity users. They stand powerless, however, against them and must under all circumstances make sure that necessary procedures are followed.

Despite the severity of such appeals, customers did not comply. On the previous Sunday, despite a streetcar shutdown and businesses closed, Munich had still exceeded its electricity allotment by 10 percent. The next day, with streetcars and businesses once again operating, electricity use dropped. Clearly, households and industrial users were taking more than their fair share. New measures were needed, and took hold immediately. Starting that day, all industries and businesses, except for those involved in food production, had their electricity completely cut off. Blackouts now extended to workdays from 7am to 1:30pm and Sundays 8am-11am in the southern part of the city, and workdays from 1:30pm to 8pm and Sundays 11am to 2pm on Sundays in the northern part. Customers could also expect additional blackouts of approximately 2 hours during the days and evenings. These measures would last indefinitely, but could change daily, according to the supply situation. Monday through Saturday, streetcars and buses ran on a restricted schedule (6am-8:30am, 11am-2pm, 4:30pm-8:30pm). Sundays they did not run at all.³¹

³⁰ *Chronik*, 302.

³¹ "Weitere Stromeinschränkungen in München notwendig," *Münchener Stadtanzeiger*, September 4, 1947.

As drought and blackouts continued into October, people's patience evaporated. They demanded answers, and also sought someone to blame. An October 13 article in the *Münchener Mittag* on the continuing electricity crisis described the "idled businesses, restricted traffic, critical nutrition situation" as the "signs of a natural catastrophe which has come upon us with the continuing drought." The article gloomily pointed out that since Bavaria got 93 percent of its electricity from hydropower, even with sufficient coal supplies, Bavaria's steam plants could not come close to making up the shortfall if hydropower stopped. Water levels in Bavarian rivers and lakes had sunk to one-third of the lowest level recorded over hundreds of years. In Munich, steam-powered coal plants could only cover 60 percent (560,000 kWh) of demand, despite the fact that coal deliveries had improved since the beginning of the year. Even if the steam plants produced at their highest levels and efficiency, they could only cover 70 percent of demand. With the cold winter weather approaching, the situation was not likely to change for weeks or months. Relief would depend on consumers' willingness to conserve.³²

Problems with electricity were also caused by human errors and inefficiencies. Electricity shortages profoundly affected public transportation in Munich, something citizens used everyday. Streetcars took the brunt, but not solely because of insufficient electricity to run the cars. The sad state of the repair stations, saddled with labor and equipment shortages, were a big factor. The newest cars dated only from 1928, the oldest from 1900. Spare parts were hard to come by. The operators had to improvise by using whatever parts they could get. Furthermore, repairs to the coal-

³² "Die Stromkrise hält an," *Münchener Mittag*, October 13, 1947.

fired power plants in Isartalstrasse and Schwabing were behind schedule. The main parts were onsite, but the ministers in charge of ordering the supplemental parts were confused and inefficient. The *Mittag* article ended with its rather grim assessment of the situation by noting the fatalistic outlook for the citizens:

Natural disasters, the terrible harvest of the last twelve years, the incredibly difficult material and nutritional supply situation and unsatisfactory government services have made life for the man on the street into a bitter struggle for the most basic necessities of life. Thousands and thousands ask themselves today, in light of the growing difficulties and with a sidelong glance towards the big earners in the black market: “why do we still work?”³³

More rainfall brought some relief in November, but the amount was insufficient to overcome the electricity crisis. On November 7, despite substantial rainfall in the last few days, the electricity situation worsened. While the evening blackouts had ended, customers were still asked to minimize use during peak times (5pm-10pm) to avoid the return of emergency blackouts.³⁴

The rain also could not solve the human equation. An article on November 13 in the *Stadtanzeiger* chastised those Münchenerers that still had “no correct appreciation of the seriousness of the situation,” and were switching on their electric cookers and heaters. It reminded consumers to leave only one light on per room during peak times (6-8am mornings, 5pm-10pm evenings), and not to use cookers at

³³ Ibid.

³⁴ *Chronik*, 314.

all. Using electric heaters was forbidden.³⁵ Apparently these recalcitrants were not listening. Four days later the grid overloaded, leading to new restrictions.³⁶

Nevertheless, in the end it was the weather, not human actions, which saved Münchenerers from yet another season of power cuts and blackouts in the seemingly endless cycle of water shortages that began during the 1946-47 winter. After a brief drop in rainfall during the second week of December, more rain, rather than the snow and ice of the previous winter, came to Munich. By Christmas, the electricity and water situation was much improved. On January 31, the temperatures rose to 16.4°C (61.5°F). In fact, Munich had the warmest January since the beginning of meteorological measurements in the late 1840s.³⁷ The OMGBY would later report, “because of an abnormally mild winter and abundant rainfall, all power curtailments were lifted by December 1947.” The bounty of rainfall continued throughout 1948, with the OMGBY reporting that during the spring and summer there was enough rainfall to provide “adequate power for all needs.”³⁸

The mild winter and generous rainfall provided much-needed relief to Bavaria’s electricity users, but nature alone could not change the overall electricity situation. With the connection to central Germany gone, more power going to Austria, and Ruhr coal supplies limited, Bavaria needed to rely more on local sources for electricity. The connection to the Alpine rivers became more important than ever. Many people hoped to strengthen it by expanding hydropower to solve the electricity

³⁵ “Noch immer zu wenig Strom,” *Münchener Stadtanzeiger*, November 13, 1947.

³⁶ Blackouts went from 7am-1pm on four weekdays, 1pm-5pm on two weekdays in all areas. There was a five-minute warning after 5pm. If consumption did not drop, an emergency blackout followed. *Chronik*, 317.

³⁷ *Chronik*, 337.

³⁸ OMGBY, “Annual Historical Report Covering Period from 1 July 1947 to 30 June 1948: Volume 3,” U.S. National Archives RG 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 264.

problem. Proponents of more hydropower emerged in both government and industry. During his report at the July 17 Council Meeting, Herr Günter had argued, “We must expand any possible hydropower that we own or have a right to as quickly as possible.” Examples included the Uppenborn Power Plant #2 and a small hydro plant at Hirschau. Together they would provide another 6-8 million kWh per year. He also called for repairing all steam plants and expanding their capacity to produce power during the winter.³⁹

In the first week of October of 1947, during the depths of the drought, the *Bayernwerk* General Assembly met to discuss the critical electricity situation. Members cited the urgent necessity for new power plants in Bavaria and offered new plans to expand electricity generation. These included an ambitious plan to build new hydro and steam plants. The Assembly contended that hydropower could permanently solve Bavaria’s electricity shortages. In fact, partial plans had been drawn up 25 years earlier. The Inn River would be particularly important, having the most volume of water of all the Bavarian mountain rivers.⁴⁰

One of these projects foresaw a new hydro plant to use water diverted from the Rissbach River into the Walchensee, with the potential to deliver 90 million kWh of peak power. The Vienna agreement stipulated that Austria gave up all rights to any water originating in Austria diverted into the Walchensee, and Bavaria agreed to divert water from small creeks to the Achensee in Austria. The expected time of

³⁹ “Bekanntgabe über die derzeitige Stromversorgungsunlage,” Stadtarchiv München, *Ratssitzungsprotokolle* 720/2.

⁴⁰ “Bayerns ungenutzte Energien,” *Münchner Mittag*, October 17, 1947.

completion was the winter of 1949/50. While Bavaria would have to wait for the new hydropower, it was at least assured that it had the rights to the water.⁴¹

It was clear that Bavaria and Munich would have to rely more on local sources of electricity, and take more advantage of local hydropower resources. These resources were now more critical than ever. The drought had proved this beyond a doubt.

Food: Meat, Potatoes and Protests

The drought and resulting poor harvest also reminded Münchenerers and other Bavarians of the continuing problems with the food supply, a central theme during the third year of the occupation. There were also very aware of two inescapable facts: the occupiers set the ration levels, and the creation of Bizonia had brought them less, not more, food. These facts greatly increased tensions during the third year of occupation, particularly in 1948, when strikes and protests broke out in Munich and the Ruhr. Hope also accompanied the unrest. The European Recovery Plan--better known as the Marshall Plan--took effect in April 1948, strengthening the new connection to American food resources.

As the third year of the occupation began in May 1947, however, such benefits were still far away. As with fuel, leaders at the local and state level worried about food supplies. In Munich, the City Council was especially anxious about the supply of meat and potatoes. In a May 6 1947 background report for Lord Mayor Scharnagl's address on the food situation, the Food and Economic Committee of the

⁴¹ U.S. Military Government for Land Bavaria, Annual Historical Report Covering Period from 1 July 1947 to 30 June 1948: Volume 3. U.S. National Archives RG 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 264.

Munich City Government painted a rather grim picture. Beef, always in short supply in the past, had become particularly scarce since the previous winter. Over 3,000 cattle were slaughtered during the Christmas week. The following week the level sank to 1,500, with 430 exported. The remainder was not enough to supply Munich's demand. In recent weeks, the situation had worsened, with only 1,299 cattle slaughtered during the week of April 21-26, of which 728 were exported, mostly to Berlin. This left 571 cattle to feed a city of three quarters of a million. In the past week, all but 100 of the 2,300 slaughtered cattle were exported. It took 700 cattle to provide the minimum meat ration for the population.⁴²

The reasons for this reflected more on Munich's still primitive economy than the meat supply itself. With beef, as with many other commodities, farmers could make more money via the underground economy, i.e. the black market and "hamstering." Farmers were holding back their cattle to trade on the black market, where prices were ten times higher, or "banking" them as a cash reserve. With currency almost worthless, food was the "precious metal" of postwar Munich. "Middle markets" in towns between Munich and the countryside often snapped up the best beef, so what did arrive in the city was of poor quality. Farmers could get the same price in local markets, so it made sense to save transport costs by not sending it to the city.

Transport, in addition to farmers' actions, plagued the food supply, especially regarding potatoes, a particularly grave concern. A large city like Munich had a huge demand for potatoes. According to the May 6 1947 report to the City Council, Munich needed 1500 boxcars of potatoes to meet the demand until the fall harvest,

⁴² Stadtarchiv München, *Bürgermeister und Rat* 2067.

but only 331 had arrived so far. While 20-25 boxcars per day arrived in April, only 1-2 per day arrived in May. Farmers claimed that they had no more potatoes to deliver, that they had all frozen. The report described the situation as “catastrophically bad.”⁴³

As summer began, the potato supply situation only worsened. On June 30, a potato shortage forced 300 taverns to close their kitchens in Munich.⁴⁴ Nine days later, Councilman Weiss reported that there were no potatoes left from the 1946 harvest and no potatoes left in the countryside. Sixty cwt of potatoes had been recently delivered to the Market Hall (*Grossmarkthalle*), but most were immediately sent on to medical facilities. The outlook for the future appeared bleak. There would be no distribution of early potatoes before the 104th ration period began on July 21 (it lasted until August 17).⁴⁵ Johann Greif, the son of a potato storeowner, remembered the situation at the time:

It was crazy back then. I remember that people would often stand in a 50 meter long line three abreast in front of our store just to get 10 pounds of potatoes, and of that at least 2 pounds of that was dirt and trash. It was no different at the bakery. [My sister] Traudel and I stood in line for hours. For five people we got five bread rolls. That was the ration for a week.⁴⁶

One the main causes of the shortage was Bavaria’s obligation to ship large quantities of potatoes to the other parts of Bizonia. During the drought, with the potato harvest expected to be 50 percent less, these demands caused shortages in Munich and anger in the Bavarian Parliament. In June 1947, the MG demanded the “immediate delivery” of 1 million potatoes to Westphalia and Württemberg-Baden. This caused a war of words not only between the Bavarian authorities and those from

⁴³ Ibid.

⁴⁴ *Chronik*, 274.

⁴⁵ “60 Zentner Kartoffeln für ganz München!,” *Münchener Stadtanzeiger*, July 9, 1947.

⁴⁶ Johann Greif, “Von Kartoffeln und Malerpinseln,” in *Münchener Nachkriegsjahren*, 65.

other states, but also against Hans Schlange-Schöningen, the head of the Frankfurt Committee for Land, Nutrition and Forests, which encompassed all of Bizonia. This “potato war” (*Kartoffelkrieg*) lasted until November.⁴⁷

As with coal and forests, the leaders meeting at the *Länderkonferenz* in June 1947 also took up the issue of food. Their Resolution on Food called for more domestic food production, collection and distribution of food “correctly and in a just manner,” food for coal miners and land reform. They also cited the “necessity of sufficient imports, especially that of grain and fat.” Knowing where these imports would come from, the leaders ended their Resolution on a note of gratitude, referring to the “generous help the German people were given during the past severe months and is daily given by both State and private organizations and by many individuals of foreign countries.” The Resolution also reminded the occupiers to get things done. The efforts of the *Länder* governments would “not meet with success unless all agencies of the Military Government will give their energetic support, and unless sufficient imports will be guaranteed.”⁴⁸

By increasing the food supply through domestic production and imports and more efficient food distribution, Germany’s leaders hoped to eventually restore prewar levels of nutrition and avoid future shortages. They also recognized Germany could not go it alone. The food connection to foreign countries, especially the US, would have to be maintained, even deepened, for Germany to survive.

⁴⁷ *Die Rationen-Gesellschaft*, 185. In the end, Bavaria had to deliver the potatoes, but there was a disagreement between the Bizone Minister of Nutrition in Frankfurt and the Bavarian authorities over whether Bavaria had harvested 79 or 92 cwt per hectare of potatoes. The Bavarian authorities wanted to make sure that Bavarians got their one cwt per capita allotment before the rest of the potatoes were sent to the other parts of the American Zone.

⁴⁸ “Elf Resolutionen zur Deutschen Not,” *SZ*, June 9, 1947.

While state leaders looked to the future, Münchenerers were dealing with more immediate concerns in summer 1947. The hot weather and drought brought electricity shortages, exacerbating concerns about food amongst government officials and citizens. An August 26 poll asked Münchenerers the question, “what do you do on vacation?” Two of the most popular answers were “collect wood” and “go hamstering.” Harvest shortfalls meant a worse food forecast for the coming winter than the previous year. Munich had enough bread grains for five months, but the rest must be imported, and they expected less fats and meats.⁴⁹

Transport, as usual, complicated everything. By October 10, only 24,000 of the expected 40,000 tonnes of potatoes had arrived in Munich. This was enough to supply each person in Munich 100 pounds of potatoes for the winter.⁵⁰ Households were unlikely to receive any vegetables in the coming months, and bread would likely have to substitute for potatoes. People hoped that wheat from the US would make up for the shortage. The main reason for this was that the German railway system had not recovered enough to be able to ship the amounts of food needed. Like coal, railroads were a zero-sum game. Using railroads to ship food meant not using them to move coal or wood and vice versa.

Despite these difficulties, the daily ration for a “normal consumer” (*Normalverbraucher*) in Munich and the rest of the Bizone had been steadily increasing since the middle of the year, reflecting increased imports from the United States. On July 21 it rose from 1070 to 1256 calories daily, and by December, it was 1450. During the last quarter of 1947 (October 1 to December 31), the U.S. sent

⁴⁹ *Chronik*, 292-293.

⁵⁰ *Chronik*, 305.

67,688 tons of wheat, 24,746 tons of wheat flour and 2,813 tons of oats to Bavaria. These imports helped make up the shortage of potatoes. During the same period, however, Bavaria continued to export food to the rest of Bizonia, mostly livestock, meat and fats (10,231 tons of meat, 6,470 head of cattle, 2,121 head of sheep, 4,724 tons of cheese and 1,259 tons of fats).⁵¹

The mild, rainy winter of 1947/48 helped end electric shortages and reduce fuel needs, but it did not solve the food problem. As January 1948 began, the weekly ration went down, losing 100 grams of fats. No one knew if things would get better or worse. The reduction also highlighted Germany's dependence on imported food. In a later (May 10, 1948) article in the *Münchener Merkur* (formerly the *Münchener Mittag*), Schlange-Schöningen described Germans as living "from ship to mouth." The fats shortage was also an "import problem," and imports from the US often did not arrive on time. Food products often traveled long distances, such as peanuts from Africa. Problems with packaging and processing and bureaucratic infighting also hobbled distribution. After arriving in Bremen, food products often took 21 to 28 days to reach consumers.⁵²

Natural forces reinforced hopeful outlooks. The mild spring weather created a sense of guarded optimism about the future amongst Bavaria's leaders. In an interview for the *Merkur* Secretary Sühler from the Bavarian Agricultural Ministry offered a dour assessment of the present situation, but also some hope for the future. When asked if "normal user's" situation had improved, he answered, "Things are

⁵¹ OMBY, Food and Agriculture Branch, "Cumulative Quarterly Report Covering Period 1 October-31 December 1947," US National Archives, RG 260: Occupation Records, Records of the Intelligence Division: Research Branch; Historical Reports, Box 52.

⁵² "Was man von der Ernährungskrise wissen muss," *Münchener Merkur*, May 10, 1948.

worse. Our normal users have been fated to empty the cup of privation to the dregs.” This was partly due to the drought, which had “turned our fruitful fields into steppe.” Germany could not hope to feed itself with its own resources: “We must be happy if we can maintain the current conditions. All the work and sweat of the people is not sufficient to feed 44 million hungry people with 200 square kilometers of land.” He did however, voice hope for the future, owing largely to the generosity of the American people. When asked if he hoped that life would get better in 1948, he replied

Of course we expect a significant improvement. But we know that we still have difficult months ahead of us. We have the fundamental hope that the American nation is ready as before to carry on applying its generous charity to meet the nutritional needs of the German people in the coming year.

Improvements would most likely come after May, when cattle would be eating more, increasing the milk and fat levels. Spring also promised more vegetables. While the present situation was bad, Minister Sühler concluded on a hopeful note: “We are saying farewell to a ‘year of disappointment’ and we are moving forward on the wave of a new year of hope.”⁵³

Munich’s population expressed less optimism. The *Merkur* published the results of “man in the street” interviews on January 19, which give good insights into daily life in Munich. In the streetcar, someone repeated a popular joke, an announcement by the driver that went: “Cemetery! All normal users get off! Last station!” The rider continued on a more somber note: “It gets better all the time. Now they don’t want to give us fats or meat forever. ‘Forever’ will last a long time, so then all of Munich will fit in one streetcar.” In a tavern, the keeper was overheard to say,

⁵³ “Was werden wir essen?,” *Münchener Merkur*, January 2, 1948.

“Our potatoes will only last until mid-February,” and “We hardly get any vegetables.” A barber expressed the common discontent with the occupiers and their policies. He said to a customer: “Yes, Mr. Gradl, your hair is getting thin, and soon you will have real bald head, and then the girls will never fancy you... The lack of fats is to blame.” People openly doubted the occupiers’ political strategy, observing, “The British Zone hangs on us like a clubfoot,” and “the dumbest idea was the joining of the Zones.”⁵⁴

In theory, everyone got the same rations, but people knew inequalities abounded. At the local government offices, workers complained that “sitting in the office with an empty stomach is no small thing,” and that “only the big boys have everything.” In Munich’s households, a conversation between a housewife and her child went: “Mother... we need something to eat again. I need to go to Lower Bavaria to the skinflint farmers. I will put something together.” The mother dourly observed: “Yeah, look: loud, hungry people sit around the table, and I have nothing but potatoes. My God, what will happen to us. Potatoes won’t last forever.”⁵⁵

When asked who was to blame for their problems, people composed a random mix of perpetrators. The rogues’ gallery included the Americans, Bavarian Minister Baumgartner, Bizonia Minister Schlange-Schöningen, the “Prussians” in Berlin and the Ruhr (both areas were part of the old state of Prussia), the Nazis, civil servants, the Russians, bigwigs, black marketers, foreigners, other Bavarians, the railroads, the English, the Bizonia government, the Social Democrats, and the press.⁵⁶ This list includes high-profile individuals and groups. More to the point, ordinary peoples’ grievances neatly outline connections Munich needed to keep going. The man in the

⁵⁴ “Das Tagesgespräch: Lebensmittelkürzung,” *Münchener Merkur*, January 19, 1948

⁵⁵ *Ibid.*

⁵⁶ *Ibid.*

street grasped how connections to the Ruhr and the rest of Bizonia and to the Soviet Zone, as well as the main means of transporting food, the railroads, shaped his community's condition.

For the average citizen, the occupying authorities earned the majority of the ire in January 1948. Things came to a head on the 23rd, as the Economic Council in Frankfurt passed emergency measures. These included the so-called "Pantry Law" (*Speisekammergesetz*), which required firms making foodstuffs to register their inventories of flour, flour products, potatoes, fats, meat and sugar. Households also had to report amounts of potatoes and flour.⁵⁷ The reaction in Munich was immediate. On the same day unions called a one-day strike for Munich and all of Bavaria, except for those involved in making food and working for the military. An estimated 50-60,000 protesters assembled on the Königsplatz. They carried signs that read: "Black Marketers are Murderers" and "We are Germans, not a Colonial People."⁵⁸

The data from weighing citizens on January 31 backed up the anger Münchenerers felt. People were weighed for the eighth time since surrender, and the results were not good. Since January 1947, the average weight for men aged 20-39 had dropped 2.2 percent, which now put them 2.7 percent under the accepted minimum weight. Men aged 40-59 were 7.2 percent under the minimum, and those over 60 were 10.7 percent under. There was a notable lack of Vitamins C and D. The citizens of Munich and Nuremberg (the two largest cities in Bavaria) were the most

⁵⁷ *Chronik*, 335.

⁵⁸ "Die Arbeitsruhe in der Landeshauptstadt," *SZ*, January 27, 1948.

poorly nourished in Bavaria.⁵⁹ Clearly, city dwellers were not getting the needed minimum, let alone the lion's share of food.

While the strike was a one-day affair, citizens continued expressing their frustration to the authorities. On March 4, the *Merkur* reported on their readers' distress about the food situation at a public meeting hosted by Councilman Weiss. Concern number one was "our daily bread," and Weiss got an earful from the audience. Weiss explained how the loss of the Eastern provinces meant that in the future, 40 percent of food would have to be imported. Because of the drought, the daily ration had been lower than expected. The inadequacy of this level of nutrition drove an increase in sickness. While in January 1947 there had been 49,139 recipients of supplements for the sick (*Krankenzulagen*), a year later the number rose to 115,069. The previous month alone had brought 12,219 new applications. Basically this meant that about 51 percent of the population was classified as "diseased," i.e. they received the ration level for the ill.⁶⁰

The future for potatoes was unclear, as the supplies were due to run out (on paper anyway) by mid-April. Vegetable supplies were even worse because Bavaria had imported over 60 percent of its vegetables from foreign countries or other areas of Germany. What little meat there was came from skinnier cattle. The average weight of a slaughtered steer was now 60 kg versus 200 kg in 1944. In 1922, per capita beef consumption in Bavaria was 72.5 kg, but by 1947 had plummeted to a paltry 5.4 kg. Bavarians were even concerned about the amount of barley, 19,000

⁵⁹ *Chronik*, 337.

⁶⁰ "Wir wenden uns an die Presse..." *Münchener Merkur*, March 4, 1948.

tonnes, devoted to beer brewing for export. This amount took away six grams of bread (about a tenth of a roll) from every Bavarian.

Weiss' audience offered many suggestions to make things better. One woman proposed feeding kitchen scraps to cattle; in fact, she had already organized a collection in her neighborhood. Another wanted to use every piece of fallow land for gardens. Many were upset about exporting food out of Bavaria, which made Bavarians suffer. One man compared the current state of the country to his past experiences as a concentration camp inmate. He accused the occupiers of making Germany a "democratic concentration camp," where everyone was an inmate.⁶¹ This man's skepticism about the benefits of democracy verified Americans' growing conviction that to implant their liberal Western values into conquered Germans, the occupiers must keep them fed. Democracy could not grow where people did not have enough to eat.

Despite the pessimism expressed at the March 4 meeting, signs abounded that normality was beginning to return. On March 27, for the first time in many years, Munich's new postwar bakeries sold Easter bunnies and cookies, sugar eggs (*Zückereier*) and caramel bunnies, which could be bought for ration cards. Also, the "Spring Festival" ("*Frühlingsfest*") began at the Exhibition Grounds, and again featured show booths, Ferris Wheels, ghost trains, and even a rollercoaster. Visitors could buy sausages and other snacks with ration coupons. A few days later on April 1, rations went up to 1560 calories per day, and included an extra 100 grams of fats, 500 grams of sugar, and an extra ration of 500 grams of dried fruit.⁶²

⁶¹ "Wir wenden uns an die Presse..."

⁶² *Chronik*, 353.

Extra rations might improve the mood in the city, or simply remind Müncheners of their continued privation and dependence. The *SZ* interviewed citizens that same day to find out. Asked if they thought the increase was a turning point in the food situation, most people were skeptical, but some voiced optimism. A union leader opined, “Probably it is just a momentary improvement. The first months before the harvest will demonstrate what is going on here.” Many jokingly called the 100-gram increase in fats a “*Stalin-Spende*” (gift from Stalin). A master hairdresser said, “Surely we will get increases from time to time. Whether they will fill our stomachs is another question.” A notary public compared the food situation to the physical condition of the city: “I believe that an improvement is possible, but only if it came very gradually. Just like the streets are already more cleared up than 1945, so too there will come a time when we will continually have enough to eat.” Finally, a middle-aged certified political economist looked at the big picture and saw that something big was coming:

I firmly believe in an eventual improvement, but not from political, but from economic motives. In the long term it is more affordable for any occupying power to perform a one-time dislocation of the occupied territory, rather than defend it for an undetermined time of ‘welfare support’. In my personal opinion the time for this dislocation has come.⁶³

Dr. Josef Koenig’s assessment of the food situation, published in the *Merkur* on March 30, expressed a similar guarded optimism for the future. For the first time in a long time, he wrote, rations were going up not down, and people were beginning to hope for improvements. The nutrition problem, however, was still far from solved. He was convinced that a tangible improvement in fruit and vegetable supplies could

⁶³ “Glauben Sie, dass es besser wird?,” *SZ*, April 1, 1948.

not happen without imports. The new Marshall Plan promised imports from Holland and Italy, as both countries had surpluses and were interested in trade with Germany. He looked to the increasing global food supplies and better harvest forecasts for signs of hope. More food and the “normalization of our lives” that followed would mean better quality and more selection, and most would come from foreign countries. There was one caveat, however. Greater food stocks would have to be paid for. He concluded by saying: “In the struggle against hunger we ourselves must mobilize all of our strength, because we must always remember that everything we get from foreign countries must be paid for, and that these payments will come mostly in the form of raw materials and industrial output.”⁶⁴

The opinions of these Münchenerers reflected the common understanding that improvements in the food situation hinged on two things, the harvest and American aid. The states of Bizonia simply did not have enough resources to share between them. The 1947 drought had exacerbated this problem. Food had to come from outside, i.e. the United States. A bumper harvest and huge increases in American aid later in the year not only helped Germans get enough to eat, but firmly connected them to America and the western capitalist economies.

The upcoming harvest looked good, not only in Germany, but also in the rest of the world. In an interview published in the *SZ* on April 24, Wilhelm Niklas, the representative of the Frankfurt Director of the Nutrition Council in agricultural matters, painted a rosy picture. With expected record wheat harvests in both Germany and the US and increased yields of rice in Asia, bread would be more plentiful. Sugar,

⁶⁴ Zwischenbilanz der Ernährungslage,” *Münchener Merkur*, March 30, 1948.

a scarce commodity since the war, would arrive in greater amounts as production had doubled in Cuba, the U.S.'s main sugar source. Meat was still problematic. While more imported feed for pigs from the U.S. could improve pork production, at the time beef was the only meat available, and it would most likely become scarcer in May and June. Hopefully July would show improvement. A recent trade agreement would presumably once again bring fruit and vegetables from Italy. The potato harvest might also improve, as the warm and moist weather in November had yielded more seed potatoes. Since they no longer came from the Eastern provinces, potatoes would still be imported from the US, Holland, and Italy. Bavarian artificial fertilizer production had also improved, and the upcoming currency reform would ease fertilizer trade.⁶⁵

American aid was vital. The *SZ* reported on May 22 that the U.S. had spent \$2 billion dollars to import food into Germany since the war ended. Yet the Germans knew they had to do their part. Echoing Koenig's April comments, the new Military Governor for Bavaria reminded Bavarians of their responsibilities. Deliveries from America had continued to rise. He expected another 500,000 tonnes of imported American bread grains or flour by the end of the year, enough to cover 40 percent of the current bread ration. Only 65 percent of the Bavarian potato harvest had been collected and deliveries of meat had shrunk considerably. Higher production, collection and delivery within the Bizone were the only ways to increase rations. The US had guaranteed a ration of 1440 calories and stuck to it. The Americans would help, but their generosity had limits.⁶⁶

⁶⁵ "Ernte wird Ernährung bessern," *SZ*, April 24, 1948.

⁶⁶ "Lebensmittel für 2 Milliarden Dollar eingeführt," *SZ*, May 22, 1948.

Conclusion

This American reminder showed how the new partnership between the US and western Germany was becoming somewhat more equal. Germany, while still recovering from the war's destruction, was no longer the prostrate, broken enemy of May 1945. Similarly, Munich was no longer the same broken, bleeding, amputated city. Its citizens, while still suffering, had hope (albeit guarded) for the future as the new connection to the United States became more established.

Certainly, Munich's leaders and citizens had endured a lot during the past year. During summer 1947, they had barely recovered from one devastating weather event caused by the "*Hungerwinter*," when another, the drought, hit them. The Isar River, which crawled through the city at a trickle, reminded people how bad their water situation had gotten. Electricity shortages and blackouts resulting from the lack of rainfall highlighted the importance of their city's connection to the Alpine rivers and its vulnerability to natural forces. The drought also produced a poor 1947 harvest, exacerbating food shortages caused by the occupiers' food policies that obligated Bavaria to send food to the rest of Bizonia, especially the Ruhr. While Bavaria received coal in return, the supplies were insufficient. When the drought drastically reduced the available hydropower, there was not enough coal to produce electricity in the steam plants.

As they had during the war and the first two years of the occupation, Münchenerers adapted the best they could to the shortages of food, fuel, and electricity. They continued to substitute wood for coal, go "hamstering," trade on the black market, and take advantage of connections to the U.S. Army or relatives in the

countryside to get more food. They ate potatoes instead of meat, and worried when potato supplies went down. Many escaped the heat of summer beside the diminished Isar, or went without water in their apartments.

What made summer 1948 different was that many Münchenerers and their leaders at local and state levels lifted their sights past immediate problems to the future. They expressed new concerns about how substituting wood for coal was devastating their forests. Having seen more of their hydropower exported to Austria, they had learned how important hydropower was to their city and began planning to generate more in the future. They still questioned the value of a democratic system that could not feed them, but also knew they needed the resources and generosity of the United States to feed themselves and keep more coal in the state. Some, like Dr. Joseph Koenig and the political economist interviewed in the *SZ*, even expressed a new sense of cautious optimism. Nature had been generous during the winter. Mild temperatures and abundant rainfall not only solved (temporarily) the electricity problem, but also set the stage for a better harvest in 1948.⁶⁷ Would the occupiers be as kind to Munich?

At first, the occupiers did not match the natural environment's generosity with similar largesse. Continuing food shortages during the winter and early spring of 1948 sparked anger and protests. Thousands of Münchenerers gathered on the Königsplatz in January to express their frustrations. Many, like the former concentration camp inmate, scoffed at the democratic institutions so important to leaders like General Clay. Their fellow Bizonians in the Ruhr also protested as more

⁶⁷ General Clay remembered: "Our food problem was over. The harvest of 1948 was unbelievably good. It was a bumper year not only in Germany but elsewhere and the critical world shortage was ended." Clay, 270.

Germans saw that the combined resources of Bizonia were too limited. Munich's connection to Ruhr coal could not provide enough fuel. Too much Bavarian food went to the rest of Bizonia. Someone had to intervene.

Plans to fix these problems were underway in Washington and London. The United States did act. As the third year of occupation ended in early May, diplomacy triggered events in June 1948 that marked a major turning point in the history of both postwar Germany and Munich. While many problems remained, the simultaneous advent of the German currency reform, the Marshall Plan, and the Berlin Blockade all pointed the way to a brighter future. Taken together, they anticipated Munich and western Germany's integration into the liberal democracies and capitalist economies of Western Europe and the United States. Despite diplomatic drama, some old connections--like the one that brought coal from the Ruhr and "white coal" from the Alpine rivers, remained, and even grew more important. Others, like the one that had brought coal and food from the east, would be amputated for the foreseeable future, possibly forever. Munich's most important new connection was to the food and economic resources of the United States, the only country with sufficient supplies (and will) to help feed, power, and support Germans. The political economist quoted in May proved prescient; something big *was* coming.

Epilogue: June 1948

He would not have long to wait. Barely four weeks later, June 1948 witnessed three events that solidified Munich's (and Germany's) still fragile connection to the United States. The first shipment of food paid for by the Marshall Plan rolled into Munich. The German currency reform took effect. The cargo planes of the Berlin

Airlift flew to a blockaded city. All demonstrated that the U.S. wanted Germany to recover its political and economic confidence. All testified to America's willingness to help. They also spelled the end of any cooperation with the Soviet Union, still firmly in control of Germany's food and fuel resources in the Eastern provinces.

The European Recovery Act (a.k.a the Marshall Plan) resulted from a concerted legislative and diplomatic effort by the Truman Administration. It served many purposes. As Gimbel explains in *The Origins of the Marshall Plan*, historians have interpreted the Marshall Plan as an economic recovery plan, a central weapon against the spread of communism, a blow against European nationalism, and a way for the U.S. to establish military bases in Europe. Furthermore, no one in Washington knew what the Plan would look like when Truman's selected spokesperson, General George C. Marshall, the Chairman of the U.S. Joint Chiefs of Staff, kicked off the lobbying effort for aid to Europe with a speech at Harvard University on July 7, 1947.⁶⁸ Marshall assessed the condition of Europe with these words: "Disintegrating forces are becoming evident...the patient is sinking while the doctors deliberate."⁶⁹ Soon after the speech, the sixteen nations of the Committee of European Economic Cooperation met in Paris in September 1947 to develop a plan for Europe's recovery. The Committee's report set out the problems Europe faced, and proposed solutions based not on charity but of giving Europeans support they needed to ultimately do the job themselves. The report stated:

The sixteen nations and West Germany comprise over 270,000,000 men and women. They possess great agricultural and industrial resources. Even in its

⁶⁸ John Gimbel, *The Origins of the Marshall Plan* (Stanford, CA: Stanford University Press, 1976), 1-6.

⁶⁹ Quoted in Charles Maier and Günter Bischof, eds., *The Marshall Plan and Germany: West German Development within the Framework of the European Recovery Program* (New York: Berg, 1990), 49.

depressed state, the production of this area is vastly greater than any aid which this country can provide. Such aid must be viewed not as a means of supporting Europe, but a spark that will fire the engine.⁷⁰

These efforts reached fruition on April 3, 1948 when the U.S. Congress passed the European Recovery Bill, officially beginning the gargantuan effort commonly known as the Marshall Plan. The Plan advanced three objectives: “the promoting of industrial, agricultural and cultural production, furthering the restoration and maintenance of the soundness of European currencies, budgets, and finances,” and “facilitating and stimulating the growth of international trade of the participating countries with one another and with other countries.”⁷¹ Basically, European countries had to restore their economies, societies and finances. This approach was, as Tony Judt pointed out, a significant break from previous American postwar aid, which included directives on spending the money and conditions for accepting it. For example, in accepting a 1946 loan, France agreed to conditions including abandoning import quotas and easing imports of American goods.⁷² Having accomplished these duties, Germany and other western European countries would be reconnected with each other and the rest of the world. The same American financial resources that brought the train full of food to Munich would make all Europe strong again.

In western Germany, the “spark” consisted of \$3 billion in aid from 1948 to 1951, given with the expectation that as Germany’s economy grew, it would drive European economic growth. Just as Munich had to be connected to the Ruhr and the Alpine rivers, Germany as a whole had to be connected with the rest of Europe.

⁷⁰ Quoted in Herbert Carleton Mayer, *German Recovery and the Marshall Plan* (Bonn: Edition Atlantic Forum, 1969), 10.

⁷¹ Mayer, 27.

⁷² Tony Judt, *Postwar*, 90-91.

It would not, however, maintain western Germany's connection with the Soviet Zone of occupation. On June 2, the Americans, French and British announced their intent to form a separate West German state and introduce a new currency, the Deutschmark. On the same day--June 18, 1948--the currency reform occurred, the Soviet authorities began a progressive blockade of all road and rail traffic to West Berlin. Allied airlifts to West Berlin began on June 27, continuing until the Blockade was lifted on May 12, 1949. During that time Allied pilots brought 2.3 million tons of food on 277,500 flights, losing 73 airmen. This persistent and diplomatically dangerous effort signaled the end of the uneasy wartime alliance, and creation of two German states. It showed western Germany and the Soviets that the U.S. was now firmly connected to West Germany. America would make sure its outpost in Berlin remained loyal and independent. Except for that small enclave, the East was closed to western Germany, possibly for good.⁷³

In Munich, currency reform, which began on June 20, had the most immediate impact. Leaders at the national, state and local levels all quickly realized its effect. Currency reform and the stable money economy it would bring held the key to Germany's future. To apply the organism metaphor, stable currency would unclog the "arteries" moving goods within and between cities. General Clay contended it was needed because "barter deals threatened normal business transactions and perhaps as many goods were moving in the black market as in the legitimate market." A stable currency supplied the missing piece in an economy where "additional coal and power were available; so were labor and raw materials." To get the "wheels of industry" turning again required "currency [be] given real value so that the public would have

⁷³ Judt, *Postwar*, 147.

confidence in it and return to normal business procedures.”⁷⁴ For Councilman Weiss, head of the Food and Economic Committee, currency reform would bring order and calm to a city still “deeply shaken by the craziness of the war,” where even he went “to work everyday with a hungry stomach.”⁷⁵

Munich’s citizens hailed the completion of the currency reform as a minor miracle. On the appointed day, each Münchener received 40 of the new Deutschmarks (DM), and had the opportunity to exchange any old Reichsmarks (RM) at a rate of six-and-a-half DM for every 100 RM.⁷⁶ Shopkeepers had closed their doors in the days prior to the exchange to avoid collecting soon-to-be-worthless currency. Lines stretched all over the city as people eagerly awaited their new currency; some stood in line for hours. Franz Weber recalled, “After the currency reform, suddenly the stores were all full; everything was there.”⁷⁷ Helmut Dotterweich echoed this sentiment: “One Sunday I went to the Maximilianstrasse just to look at the goods...the shops were all full.” Right before the currency reform, Helmut and his mother finished rebuilding their house. Soon afterward he got a job as a roofer for six weeks, and was able to earn money that was actually worth something. During the rebuild he and his mother paid the workers in food, not currency. The new money signaled a “return to normality” for young Helmut. If he got a job, he could live. Public assistance, hamstering, and the black market were on the way out. He could pay for things with reliable currency, not coal.⁷⁸ The U.S. and

⁷⁴ Clay, *Decision in Germany*, 202.

⁷⁵ “Stadtverwaltung und Ernährungslage,” *MS*, May 13, 1948.

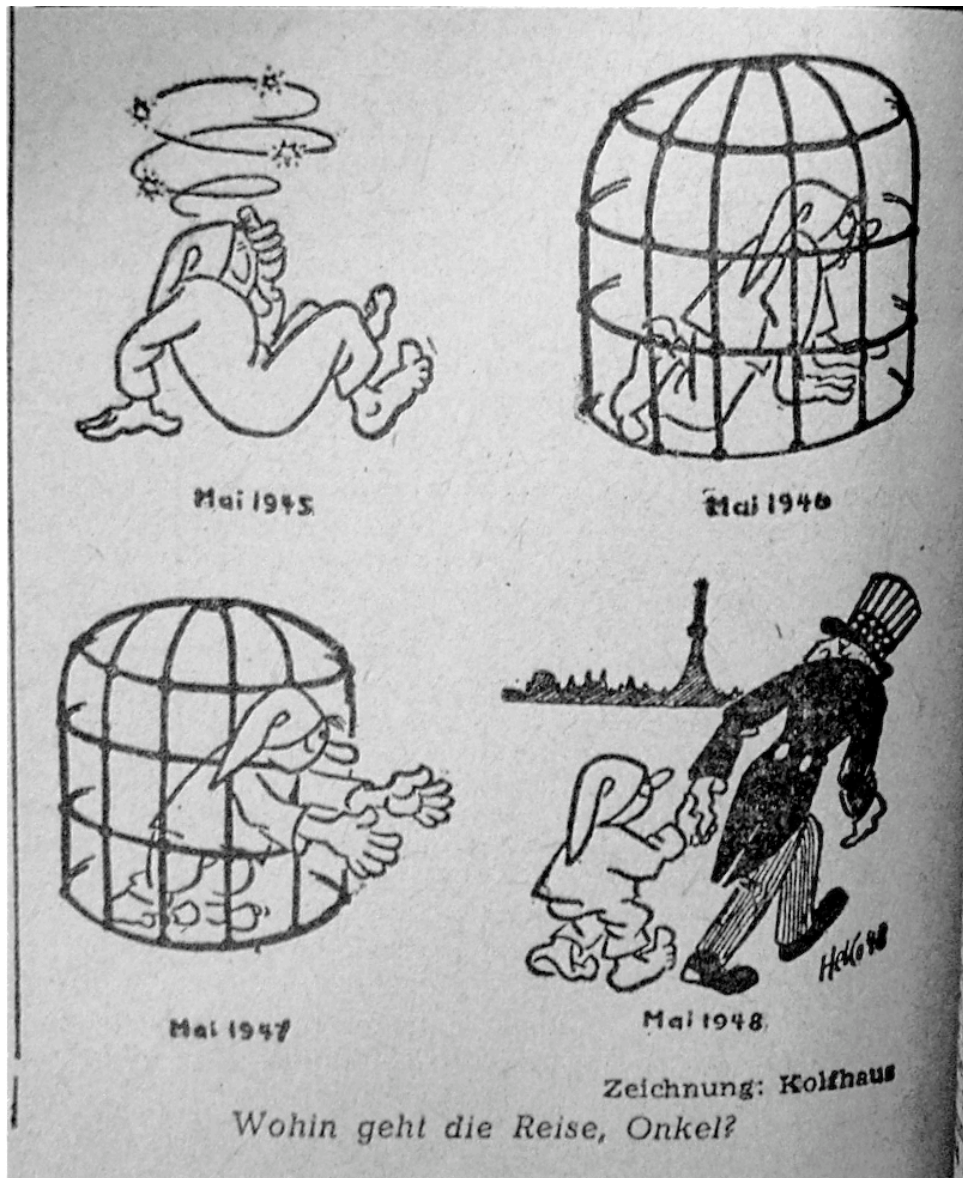
⁷⁶ This was unlike East Germans in 1990, who were allowed a generous one-to-one exchange rate, making the worthless *Ostmark* a valuable commodity.

⁷⁷ Franz Weber, interview.

⁷⁸ Dotterweich, interview.

its resources had given Germany and Munich a chance to recover. This cartoon, entitled “Where are we going, Uncle?,” from the *Merkur* on May 7, 1948 chronicled Munich’s past three years and traced the rising role of the United States.

Figure 6: “Where are we going, Uncle?”



To remain healthy and thrive again, Munich, like other German cities, needed more than a stable economy. Münchenerers had to recreate the balance of resources, both natural and human, that supported the city in 1939. They needed sources of food

and fuel, and a transportation system to move them. By June 1948, Münchenerers, like other Germans, concluded that the path to success lay west. The currency reform re-established a money-based economic system that allowed trade to flourish. The Marshall Plan gave Germans the resources they needed to rebuild the infrastructure to move goods and keep people fed. The Berlin Blockade demonstrated not only that the east was closed, possibly permanently, but also that the United States had fully invested in western Germany's survival and integration into the west. The same U.S. forces that had dropped bombs to blow up houses, tear railroads apart, and ignite huge fires now brought food and other supplies to a besieged German city. "Candy bombers" (*Rosinenbomber*) had replaced B-17's.

Chapter 8

Conclusion

This study began with a train. It arrived in Munich at the end of June 1948, capping off an extraordinary month in the lives of the citizens of Munich and their leaders. In addition to that first trainload of food paid for by the Marshall Plan, the past four weeks had seen the change from the old and virtually useless Reichsmark to the new and promising Deutschmark, the stunning blockade of Berlin and the subsequent beginning of the Berlin Airlift. These three events represented a turning point in the history of occupied Germany, the State of Bavaria, and the city of Munich. They marked the end of the connection to the eastern provinces and cemented the new connection to the United States. To extend the railroad metaphor, while the Soviets tore up the last bit of track linking Munich to the East, the Americans drove the final spike into the rails leading westward.

Using railroads and other means of transport to connect cities to the sources of food, water, and energy its inhabitants need to survive is crucial to the functioning of a city. As Cronon and others have shown, obtaining and moving these resources profoundly affects the relationship between nature and humans in peacetime. War produced many of the same effects: it damages the natural environment, creates a huge demand for natural resources and alters the physical landscape. War's greater effect, however, is disrupting this urban-resource relationship. Damaged and in many cases severed, the amputated and wounded connections between cities and natural resources, other cities, and other regions disrupted peoples' everyday lives. By removing the barriers, both physical and mental, between people and the forces of

nature, and by highlighting their dependence on external sources of food, fuel, and water, war literally threatened urban dwellers' sense of security, even identity.

Historians have developed a sophisticated appraisal of this history's main idea, the connections between cities and natural resources. The effects of warfare on these connections and the urban environment remain less understood. Older concepts that envisioned a city as an "organism" and "urban metabolism" provided a useful framework for historically understanding how cities are connected to and depend on natural resources. Like an organism, a city cannot function when these connections are cut: the "arteries" of the transport system cannot feed the "stomach" of the city, and its population is in danger. Shortages during the war, like cold and hunger suffered by Munich's citizens after the war--discussed in Chapters 4-7--applied this traditional framework to a city greatly affected by war.

Historical study of warfare's effects on the relationship between humans and nature in cities is a growing field, but still invites interlocking contributions by urban, military and environmental historians. Examples from Russell, Chickering, Pearson, Tsutsui, Lahtinen, and Vuorisalo point the way forward. Russell convincingly establishes the importance of the relationship between humans and nature in wartime. Tsutsui, Pearson and the two Finns offer concrete examples of how wartime forces people to value natural resources (wood) and the natural environment (pollution in a city) differently than in peacetime. Chickering comprehensively analyzes a city during wartime, including a chapter on how citizens experienced their altered urban environment through the five senses, especially smell. His useful framework encouraged the analysis of the changes to Munich's urban environment in Chapter 4.

Concepts of “planned disaster” and “planned destruction,” as seen in the examples from Steinberg and Hewitt, are also offered useful insights for studying the effects of warfare on cities.

Though a new topic with a relatively thin historiography, the effects of warfare on the relationship between humans and nature in cities, has various elements needed for a successful study. Combining their insights in a blend of military, urban, and environmental history holds the key to presenting a more comprehensive analysis of the impacts of warfare on cities, people, and the relationship between humans and nature.

Allied strategic bombing campaign during WWII offered an environmental historian a good starting point. Chapter 2 began to answer this challenge by analyzing ideas expressed by interwar bombing theorists from the point of view of the urban environmental historian. Cronon’s analysis of the relationship between city and countryside through flows of natural resources in and out of cities inflected urban historical models such as “city as organism,” “urban metabolism” and “planned destruction” provided the necessary background.

Interwar bombing theorists, though their ideas evolved into strategies as different as area and precision bombing, sought essentially the same thing: to disrupt Germany’s economic and social life as much as possible. This aerial disruption would starve the German war machine just as blockades starved cities during WWI. Without the natural resources they needed, Germany’s factories could not produce war products (tanks, bombs, airplanes, etc.) its armies needed, nor fed and clothed its soldiers. Douhet, Mitchell, and Trenchard were also well aware that without the

workers to extract the resources and build the products or the means to transport the resources and finished projects, the German war machine would shut down. They could not hope to disable everything, but they could come close. Simply disabling factories where the workers labored was insufficient for victory. City dwellers' mental state, their morale, was also presented an important target. Bomb their houses, burn their cities, kill their neighbors, cut them off from the food they needed, blow up power lines, water pipes, and gas lines: if theory could be practiced, bombing would make them so miserable that they would rise up and demand their leaders surrender.

Here environmental history's insights can be most helpful. Why would these people be so miserable? What had to occur to make it happen? Apart from the sadness and pain brought by the death of neighbors and loved ones, war's perennial harvest, the modern city offered a target in which people were more dependent on connections to natural resources. Laying siege to a city and cutting off its food and water was an old tactic, though best applied to fortified towns, not cities of hundreds of thousands of people like Munich. Such cities, however, were full of people protected from natural forces, mentally disconnected from vital natural resources and blind to the crucial connections that made city life feasible. They got their food from a store, their light from electricity, and their fuel from the coal dealer down the street. All of these resources reached the city via railroads, which could be attacked as well. By returning urbanites to a way of life they thought they had left behind, by forcing them to burn wood and work by candlelight, by destroying their homes and exposing them to the forces of nature, bombers could make them long for an end to the suffering and a return to their old life.

As bombs change the urban environment, turning night into day with incendiaries, the smell of burning buildings and bodies replaced the smell of the corner café. The gentle tinkling of fountains gave way to the dull thud of explosions. Beautiful historic buildings burned and exploded, becoming wrecked shells. Such smells, sounds, and sights might make unnerved people give up. How could they, the theorists asserted, possibly survive such “primitive” conditions? Better to surrender and accept the terms of the conquerors than live like cavemen. A key component of urban dwellers’ morale was keeping nature at bay, almost forgetting about it. Expanding the concept of morale in warfare will help military historians, who should include it in their analyses of bombing strategy and cities at war. Environmental historians should use morale to analyze warfare’s effects on the human element of the relationship between humans and nature.

These things happened to Munich between 1942 and 1945. The Allies identified the city as a propaganda target, “Capital of the Movement,” and the birthplace of the Nazi Party. More importantly, the “Hub of the South,” offered an important target, a place connecting armies to resources and materiel to the Eastern and later Italian fronts. Not a hugely important industrial target, factories in the Munich area still made motorcycles (BMW) and aircraft (Dornier). Thanks to distance and lack of fighter escorts, Munich remained virtually untouched until 1942. After that the raids became more frequent and devastating, until the winter of 1944-45, when the combination of the Wehrmacht’s retreat and cutting of the railroads rendered Munich an isolated island. The city that surrendered on April 30, 1945 was

burned, broken, and seriously depopulated. A thriving city of 860,000 in 1939, it had been reduced to a bombed-out shell of 480,000 battle-scarred people.

Accounts from eyewitnesses gave a more complete picture of the story of Munich from 1942 to 1948, illustrating the more abstract concepts of connections to natural resources and bombing theory. Eyewitnesses remind the reader of the human half of the relationship of humans and nature, offering them a richer texture for appreciating how war impacted peoples' lives. The four key connections studied--to the Ruhr (coal), the Alpine rivers (electricity), the eastern provinces (food and coal) and the United States (food, fuel, money)--were those which most affected Münchener's daily lives.

The first big bombing raid in 1942 changed Munich's urban environment, visibly and viscerally altering people's lives. Since the war began, the city had been blacked out at night, as people hunkered down in dark apartments or bomb shelters. Bombs once again lit Munich at night, but with a much older method of illumination, fire. The city's buildings, great and ordinary, were burning, as were any citizens unlucky enough to be caught in a flaming house or apartment. Day turned into night as the Allies, buoyed by their successful use of fire in Hamburg in 1943, dropped more and more incendiary bombs on Munich. Young people like Theo Rosendorfer marveled at the bright light and noise. Helmut Dotterweich thought the sun, wreathed in smoke, was the moon and day was night. As people were learning to feel safe during the day when the British bombers were inactive, the Americans arrived and changed daytime as well. Ostensibly aiming at military (airbases) and infrastructure (railway stations and maintenance yards) targets, bombardiers in B-17 "Flying

Fortresses” and B-24 “Liberators” also hit houses, schools, and grocery stores.

Bombing was simply not accurate enough, and infrastructure targets, in particular the *Hauptbahnhof*, were located in the center of the city, ensuring collateral damage.

Bombing theory associated several connections to natural resources with shortages brought on by war. As the bombing theorists expected, Munich’s citizens, deprived of resources and exposed to natural forces, suffered greatly. Münchenerers adapted the best they could. When coal ran short, they turned to wood to heat their homes and even run their cars, if they had access to them. Children like Harriet Weber were evacuated to the countryside. Münchenerers did not, however, succumb to despair and demand surrender. The city’s factories kept working, and the electricity flowed, albeit in a haphazard fashion. People turned to the black market, and in the last days of the war, looting, as food began running short. Just as people adapted to the destruction of war, they also adapted to the change in their relationship to nature. Being exposed to weather and being reminded of how dependent they were on outside sources of food and fuel was discouraging and difficult, but people adjusted. Perhaps they were not as far removed from a rural lifestyle, not as “soft” as the bombing theorists thought.

Being ruled by an occupying power was different than fighting a war. When bombs fell, Münchenerers had adapted. What would happen once the bombardment stopped? Would peace be more difficult than war? The American occupiers, while not harboring the grudges of the British, French, and especially Soviets, came not necessarily to save Munich. Their mission was more limited: to just keep Munich going long enough until its citizens learned that war did not pay. The occupiers would

control the transport system, the distribution of food, and the supply of electricity and fuel. With the destruction over, this study shifted to analyzing how victor and vanquished sought to maintain what connections were left and then build new ones. Their decisions about who got those resources and when greatly affected Münchener's everyday lives. Furthermore, Munich and the American Zone were isolated from the other Occupation Zones, especially the Soviet Zone, and the eastern provinces were now in Poland. With the east lost, where would Münchener's food and coal come from? Appreciating the connection between the American Zone (and Bavaria in particular) and the British Zone (especially the Ruhr), by analyzing the connection between Munich and the Ruhr coalfields helped answer these questions. Analyzing connections supplies a deeper understanding of occupied Germany's human and environmental realities.

Focusing on coal offered the best opportunity. It played a central role in citizens' lives, supplying heat, electricity, gas, food, and railroad fuel. Coal shortages bedeviled the postwar years in Munich. They forced Münchener's to return to wood as a fuel source. They heightened the importance of Munich's connection to the Alpine rivers' hydropower resources. Bavarians came to realize that the quality of life in the Ruhr, in particular among the miners and the "supporting economy" affected coal production, thus linking Ruhr life to life in cities like Munich. Hungry miners produced less, and often took off work to find food for their families. Bavaria would have to help, whether by sending food or sending miners, as in 1947. Bavaria now also had to wait in line for coal behind formerly occupied countries like the France and the Netherlands. Cash-strapped Britain could offer little relief. The postwar years

made maintaining Munich's connection to the Ruhr coalfields more important than ever.

Münchenerers adapted, absent fuel for cooking and heat, by turning to wood as a substitute. The local government, initially aided by the U.S. Army, organized the *Holzaktionen* to bring in wood from nearby forests. Citizens like Konrad Vitalowicz risked punishment, injury, or death to pull wood out of burned buildings or steal it from cemeteries, or like Daniel Beckh, stole coal from locomotives or scraped up what they could from piles of coal dust. Those unable or unwilling to take these risks could go to a "warm room" in the city, or simply stay in a bed with ice on the sheets. Substituting wood for coal, like returning to the barter economy, took Munich a step backwards. People returned to a time when they knew more about natural resources. Their food and fuel were much more visible.

Coal shortages threatened to denude Bavaria's forests and also exacerbated the effects of extreme weather events, especially the harsh winter of 1946-47 and the drought of summer 1947. Key events in this study, they demonstrated the importance of Munich's connections to the Ruhr coalfields and the hydropower resources of the Alpine rivers. They also revealed how postwar Munich's citizens were much more vulnerable to the forces of nature. The connection to the Ruhr coalfields, always important but now crucial, could not make up for the severing of the connection to the coal resources of the Eastern provinces. In the same way, the drought showed that Munich had to have *both* coal and hydropower to provide its electricity needs in winter *and* summer.

The winter of 1946-47 and the drought of 1947 also highlighted the importance of the transport system, in particular railroads that brought coal to Munich. During the winter of 1946-47, the transport system collapsed, further diminishing Munich's already limited access to coal. Rivers, such as the Rhine, that brought coal to railheads for transport froze and thus became useless. The limited amount of rolling stock, much of it older, was downed by mechanical failures and frozen tracks. Decisions made by the occupiers also slowed things down. By treating Bavaria, where winter began earlier, the same as other parts of the Bizone, they did not get the coal delivered early enough.

The drought of 1947 showed just how much Munich depended on hydropower, especially during summer. Agreements with the Austrian government that sent more power to Vienna and other cities in 1946 and 1947 had already shrunk the city's available hydroelectricity supplies. When the rains did not come in summer 1947, just like when the rivers froze the previous winter, the flow of electricity from the Alps, like the rivers, slowed to a trickle. Authorities employed more severe blackouts during the summer than the previous winter, and little coal could make up the shortfall. Münchenerers simply did without. Heavily dependent on weather, it had left them exposed. Fortunately, winter 1947-48 brought not more record cold temperatures, but a bounty of rain that offered hope for the future.

The occupiers had insisted that more food go to the British Zone, especially when the two zones were joined at the beginning of 1947. The bumper 1948 harvest that these rains helped provide brought more food for Münchenerers. They could better compensate for the loss of food resources from the east, in particular grain. As during

the war, citizens came up with their own ways of getting food as the shortages changed the relationship between the urban and rural populations. The daily ration provided by the government, which varied from 1000-1500 calories per day, only covered basic survival. People got thinner. Children like Helmut Dotterweich often went hungry. People had to be creative to put food on the table. Many, like Friedegunde Reissner, went “hamstering” to trade valuables to farmers for food, or relied on their relatives in the countryside. Some bought food on the black market, or tried to game the system. Others kept animals such as chickens in the city or changed their diets, as Theo Rosendorfer did when he ate cornmeal, previously regarded as only fit for animals. As the relationship between the urban and rural population changed, the farmers gained leverage, reminding urbanites in a very tangible way of where their food came from. Postwar Munich also stepped back to a barter economy, where currency had little value, a situation that would only be rectified by the currency reform in June 1948.

This study of Munich between 1939 and 1948 has uniquely illuminates the causes and impacts of many of the profound changes the city underwent during these years. Combining the methods and insights of military, urban, and environmental history, it reveals how World War II and the peace following it changed the relationship between humans and nature in Munich. It uses eyewitness accounts and memoirs to analyze the impacts of these changes in peoples’ lives. These sources tell the human side of the story, making the study’s more abstract theoretical concepts more accessible to the reader. The study analyzes how Münchenerers adapted to the changes in the urban environment, shortages of coal and food, extreme weather

events like the winter of 1947-47 and drought of 1947 and transport system difficulties. It documents their reactions to the instabilities in the connection to Ruhr coal and Alpine hydropower. Finally, this study describes Münchener's reactions--positive and negative--to the actions of the occupiers and growing importance of the new connection to the United States.

Scholars in military, urban, and environmental history provided vital foundations to this study. They have analyzed the functioning of cities, the role of natural resources in cities, the role of coal and hydropower in electricity generation, and the importance of coal and food in many aspects of human life. By analyzing them in the context of war and the effects of war on these natural resources, this study advances the field of environmental history and helps us better understand the dependence of cities on natural resources and the relationship between humans and nature. War is a catalyst for human actions, for good or ill. Wars have led to great destruction and loss of life, but also technological advances that have benefited humanity (penicillin, for example) and had great impacts on the natural environment, for example nuclear weapons. By studying the role of warfare in the relationship between humans and nature, as this study has done, scholars gain more insight into the multiple impacts of war on both humans and the natural environment.

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