

The Bavarian Model? Modernization, Environment,
and Landscape Planning in the Bavarian Nuclear Power Industry, 1950-1980

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By
KYLE T. MILLER

Dr. Jonathan Sperber, Dissertation Supervisor

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The undersigned, appointed by the Dean of the Graduate School, have examined the dissertation entitled

THE BAVARIAN MODEL? MODERNIZATION, ENVIRONMENT,
AND LANDSCAPE PLANNING IN THE BAVARIAN NUCLEAR POWER
INDUSTRY, 1950-1980

Presented by Kyle T. Miller

A candidate for the degree of Doctor of Philosophy

And hereby certify that in their opinion it is worthy of acceptance

Professor Jonathan Sperber, Chair

Professor Richard Bienvenu

Professor Susan Flader

Professor John Frymire

Professor Clarence Lo

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ABSTRACT

Perhaps no state in the Federal Republic of Germany witnessed a more pronounced state sponsored modernization effort than Bavaria, 1950-1980. This vast transformation, particularly in the field of nuclear energy, required a continuous negotiation of landscape planning between state officials, scientists, and ordinary citizens. While ordinary Bavarians had little input in the technical or scientific aspects of the nuclear industry, they could shape the landscape policy, by offering environmental and cultural criticism on specific locations for reactors.

Using material from the Bavarian State Archives (some, from the 1970s, only recently declassified), this dissertation compares the Bavarian landscape disputes over nuclear facilities in the nineteen-fifties with those featured in the widespread anti-nuclear demonstrations of the nineteen-seventies. As one of the few English language studies on the topic, this dissertation suggests considerably more continuity in landscape disputes than previous scholarship and offers a fresh look into the migration of skepticism towards the landscape use of nuclear power from political right to left over the course of thirty years.

Introduction: The Bavarian Model

When Christian Social Unionist, Max Streibl, promoted his State Development Program in the recently erected Bavarian Ministry for Land Development and Environmental Affairs in the 1970's, he proudly coined the phrase "Bavarian Model" to describe the future continuation of the rapid transformation of Bavaria that had been occurring since 1945.¹ In this speech and his book of the same title that followed,² he suggested that the "Bavarian Model" of modernization achieved two unique goals, which he considered to be a feat largely unequaled in the rest of the Federal Republic. The first accomplishment was the quick modernization of Bavaria from the agricultural state that it was in 1945 to the high-tech industrial land that it had become by 1970. A state deficient in natural resources and dominated by parochial Catholic farmers, Bavaria had long been considered a region of Germany mired in 'backwardness,' with only a few industrial pockets in its northern, mostly Protestant third, Franconia. Bavaria's stunning industrialization since 1945, featuring some of the more innovative sectors of the economy, such as aerospace, biomedical, and nuclear energy, had met or surpassed levels achieved in other previously economically dominant West German states. Bavaria's second achievement, of which Streibl as Minister for Environmental Affairs was the most proud, was that it was able to retain much of its natural beauty (*Schönheit*) and rich cultural heritage while industrializing. Unlike the Ruhr Valley, which most Bavarians

¹ See for instance: BayHSA: Abteilung V, NL Streibl, XIII.9.7-XIII.9.10, 22.04.1974-11.05.1974, Das Landesentwicklungsprogramm—Wegweiser für die Zukunft Bayerns, pg. 6.

² Max Streibl, *Modell Bayern: ein Weg in die Zukunft* (Munich: Carl Geber Verlag, 1985).

regarded as a failed modernization model that resulted in overly concentrated population and pollution, Bavaria had decentralized its industrialization efforts.³ According to Streibl in 1985, Bavaria's adoption of so-called clean industry, establishment of the first environmental ministry in the Federal Republic, retention of its beautiful landscape, and its pursuit of microelectronics in the nineteen-eighties made the state a success story akin to California—a concept he articulated in the phrase “Silicon-Bavaria.”⁴

The meticulous historiography of the last decade has generally adopted one of Streibl's categories—modernization or environmentalism—as its point of departure. Munich's Institute for Contemporary History (*Institut für Zeitgeschichte* or *IfZ*), primarily through its detailed seven volume series, *Bayern im Bund*,⁵ in cooperation with Munich's German Museum (*Deutsches Museum*), the largest European museum of science and technology, has been thoroughly analyzing the industrialization and structural transformation in Bavaria. In general, this literature, along with several independent studies, has focused on one of three pillars of the so-called Triple Helix of modernization: politics, industry, or science.⁶

³ Paul Erker, “Keine Sehnsucht nach der Ruhr: Grundzüge der Industrialisierung in Bayern 1900-1970,” in *Geschichte und Gesellschaft*, 17 (4, 1991), 480-511.

⁴ Max Streibl, *Modell Bayern*, 12; Alexander Gall considers the Bavarian drive to develop a ‘Silicon Valley’ in the nineteen-eighties to be only mildly successful: Alexander Gall, “Deutsch Silicon Valleys? Mikroelektronik Forschung in der Fraunhofer-Gesellschaft und die Forschungspolitik der Bundesländer in den 1980er Jahren,” (Arbeitspapier der Münchner Zentrums für Wissenschafts- und Technikgeschichte) München, 1999; While researching on this paper, my research advisor in Germany, Professor Helmuth Trischler at the *Deutsches Museum*, commented facetiously that Bavaria had developed into a land of “Laptops and Lederhosen.”

⁵ Thomas Schlemmer and Hans Wollman ed., *Bayern im Bund*, 7 volumes (Munich: R. Oldenbourg Verlag, 2001-2007).

⁶ Helmuth Trischler, *The Triple Helix of Space: German Space Activities in a European Perspective* (Paris: ESA Publications Division, 2002).

The most fruitful of these three foci has been the sphere of politics. Many of these studies argue that the Bavaria, under the leadership of the modernization minded CSU and its dynamic party chairman Franz Joseph Strauss, struck a course of modernization in the nineteen-fifties, focusing on the nuclear energy, motor vehicle, and aerospace industries.⁷ Because of the strong linkage between the CSU and its sister party in Bonn—the Christian Democratic Union, or CDU—these efforts met success and quickly initiated Bavaria’s structural transformation. Recently, historians have qualified this assertion, noting that the CSU was not yet dominant in the nineteen-fifties, as the four-party system (comprised of the Bavarian Party (BP), Free Democratic Party (FDP), Social Democratic Party (SPD), and the Refugee Alliance Party (GB)) prevailed under the leadership of the Social Democratic minister president Wilhelm Hoegner, who strongly supported the modernization efforts.⁸

The second pillar of the Triple Helix, the development of industry, has also garnered significant historical attention. This scholarship has debated whether Bavarian modernization is a result of the importation (or immigration) of industry and skilled

⁷ Aside from the work of the *IfZ*—specifically volume two of the series, which focuses on politics—see also: Herbert Riehl-Heyse, *CSU, die Partei, die das schöne Bayern erfunden hat* (Munich: Bertelsmann Verlag, 1979); Thomas Schlemmer, *Aufbruch, Krise, und Erneuerung. Die Christlich-Soziale Union 1945 bis 1955* (Munich: R. Oldenbourg Verlag, 1998); Alf Mintzel, *Die CSU-Hegemonie in Bayern: Strategie und Erfolg; Gewinner und Verlierer* (Passau: Wissenschaftsverlag Richard Roth, 1999); for the most recent English work: Mark Milosch, *Modernizing Bavaria: The Politics of Franz Josef Strauß and the CSU, 1949-1969* (New York: Berghahn Books, 2006). For biographies and memoirs of Strauss see: Franz Joseph Strauss, *Die Erinnerungen* (Berlin: Siedler Verlag, 1989); Wolfram Bickerich, *Franz Josef Strauß: Die Biographie* (Düsseldorf: ECON, 1996); Stefan Finger, *Franz Josef Strauss: ein politisches Leben* (Munich: Olzog Verlag, 2005).

⁸ Besides Hoegner’s biography by Peter Kritzer see: Stephan Deutinger, *Vom Agrarland zum High-Tech Staat. Zur Geschichte des Forschungsorts Bayern 1945-1980* (Munich: R. Oldenbourg Verlag, 2001); Peter Kritzer, *Wilhelm Hoegner. Politische Biographie eines bayerischen Sozialdemokraten* (Munich: 1979.); see also: Hildegard Kronawitter, “Wilhelm Hoegner: Bayerischer Patriot, Gefühlssozialist und erfolgreicher Ministerpräsident.” http://www.hildegard-kronawitter.de/vermishtes/aufsatz_hoegner.pdf, accessed April 9, 2009.

labor, fleeing the advancing Red Army in East Germany in 1945, or a product of conscious state planning (*Landesplanung*) designed to promote economic growth after 1945. Those who endorse the importation thesis point to the resettlement in the Bavarian countryside of a significant population (some 3 million people between 1939 and 1950)⁹ of well-trained craftsmen and laborer refugees (*Flüchtlinge*) as well as major corporations like Siemens, which fled from its headquarters in Berlin to relocate near Munich.¹⁰ This invaluable industrial experience and capital, immigrating into a land largely comprised of farmers, altered the social structure and mentality of Bavaria to the degree that it was the driving force behind post-war modernization. While not denying the influence of the refugees, the *IfZ* regards the Bavarian government's postwar development of infrastructure, namely the construction of an energy network, transportation system, modern communication systems, and other planning features, along with the pursuit of new, high-tech industry as indispensable to Bavaria's transformation.¹¹

The third pillar of the Triple Helix focuses on the introduction of 'Big Science'¹² in Bavaria. In current literature, influential scientists, such as Noble Prize winning physicist, Werner Heisenberg¹³ and well-positioned politicians, such as Federal Atomic

⁹ Thomas Schlemmer and Hans Woller, *Bayern im Bund, Band I: Die Erschließung des Landes 1949-1973* (Munich: R. Oldenbourg Verlag, 2001), 11.

¹⁰ See for instance: Klaus Schreyer, *Bayern—ein Industriestaat. Die importierte Industrialisierung. Das wirtschaftliche Wachstum nach 1945 als Ordnungs- und Strukturproblem* (Munich: Günter Ozlog Verlag, 1969); Wilfried Feldenkirchen, *Siemens: 1918-1945* (Columbus: Ohio State University, 1999).

¹¹ See the articles in Schlemmer and Woller, *Bayern im Bund*, volume 1; Paul Erker, "Keine Sehnsucht," 480-511; and Stephan Deutinger, *Vom Agrarland zum High-Tech Staat*.

¹² Szöllösi-Janze- Margit and Helmuth Trischler ed., *Grossforschung in Deutschland* (Frankfurt: 1990)

¹³ Cathryn Carson, "New Models for Science in Politics: Heisenberg in West Germany," in *Historical studies in the Physical and Biological Sciences*, 30:1 (1999), 115-171; see also her forthcoming book:

Minister Siegfried Balke, encouraged the establishment of large, centralized research institutions in Bavaria. Of particular importance were the Max Planck Institute for Physics and Astrophysics, the Institute for Plasma Physics, the Institute for Radiochemistry in Garching near Munich,¹⁴ the *Fraunhofer Gesellschaft* near Freising,¹⁵ a branch of the German Aviation Research Institute in Oberpfaffenhofen,¹⁶ and the Technical University in Munich.¹⁷ With the development of these institutions resulting from considerable government subsidies, Bavaria jumped to the forefront of the atomic,¹⁸ aerospace, and biochemical sciences, which encouraged subsequent industrial development.

While the current vast body of literature effectively describes the process of modernization, it deals inadequately with two distinct, critical aspects of this development. First, the current works do not specifically analyze Streibl's second feature of Bavaria—its landscape and culture. For this, one must consult a wholly independent body of literature, namely the growing subfield of environmental history. For years the dominant paradigm of environmental history was that environmentalism represented an

Cathryn Carson, *Heisenberg in the atomic age: Science and the public sphere* (Forthcoming from Cambridge University Press, 2009).

¹⁴ Stephan Deutinger, *Vom Agrarland zum High-Tech Staat*; Michael Eckert and Maria Osietzki, *Wissenschaft für Macht und Markt. Kernforschung und Mikroelektronik in der Bundesrepublik Deutschland* (Munich: C.H. Beck, 1989).

¹⁵ Helmut Trischler and Bruch vom Rüdiger, *Forschung für den Markt. Geschichte der Fraunhofer Gesellschaft* (Munich: Beck Verlag 1999).

¹⁶ Mark Milosch, *Modernizing Bavaria*, 98; Helmut Trischler, *Luft- und Raumfahrtforschung in Deutschland, 1900-1970: Politische Geschichte einer Wissenschaft* (Frankfurt: Campus Verlag 1992).

¹⁷ Martin Pabst and Margot Fuchs *Technische Universität München: Die Geschichte eines Wissenschaftsunternehmens*. Wolfgang Herman ed. (Munich: Metropol Verlag, 2006).

¹⁸ For studies on the Atomic Industry in the Federal Republic (which also discuss developments in Bavaria) see: Joachim Radkau, *Aufstieg und Krise der deutschen Atomwirtschaft, 1945-1975* (Reinbek: Rowohlt Verlag, 1983); Wolfgang Müller, *Geschichte der Kernenergie in der Bundesrepublik Deutschland*. 2 Volumes (Stuttgart: Schäffer—Poeschel Verlag für Wirtschaft, 1990/1996).

entirely new and unique development, originating out of the student movement and citizens' initiatives around 1970. This interpretation, in many ways portraying attitudes of the New Left, argues that the years of the Economic Miracle—the nineteen-fifties and sixties—were dominated by the conflation of modernization, industrialization, and consumption with progress. It was only after the world crises in the early nineteen-seventies that West Germany began to move away from this almost pathological need to consume (dubbed the Fifties Syndrome by Peter Pfister) and turned towards an economic policy that was more environmentally sustainable.¹⁹ The environmental movement was pushed forward by citizens' initiatives in the seventies, which began with single-action groups galvanized over specific local concerns, but later turned into national conglomerations that articulated an entire ecological critique.²⁰ Older works on the atomic industry starkly differentiate the atomic euphoria of the fifties from the protest movements of the seventies. Most historians before 2000 considered the 1974 demonstrations at the Wyhl reactor site near Freiburg the first instance of major popular dissent from West German nuclear policy.²¹

¹⁹ The original formulation was: Christian Pfister and Peter Bär ed. *Das 1950er Syndrom: Der Weg in die Konsumgesellschaft* (Bern: Verlag Paul Haupt, 1995); Moving towards a more limited approach, one that acknowledges preservationist predecessors, but still stresses the overall transformation after 1970 is: Kai F Hünemörder, *Die Frühgeschichte der globalen Umweltkrise und die Formierung der deutschen Umweltpolitik, 1950-1973* (Stuttgart: Franz Steiner Verlag Wiesbaden GmbH., 2004); For a recent social history: Paul Hockenos, *Joscka Fischer and the Making of the Berlin Republic: An Alternative History of Postwar Germany* (Oxford: Oxford University Press, 2007).

²⁰ Peter Mayer-Tasch, *Die Bürgerinitiativbewegung: Der aktive Bürger als rechts- und politikwissenschaftliches Problem* (Reinbeck near Hamburg: Rowohlt Taschenbuch Verlag GmbH, 1976); Victor Hauff ed. *Bürgerinitiativen in der Gesellschaft: Politische Dimensionen und Reaktionen* (Villingen: Neckar Verlag, 1980); Brand, Karl-Werner, et al. *Aufbruch in eine andere Gesellschaft. Neue Soziale Bewegungen in der Bundesrepublik* (Frankfurt: Campus Verlag, 1983).

²¹ Helga Bufe and Jürgen Grumbach, *Staat und Atomindustrie. Kernenergiepolitik in der BRD* (Cologne: Pahl-Rugenstein Verlag, 1979); Dieter Rucht, *Von Wyhl nach Gorleben. Bürger gegen Atomprogramm und nukleare Entsorgung* (Munich: Verlag C. H. Beck, 1980); Wolfgang Ehmke ed. *Zwischenschritte. Die Anti-Atomkraft-Bewegung zwischen Gorleben und Wackersdorf* (Cologne: Kölner Volksblatt Verlag, 1987); Wolfgang Müller, *Geschichte der Kernenergie in der Bundesrepublik Deutschland Vol. II: Auf der*

In recent years, historians have reassessed this viewpoint. While not completely discounting Pfister's Fifties Syndrome, newer scholarship suggests more continuity between the fifties and seventies, as the environmental movement had roots in earlier nature preservation groups.²² While most of the literature examines the entire Federal Republic, Raymond Dominick, in his classic work, *Prophets and Pioneers*, which gives considerable attention to Bavaria, argues that nature preservation was reformulated in the postwar era to become more apocalyptic and active. Monika Bergmeier's environmental history of the Economic Miracle in Bavaria, *Umweltgeschichte der Boomjahre 1949-1973*, is the work most pertinent to this study. She asserts that while the public protested numerous local applications of Bavarian modernization policy—such as specific power plants—the Bavarian ministries dismissed or even suppressed these criticisms through the early nineteen-seventies. Only with the nineteen-seventy creation of the Ministry of Environment did the government begin to consider environmental protection as a legitimate policy. In other words, the government sacrificed Bavarian environment and landscape in the name of modernization and progress, not the public, which was actually quite interested in ecology. To formulate this argument, Bergmeier makes two critical distinctions. First, she demonstrates that the government only slowly makes the

Suche nach dem Erfolg—Die Sechziger Jahre (Stuttgart: Schäffer—Poeschel Verlag für Wirtschaft, 1996); Atom-Express ed. *und auch nicht anderswo! Die Geschichte der Anti-AKW-Bewegung* (Hamburg: Verlag Die Werkstatt, 1997);

²² Sandra Chaney, *Nature in the Miracle Years: Conservation in West Germany, 1945-1975* (New York: Berghahn Books, 2008); Jens Ivo Engels, *Naturpolitik in der Bundesrepublik: Ideenwelt und politische Verhaltensstile in Naturschutz und Umweltbewegung, 1950-1980*. (Paderborn: Verlag Ferdinand Schöningh GmbH, 2006). Frank Uekötter, *Naturschutz im Aufbruch: Eine Geschichte des Naturschutzes in Nordrhein-Westfalen, 1945-1980* (Frankfurt: Campus Verlag, 2004); Christof Mauch ed. *Nature in German History*. (New York: Berghahn Books, 2004).

transition from “state planning” (*Landesplanung*) to “environmentalism” in the nineteen-seventies. Second, she disconnects the regional planners—for instance the water bureau—which were much more willing to take up causes of regional nature preservation and health, from the Bavarian government—the ministries and Landtag in Munich.²³

This dissertation is, above all, an attempt to reconcile the diverging scholarship represented by the modernization and environmental theses. At the same time, it will introduce a Fourth Helix of modernization, the public. Much of the current historical scholarship on the development of the nuclear industry in the Federal Republic highlights technical, economic, and scientific aspects—such as, reprocessing, reactor development, and physics research—but overlooks the public investment in the shaping of the nuclear landscape. In order to rectify this oversight, this work will analyze the interaction between the public and the ministries, regarding the always controversial “question of location“ (*Standortfrage*) for nuclear power plants and atomic research facilities between 1950 and 1980. When analyzing the interaction between the bureaucratic institutions, it becomes apparent that ordinary Bavarians, whether they were businessmen, church officials, bureaucrats, or farmers constantly interjected their opinions on nuclear planning, and consistently had an effect on policy. This approach has an advantage over many other histories of environmentalism, because it focuses not on nature preservation groups, such as the Nature Preservation League, but on the public at large—providing a

²³ Raymond Dominick, *The Environmental Movement in Germany: Prophets and Pioneers, 1871-1971* (Bloomington: Indiana University Press, 1992); Monika Bergmeier, *Umweltgeschichte der Boomjahre 1949-1973: das Beispiel Bayern* (Münster: Waxmann Verlag GmbH, 2002).

view into the mentality of non-conservationists. I have reserved presenting judgment upon this process, by not erecting unrealistic expectations or making comparisons directly with modern environmentalism. With the advantage of newly opened archival material in the nineteen-seventies, this work can more adequately perceive continuities and discontinuities between the widely publicized and visible protest of the nineteen-seventies, and its more subdued and tranquil ancestor in the nineteen-fifties.²⁴

In reviewing public attitudes, this dissertation argues that there was always skepticism about and general opposition towards aspects of the Bavarian nuclear energy program. In particular, it was the close conflation of the idea of progress with the nuclear program that generated scrutiny. Local groups debated whether the choice of a specific location for a nuclear reactor really represented progress or if other aspects of their environment and culture should be given equal priority with modernization. Over the course of thirty years, this skepticism towards nuclear landscape policy made a slow migration politically from the right to the left. While skeptics changed their general tactics during this timeframe—certainly there were no tractor parades in the nineteen-fifties—doubts were apparent and prevalent from the start of the fifties, but perhaps waned a bit in the sixties.

Because the records after nineteen-seventy have only recently been declassified, studies of the Federal Republic that compare and contrast the affluent era of the

²⁴ German government archives, such as the Bavarian State Archive (*Bayerisches Hauptstaatsarchiv*), maintain strict confidentiality over government documents for thirty years. They also have the right to extend confidentiality beyond thirty years, if the in question documents pertain to certain individuals, such as Franz Josef Strauss. Thus, as the research for this work was performed during the 2006-2007 academic year, the author had legal access to records up to 1977—further into the seventies than any previous study. It is the author's future intent to extend his research to 1981, once the relevant documents are made available to the public in 2011. See the bibliography for specific examples.

Economic Miracle with the more turbulent years after the Oil Crisis are lacking. While this dissertation does not profess to erase this deficiency, since it does not leave the boundaries of Bavaria, it will contribute to filling this scholarly gap by exploring four themes that have additional meaning throughout the entire Federal Republic. First, it will examine the extent to which ordinary Germans conceptualized and shaped the nuclear landscape throughout the time period, in order to assess the continuity and discontinuity of landscape planning and views of nature and technology. Therefore, this study will go beyond asking whether the populace contributed to nuclear planning, and demonstrate how they did so. Second, this dissertation will compare the participants, methods, and forms of debate, thereby shedding light on the role of civil society, and its relationship with the Bavarian state, in the development of the nuclear industry during the first three decades of the Federal Republic. This question is of great importance, considering the strong reputation for centralization, coercion, and lack of transparency that critics of the late nineteen-seventies bestowed upon the nuclear industry. Third, this study will examine the relationship between the seemingly antagonistic, but deceptively complementary concepts of modernization and environmentalism within the context of Bavarian nuclear power. In this way, it will contribute to our understanding of the spread of ecological thought in a consumer society. Finally, since skepticism towards nuclear energy transcends both the traditional preservation and the modern environmental movements, this work will explore the roots of environmental discourse within the development of nuclear landscape planning, hoping to contribute to our understanding of the connections between older and newer forms of ecology. Might it be the case that

environmentalism was, so to speak, a product of the transformation of the Bavarian landscape and environment?

In order to properly evaluate how the “question of location” transformed over three decades (1950-1980), I have chosen three case studies—the most noteworthy contested Bavarian nuclear projects in each decade. Chapter one will describe the archetypical controversy of the fifties—the debate over Munich’s first research reactor. In a campaign of speeches and letters, many of the ‘traditional’ elements of Bavarian society, namely farmers, breweries, and federalists politicians, joined businessmen, nature preservationists, and bureaucrats in protest against the construction of Germany’s first research reactor near the city of Munich. In this debate, Bavarians feared a disruption of traditional cultural practices, such as agriculture, beer festivals, gardening, and tourism, but also articulated new anxieties related to the global age of the atom. Besides the strong association of atomic energy with Hiroshima, Bavarians wondered if the new technology could seriously alter their local, regional, and even global environment, particularly with regard to climate. Add to this the strong, but reserved criticisms from conservative federalists, who from their own unique point of view, formulated many of the critiques most often associated with the New Left in the seventies.

Chapter Two provides a transition to the nuclear projects of the nineteen-sixties. I will argue that the Economic Miracle of the late fifties and early sixties coupled with new energy needs propelled Bavarians into the age of consumption. It is the new spatial demands of modernization and consumption that generated both the necessity for nuclear energy facilities, and the conditions for its criticism, which presented themselves in the

mid-sixties. In particular, the expansive needs of urban development created the fear that the available Bavarian landscape was disappearing. These new conceptualizations of the landscape formed the basis of protest throughout the decade.

The 1965 dispute over the construction of a particle accelerator in Ebersberg Forest near Munich will be the focus of Chapter Three. When the Bavarian government announced that it wanted to build the CERN synchrotron in a thick stand of forest, once again a large percentage of the population complained through letters. While the traditional elements of Bavarian society were strongly represented in the protest—the federalists, hiking, and hunting clubs—new constituencies from the center and left began to voice skepticism about the aims of the project as well. The oppositional discourse included not only the traditional critiques about the disruption of culture and Cold War fears of thermonuclear annihilation, but also new ones focusing on topics of the sixties—urban sprawl, landscape ecology, and above all, recreation. These new articulations galvanized urbanites, represented by bureaucrats and members of the Social Democrats, to defend the forest against the encroachment of the government.

The international oil crisis and its ramifications for Bavaria, a state that had intensely focused on modernization through the consumption of oil, will be the basis of Chapter Four. In this chapter, I will contend that the Bavarian ministries sought to design a nuclear program that would reshape the entire Bavarian landscape. However, they faced new challenges following the oil crisis, as a broad West German-wide anti-nuclear campaign developed, completing the migration of skepticism about nuclear energy from the political right to left. Concerned with the potential for the nuclear plants to push the landscape beyond its hydrological and meteorological limits, this seemingly abrupt

policy shift propelled three new social groupings into the debates: the youth, the citizens' initiatives, and the clergy. While adopting many older criticisms about nuclear energy, the new movements developed a universal challenge against plutonium reprocessing.

The final chapter will explore Bavaria's implementation of the nuclear program, particularly at Grafenrheinfeld near Schweinfurt.²⁵ In this chapter, I will argue that the three final elements of the antinuclear protests—those that are often most noted by historians—were the last to join: the church, the youth movement, and the citizens' initiatives. With the new groups came rearticulation of older, existing critiques about modernization, progress, and nuclear power. In particular, the sheer magnitude of a nuclear reactor meant that it had the potential to affect a wide range of ecological systems, especially the regional watershed. Therefore it was necessary to expand the ecological reasoning of the sixties and apply it at a grander scale, to incorporate regional and global dimensions. In effect, under the new post-Oil crisis conditions, the New Social Movements adopted and reformulated much of the landscape discourse put forward by the Federalist Right twenty years before, but with new dimension and innovative tactics. While the ministries were able to push the nuclear plant forward at Grafenrheinfeld despite mass demonstrations, similar protests across Bavaria seriously curtailed the government's nuclear ambitions for other projects.

²⁵The massive demonstrations of the nineteen-eighties against the nuclear reprocessing plant at Wackersdorf, Bavaria lie outside the scope of this dissertation, since the archives remain closed for the next decade. For information see: Gerhard Friedl, *Wackersdorf ganz ohne Wunder: Die Geschichte eines dramatischen Aufstiegs in der Oberpfalz* (Munich: GuM Verlag, 2007.)

Chapter 1: Atomic Skepticism in the Fifties: Atomic Eggs, Radioactive Fallout, and Climate Change

Stephan Deutinger began his article in the *Bayern im Bund* series stating that the most pressing matter for Bavaria following World War II was energy. By this succinct statement, he indicated that the two main problems in Bavaria—securing the well-being of the World War II refugees from Eastern Europe (*Flüchtlinge*) and pursuing modernization—required copious amounts of cheap energy. Thus, the Bavarian government set out to construct an energy network, first with hydroelectric power, then with atomic power, finally settling with petroleum and natural gas based energy. With respect to government intentions, this interpretation is likely valid, as any full-scale modernization project requires foremost inexpensive energy, such as coal provided for the Ruhr basin.¹ However, while the public benefited from the electrification of Bavaria after World War II, which propelled most Bavarians for the first time into the mass consumer market of the late fifties, Bavarians concentrated their attention on the proposed location for the power plant (the *Standortfrage*). During what historians commonly describe as the era of atomic euphoria in the mid-nineteen-fifties², Bavarian

¹ Stephan Deutinger, “Eine ‘Lebensfrage für die bayerische Industrie.’ Energiepolitik und regionale Energieversorgung 1945 bis 1980,” in *Bayern im Bund, Band I: Die Erschließung des Landes 1949-1973*, Thomas Schlemmer and Hans Woller ed. (Munich: R. Oldenbourg Verlag, 2001), 33-118, see page 33 for his observant assertion.

² Wolfgang Müller, *Geschichte der Kernenergie in der Bundesrepublik Deutschland: Anfänge und Weichenstellungen* (Stuttgart: Schäffer Verlage für Wirtschaft und Steuern GmbH, 1990), 335-340. Mark Milosovech, *Modernizing Bavaria*, 55. Commentators in the 1970’s and 1980’s were so impressed with the enormous display of mass street demonstrations that they overlooked previous debates. See for instance: Dieter Rucht *Von Wyhl nach Gorleben*. Recent works often continue with this interpretation; timelines for the antinuclear movement often begin in the early nineteen-seventies: Atom-Express ed. *und auch nicht anderswo!*, 47; Paul Hockenos, *Joscka Fischer*.

politicians of the two major parties enthusiastically lobbied for the economic incentives connected with atomic energy and scientists promoted the wonders of scientific progress. In the less obvious discussions outside of the official party rallies, but in the press, on the street, and in the bureaucratic offices, people concentrated on where a facility was to be constructed. Because specific locations were charged with cultural and environmental meaning, infringing on these sites generated popular discontent.

Some recent German historians, starting with Deutinger, have acknowledged that the euphoric view of the fifties is misguided. In his *Vom Agrarland zum High-Tech-Staat*, he asserts that then Bavarian Minister-President Wilhelm Hoegner, local Garching mayor Josef Amon, and other actors within the Munich region played a decisive role in bringing research institutions to Southern Bavaria, which formed the foundation for the transformation of the entire region. In attempting to do so, they met opposition from several figures, most notably Bavarian Party leader Josef Baumgartner. In spite of this, a coalition of Munich and Bavarian officials brought the *Atomei* (atomic egg—due to its egg shaped futuristic aluminum hull) to Garching, creating the so-called first “atomic village” (*Atomdorf*) in Germany.³

Building on Deutinger’s work, Martina Hessler examines the development of Garching to the present day, comparing the fifties and sixties with the demonstrations against the upgrade of the research reactor in the nineteen-nineties. In her work, she indicates that discontent towards the upgraded research reactor was a product of the suburbanization of Garching following the construction of the Research Center, as the

³ Stephan Deutinger, *Vom Agrarland zum High-Tech-Staat*, 209-227.

limited open space became more precious and difficult to find. She notes that one can no longer think of the nineteen-fifties as a decade without skepticism towards nuclear power, but (quite fairly) nonetheless considers the era “relatively calm” when compared to the seventies. In particular, she observes that the anxieties were limited in the fifties to a campaign of correspondence.⁴ Finally, in their recent history of the Technical University of Munich, Margot Fuchs and Martin Pabst also mention that there were limited objections to the research reactor in Garching, but their focus is on the merits of the University and the leadership of the scientists, especially Heinz Maier-Leibnitz.⁵ These recent works provide a more balanced approach to the fifties, but lack spatial and environmental analysis, as well as comparative assessments.

Applying environmental techniques of investigation, this chapter will explore four general themes within the context of the debate over the placement of the research reactor. First, it will revise the perception of nuclear power’s reception in the era, suggesting that atomic euphoria was met by a significant undercurrent of skepticism, anxiety, and criticism. Second, it will demonstrate that these doubts were expressed by all manner of groups and individuals, including eminently reasonable business interest associations, conservation officials, medical and health experts, civil servants, anxious citizens, but especially oppositional and federalist politicians. Usually, but not always, these grievances emanated from ‘traditional’ Bavarian enterprises, such as brewing, tourism, and agriculture, motivated by a fear of social or environmental displacement directly or indirectly caused by the reactor. Third, it will argue that while many of the

⁴ Martina Heßler, *Die kreative Stadt: zur Neuerfindung eines Topos* (Bielefeld: Transcript, 2007), 69-162.

⁵ Martin Pabst and Margot Fuchs, *Technische Universität München: Die Geschichte eines Wissenschaftsunternehmens*,. Volume II, Wolfgang Herman ed. (Munich: Metropol Verlag, 2006), 506-511.

fears were limited in application, pertaining only to the placement of the reactor, or were somewhat prodigious or even bizarre, many were eminently sensible and forward-thinking, reminiscent of critiques common twenty-five years later. Most complaints centered on potential disruptions of local culture, economy, climate, landscape, and life, but they were most innovative when transcending typical NIMBY (Not In My Back Yard) grievances and encompassing complex regional themes. This especially happened when the discussion became emerged in global phenomenon characteristic of the nineteen-fifties such as the Cold War anxieties, the radiation exposure controversy, or surprisingly, the field of anthropogenic climate change. Finally, the chapter will show that the medium of discussion during the fifties was not visible demonstration or marches, as in the seventies or the more notable concurrent anti-rearmament campaign, but a much more reserved and unorganized (but effective) campaign of letters, press clippings, bureaucratic discussions, rumors and innuendo, radio complaints, and meetings of political representatives, officials, and specialists.

1.1 The *Atommeiler* and the First Public Debate

Between 1953 and 1955, Munich and Karlsruhe competed for what was referred to as the first German *Atommeiler* (literally atomic mill), a curious nomenclature suggesting the reactor's primary function was not to generate electricity, but to produce isotopes.⁶ Although technically banned from developing atomic technology in 1954,

⁶ For an overview of the competition see: Cathryn Carson, "Nuclear Energy Development in Postwar West Germany: Struggles over Cooperation in the Federal Republic's First Reactor Station," *History and Technology*, 18 (2002) 3, 233–270.

members of the Max-Planck Society (MPG), in particular Noble Prize winner Werner Heisenberg, worked behind-the-scenes to rebuild the atomic physics program, which had been the world leader before the war.⁷ Historians have established that Heisenberg, who grew up in Munich, preferred his boyhood home for the relocation of the Göttingen based Max-Planck Institute (MPI) of Physics, which would work in conjunction with the *Atommeiler*.⁸ By 1955, Franz Josef Strauss, who lobbied first as the Minister for Special Affairs, then as the Atomic Minister, joined Heisenberg in encouraging the introduction of atomic research in Munich. However, Chancellor Konrad Adenauer and economic miracle worker Ludwig Erhardt preferred Karlsruhe, perhaps because it was in the Christian Democratic stronghold of Baden-Württemberg. Ultimately, Adenauer chose Karlsruhe, stating publicly that the Allies felt it represented less of a strategic Cold War threat than Munich, which lies relatively close to the Eastern border. Also significant in the momentous decision was that the city of Karlsruhe supposedly welcomed the *Atommeiler*, while many in Munich actively opposed it.⁹ Not to be entirely outdone, Heisenberg then announced that the MPI would still relocate to Munich, and with it, the smaller Research Reactor Munich (FRM) would be constructed north of the city in Garching. Known as the *Atomei* (Atomic Egg), because of its futurist, metallic egged-shaped hull, it would house a small “swimming-pool” reactor, used mostly for testing solid-state physics.

⁷ For more on the earliest development see: Wolfgang Müller, *Geschichte der Kernenergie in der Bundesrepublik Deutschland: Anfänge und Weichenstellungen*, 55-81.

⁸ For more on Heisenberg see: Catheryn Carsen, “New Models for Science in Politics,” 115-171.

⁹ There is some debate on public acceptance: R. J. Gleitsmann, *Im Widerstreit der Meinungen: Zur Kontroverse um die Standortfindung für eine deutsche Reaktorstation 1950-1955. Ein Beitrag zur Gründungsgeschichte des Kernforschungszentrums Karlsruhe und zu einem Kapitel deutscher Kernenergiegeschichte* (Karlsruhe: Kernforschungszentrum Karlsruhe, 1988).

Historians have often argued that 1955, following Eisenhower's famous announcement of the Atoms for Peace program, was the year of atomic euphoria in Germany, in which the politicians, journalists, and scientist joined in chorus to praise the unending possibilities of fission. This image vividly came from the 1956 Social Democratic convention in Munich, in which the party changed Schiller's words to Beethoven's *Ode to Joy* to "Atomic energy: God's sparkling lights."¹⁰ Certainly, the Social Democrats, who envisioned the atomic power plant initiating a 'Second Industrial Revolution,' much like coal had prompted the first, endorsed the *Atommeiler*. The Christian Social Union of Bavaria, as the party attempting to couple modernization with federalism, also was intrigued with the project and backed it enthusiastically. But this was only a small part of the story.

In 1952, Minister President Hans Seidel received word, by way of Professor Jost of the Technical University, that Heisenberg and the West German Atomic Commission considered Munich as a strong possibility for a 1500-kilowatt reactor, designed to produce isotopes for medical and scientific purposes. The facility would be restricted to producing 500 grams of plutonium, which made it technically impossible to produce any sort of military-grade fission material. While most officials were enthusiastic about its prospects, they began quickly to negotiate its regional placement and discovered that finding a location suitable for all parties was surprisingly tedious. Requiring a one-hectare plot of land at least one kilometer distance from any settlement, fifty cubic meters

¹⁰ See Mark Milosch, *Modernizing Bavaria*, 55.

of water per hour, and a local train connection eliminated numerous sites, but the prevailing East to West regional winds received the most serious attention.¹¹

With the worst case scenario of catastrophe in mind, an early meeting of the Ministry of Economics on December 1, 1952 concluded that the reactor must be in a sparsely populated region to minimize problematic evacuation plans. With hindsight, this spatial logic did not match the outward confidence in the safety of the reactor displayed two years later. After all, if it were indeed so secure, such remoteness would seem unnecessary. In this meeting Professor Jost suggested two possible towns, due to their proximity to train stations, Feldkircken and Markt Swaben, but both, even though neither were large cities, were considered too densely populated. At this time, the ministers also arrived at the curious conclusion that the *Atommeiler* should be placed near a nature preservation zone because of the sparse habitation. Seeham Lake, Prien by Chiem Lake (a famous tourist attraction due to the Versailles replica palace built on a lake island), Aschau by Mühldorf, and Laufen were near nature preserves and had ample water supply.¹² At this early point, the ministry agreed with Professor Jost that further inclusion of the Bavarian bureaucracy was unwise because public knowledge could cause “psychoses.”¹³

Jost’s suggestion derived from considerable angst displayed by the Regional Government (*Bezirksregierung*) of Upper Bavaria, specifically government President Mang, who was worried about the facility’s military implications and possible dangers of

¹¹ BayHSA: MWi 21943, Errichtung einer Atomanlage im Raum München, 5901/AT - Lpl.21- 113265, Ministerialdirektor Heilmann of the MWi, Dec. 2, 1952.

¹² BayHSA: MWi 21943, Errichtung einer Atomanlage im Raum München, 5901/AT - Lpl.21- 113265, Ministerialdirektor Heilmann of the MWi, Dec. 2, 1952.

¹³ BayHSA: MWi 21943, Atomanlage im Raum München, 5901/ AT - Lpl.2a, Kurtz (Landesplanungstelle), December 19, 1952.

contamination. With this in mind, the Weather Bureau conducted wind direction experiments and found that on average winds came out of the southwest 23 percent, west 20 percent, northeast 13 percent, east 9 percent, northwest 10 percent of the year, with the winds motionless 20 percent of the year.¹⁴ The State Planning Authority (*Landesplanungstelle*) used this data to rule out any locations southwest of Munich. On December 19, Jost and the ministry suggested Seeham Lake, located approximately thirty-seven kilometers southeast of Munich in a remotely populated area next to an autobahn, with plenty of land owned by the city for expansion. This planning group made a crucial distinction at this point; while constructing the facility near a nature preservation zone was advantageous, building it near a tourist attraction was not. Under this logic, Seeham Lake was thus preferable to Chiem Lake, one of the greatest tourist attractions on the rail line from Munich to Salzburg.¹⁵ Already a couple of weeks before this decision, however, Witzmann of the Regional Planning Authority (*Bezirksplanungstelle*) was adamant that the proposed site at Seeham Lake lay not next to, but rather, inside a nature preservation zone, rendering it near impossible to use. Unlike the State Planning Authority, Witzmann also considered this lake a tourist attraction. It was also much too far away from the city core for Heisenberg, who strongly believed the facility should lie within range of the Technical University. Witzmann also objected to Chiem Lake, one of the most popular tourist locations in Southern Bavaria, making it clear that he valued tourism over scientific progress. Furthermore, he discarded Aschau, which already had planned industry (particularly fossil fuel production), Markt Schwaben, which was too far from Munich, Feldkircken, which was

¹⁴ BayHSA: MWi 21943, Häufigkeit der Windrichtungen in München (1881-1925), 1952.

¹⁵ BayHSA: MWi 21943, Atomanlage im Raum München, 5901/ AT - Lpl.2a, Kurtz (Landesplanungstelle), December 19, 1952.

too close to settlement, and Ebersberg, which lacked sufficient water supply.¹⁶ This interplay, between the regional and state bureaucracies (and Heisenberg) over the value of tourist attractions was a staple feature of land planning in 1952-53.

The search for a location continued in the State and Regional Planning Authorities during 1953. Heisenberg suggested the town of Unterfröhling for the lab, twelve kilometers northwest of Munich and just south of part of the city water supply at the City Reservoir (*Speichersee*), with the reactor residing farther north in Erding Moor. Incidentally, as an area conservation officials considered highly valuable, Erding Moor was a controversial choice for the new Munich Airport in the mid-sixties. He warned, however, that while the prevailing winds typically gust away from Munich, 10 to 15 percent of the year they turn directly towards the city—stating explicitly that this would waft radioactive “gases.” Still, he insisted that Unterfröhling may be Munich’s last opportunity to win the reactor.¹⁷ He also gave further indications of what type of facility Munich would receive if it triumphed in the competition. The project would require a square kilometer of land for three buildings: an “uranium oven” (another curious euphemism), an examination and separation facility, and an isotope packing shop. Of additional necessity would be a small weather service, a chemical and medical station, and a radioactive sewage pit, which would store the effluents for up to a year. Once again, he also set forward rigid location requirements; while it must be 1000 meters from any inhabitants, it must also be in close vicinity to the Technical University.¹⁸

¹⁶ BayHSA: MWi, 21943, M I/6 2338/52 J2, Witzmann. Dr. Regierung von Oberbayern, Bezirksplanungsstelle, Dec.4, 1952; also: Witzmann to Prost, Dec. 9, 1952.

¹⁷ BayHSA: Mwi 21943, 5901/At - Lpl.2a/ 94184, Landesplanungstelle, Sept. 1953.

¹⁸ BayHSA: MWi 21943, Industrieplanung Prof. Heisenberg, Witzmann, 1953.

Unterfröbling would be close enough to advance the ambitious goals of the University and Munich: to become a European center of research.

Besides Heisenberg, others within the Ministry of Economics lobbied for Unterfröbling. At this time, an anonymous memorandum in the Ministry suggests that, while the regional authority feared that the atomic center would threaten Munich tourism, others felt the facility could potentially attract visitors. If it were placed in Unterfröbling, so the logic went, it would be near the Isar River and the English Garden. Given proper landscaping, with fast growing trees, plants, and flowers, the research facility could be an aesthetic extension of these parks. As a unique bonus, Unterfröbling had the distinct advantage that it laid in a quiet, non-industrialized area.¹⁹ To overcome hesitation by the Bavarian government, Dr. Telchow of the Max Plank Society (MPG) reminded them that thirty to sixty million dollars would be invested in the project and that all available safety precautions would be taken. Despite this, he too was concerned with the likelihood that the facility would expand in the future, and thus did not prefer the Unterfröbling choice. Telchow also suggested astonishingly that if “one day it resulted in the necessity to expand production of by-products for atomic bombs,” the location, as in other countries, would have to be moved, for security reasons.²⁰ Heisenberg also later conceded that the water table was too high at Unterfröbling for a reactor, and began to investigate other possibilities.²¹

In spite of the misgivings from the regional and land planning offices, the Bavarian ministries were in favor of the project, as long as the residents could be

¹⁹ BayHSA: MWi, 21943, Abschrift. Beantwortung der Fragen betr. die Wahl des Standorts der Reaktorstation, MWi, 1953.

²⁰ BayHSA: MWi 21943, 5901/At - Lpl.2a/ 94184, Landesplanungstelle, Sept. 1953.

²¹ BayHSA: MWi 21943, Heisenberg to Heilmann, Oct. 2, 1953.

protected from radioactive gas, explosion, or water contamination.²² Publicly, Minister President Hans Seidel and Heisenberg remained confident that a location would be found quickly. In November and December of 1953, the two attempted to rally support for the *Atommeiler*, releasing information for the first time to the press. Heisenberg traveled to Munich to assure the public that the facility was not related to bombs, but cautioned that a decision could not be made at the time between Munich and Karlsruhe; atomic industry was still prohibited under Ally authority and the German atomic commission had not been constructed. According to Seidel, Heisenberg had some affect in abating the anxiety of the public. As is already known in other historical accounts, Seidel laid out the advantages the facility would bring to Munich. First, the isotopes generated would improve the standard of living and health of Germans, through development of medicine and technology. Second, the reactor would provide a place to instruct future scientists and would enhance the universities' and Munich's reputation in empirical scientific research—adding to its already strong status for tourism and culture. Third, the economic benefits could transform Munich.²³ All of these advantages corresponded to the plan to modernize Bavaria.

The press and records of early 1954 prove that Seidel was incredibly misguided in his faith that Heisenberg could win over the apprehensive common citizen. In fact, the winter press releases had probably the opposite effect, transferring the debate from the bureaucratic domain to the public sphere. Letters-to-the-editor sent to the *Süddeutsche Zeitung* (SZ) in February illustrate this point. According to Munich resident, Otto

²² BayHSA: MWi 21943, Auszug aus dem Protokoll des Ministerrats vom 13.10.53

²³ BayHSA: MWi 21943, München als Zentrum der deutschen Atomforschung, MWi, Dec. 19, 1953; StadtA Mü: ZS 11/11, München als Zentrum der deutschen Atomforschung, MWi Pressestelle, Dec. 19, 1953.

Leistner, a recent questionnaire proved that 70 percent of Munich's inhabitants opposed construction of the research facility. He reasoned that Munich was a cultural city and only the interests groups in the state bureaucracy and industry would dare disturb the city with an *Atommeiler*. Like most people of the time, Leistner was also concerned that the facility could be transformed into a bomb factory during war. Not everyone conflated the research reactor with bomb production, as Joe Vierra of Munich proves when he disputed this claim, on the grounds that the radioactive product was not of the same amount or kind produced in American bomb laboratories.²⁴ The *SZ* concurred that Heisenberg's Munich tour did little to persuade the public. In a December 30, 1953 random poll at Marienplatz, the heart of Munich, eleven out of twenty-five people still thought the *Atommeiler* would manufacture weapons. In the polling, only three correctly answered that the facility was for non-martial related fission research. Others surveyed gave a more nuanced answer: that the *Atommeiler* represented no more danger than any number of conventional factories, which were also bomb targets and emitted noxious chemicals just as hazardous.²⁵ At the same time, the ministries and Adenauer were worried that the *Atommeiler* was receiving too much attention from the press, considering Germany was still forbidden to construct atomic facilities. Adenauer appears to have been quite upset with the Bavarian and Baden governments for publicly announcing the competition for the research facility. Seidel, though, claimed that Heisenberg rather than the state governments was the leak, since he mentioned the possible locations on his tour, first in

²⁴ *SZ*, "Hier spricht der Leser," Feb. 10, 1954.

²⁵ *SZ*, "Friedliche Atom-Spalterei," H. Kramer, Dec. 31, 1953.

Hamburg in October, then again at the Technical University of Munich, in November 1953.²⁶

After the *Atommeiler* began to receive press coverage, numerous regional businesses interests expressed considerable skepticism towards the project. In general, these were eminently practical complaints, in which local enterprises sought to protect their own key interests. The most prominent of these industries was the Munich Brewery Association. On January 9, 1954, an executive secretary of Hackerbrau, C.M. Eisenberger, wrote on behalf of the Brewery Association to Hans Seidel expressing concern over the water quality of the Isar basin. He noted that the breweries were dependent upon the freshness of the groundwater because the “yeast culture is very sensitive and the smallest influence can cause degeneration” of beer quality. In the recent press, Eisenberger had read about oceanic radioactive waste dumping, and worried the scientists would continue this practice directly into the Isar.²⁷ Rupert Dorrer from Prien by Chiem Lake claimed later that he had helped articulate Eisenberger’s position. Dorrer informed Eisenberger that increasing energy demands resulting from rising consumption would lead to development of atomic energy—followed by disastrous air contamination. Worried about the future, he imagined a time (like in a science fiction novel) when people would check radiation levels before going out to walk, or when radiation caused extermination of all insects—leading to further extinction of flowers.²⁸ Director Heilmann of the Ministry of Economics assured Eisenberger that the groundwater would not be contaminated and that the government would only make a formal statement after

²⁶ BayHSA: MWi 21943, Heilmann to the Regierung von Oberbayern, 5901- AT – 15677, Feb. 20, 1954; BayHSA: MWi, 21943, Adenauer to Seidel, 9-27006-3224/ 53, Dec. 24, 1953; Seidel to Adenauer, Jan. 18, 1954.

²⁷ BayHSA: MWi 21943, C.M Eisenberger to Hans Seidel 003262, Jan. 9. 1954.

²⁸ IfZ-Archiv: NL 132 Baumgartner 124, Dr. Rupert Dorrer to Frau Kirschhausen, Dec. 19, 1956.

the location was resolved.²⁹ Heisenberg then publically concurred; however, this was not enough for the Brewery association, who then pressured Heisenberg for a written guarantee assuring that the water pumps would remain untainted and tourism would continue to thrive in Munich.³⁰ In February 1954, the government responded that it would be imprudent to make hasty negotiations before the competition was concluded.³¹

Even after the Brewery Association became aware that the smaller Munich Research Reactor (FRM) was destined for Northern Munich, its new chair, K. Messner, objected once again on May 5, 1955 because the hops fields lay approximately forty kilometers north of Munich in an area known as the Hügelland. Hops plants' deep root system grow up to six meters below the surface directly into the groundwater table. A study performed by the Alliance League for Endorsement of Canals and the Study Group Water Drainage proved that the groundwater under the hops fields derived "essentially from the Isar," and led Messner to believe that the fields were endangered. He argued further that hazardous chemicals released into the air or water would threaten the rye fields in the region.³² August Rucker, Bavarian Minister of Education, Culture, Science and Art, assured that the 'small' reactor could neither affect the groundwater of the hops fields, which lie above the valley lowlands, nor the rye, because the water table was too low.³³ In a separate letter, Munich City Council member, Helmut Fischer, agreed with Rucker's assessment and added that the research reactor would produce very little waste product, which could be stored on site, until the proper disposal facilities were

²⁹ BayHSA: MWI 21943, Director Heilmann to C.M. Eisenberger, 3262-M-122 b2, Feb. 20, 1954.

³⁰ BayHSA: MWi 21943, C.M. Eisenberger to Director Heilman, 020721, Feb. 28, 1954.

³¹ BayHSA: MWi 21943, Director Heilmann to C.M. Eisenberger, 3262-M-122 b2, Feb. 20, 1954.

³² BayHSA: StK 71670, K. Messner Chairman of the Verein Münchner Brauereinen to Otto Bezold, May 5, 1955; MK to Heisenberg, May 18, 1955.

³³ BayHSA: StK 14004, August Rucker to Heisenberg, May 18, 1955.

constructed.³⁴ If the Bavarian government was as confident as Rucker claimed, Messner wanted a packaged guarantee that the state would compensate in the case of direct or indirect atomic damage to the beer industry.³⁵ Certain that measures could be taken to protect the river and the brewing industry, Heisenberg advised Rucker to issue the pledge.³⁶ While Minister President Wilhelm Hoegner reiterated that the FRM represented no danger to the public or the breweries, the government decided on August 1 that it would provide no such guarantee. Instead, the FRM would be regulated by the inspection and construction requirements of the Bavarian Atomic Law, which allegedly would safely cover such eventualities.³⁷

Despite the Brewery Association's considerable clout in Munich, Heisenberg took the concerns of a relatively minor political player, Otto Perutz's Record Factory (*Trockenplattenfabrik*), much more earnestly. Specializing particularly in innovative photography and film production, Perutz felt his factory and materials were at an extreme risk of damage. Since alpha, beta, and gamma rays ruin film, any release of radiation, even well below the official tolerance dose, could have been devastating to the firm. As more than a precaution, Perutz paused operations for the entire factory during periods of high radiation following bomb experiments. At the same time, the photography industry required high amounts of water for the emulsion process as well as clean air for drying. If the water were contaminated, Perutz postulated, the tainted emulsion would remain undiscovered for weeks, and then present numerous difficulties. As examples, Perutz identified x-ray facilities in Germany that permanently closed following hydrogen bomb

³⁴ BayHSA: MK 71670, Fischer to the Verein Münchner Brauereinen e.V. 43393, May 26, 1955.

³⁵ BayHSA: StK 14004, K. Messner to Otto Bezold, July 2, 1955.

³⁶ BayHSA: StK 14004, Heisenberg to Rucker, June 4, 1955.

³⁷ BayHSA: StK 14004, Hoegner to the Verein Münchner Brauereinen e. V. Aug. 4, 1955.

tests. Radiation exposure in his factory would upset his market value for up to five years. He noted how the American press recently had uncovered examples of water source contamination near atomic facilities. Even if the *Atommeiler* did not directly irradiate the water, other industries would utilize the isotopes, and he was concerned about the lack of strict regulation.³⁸ He also was worried about the expansion of the facilities, not only in terms of scale, but also by way of supplementary isotope separation facilities.³⁹ Until those in charge answered his complaint convincingly, Perutz threatened to relocate his factory, even at the personal cost of fifty million DM,⁴⁰ and to publish his findings in the press.⁴¹

Recognizing the sensitive nature of photography, Bavarian ministers and Heisenberg took Perutz's claims much more seriously than those made by the breweries. In a ministerial discussion on May 25, 1955, the MPI agreed in principle to support the retrofitting of Perutz's firm with precautionary radiation shielding, in part to protect it against bomb experiments. Heisenberg dismissed the notion of water contamination, but was less certain about the possibility of problems with the wind because the amount of atmospheric discharge was still indiscernible. Heilmann, though, felt the larger threat came from radiation currently used in the chemical and medicinal industries, a problem that the forthcoming Atomic Law should redress.⁴² Heisenberg personally dealt with the Perutz firm shortly thereafter. However, because the Perutz factory resided twenty

³⁸ BayHSA: MWi 21943, Memorandum über die Gefährdung der photographischen Industrie durch radioaktive Stoffe, Otto Perutz, Trockenplattenfabrik München GmbH. 1954.

³⁹ BayHSA: MK 71670, Aktennotiz über Besprechung mit Herrn Ministerialdirektor Dr. Heilmann am 26.5.1955; BayHSA: StK 14004, Otto Perutz to Hoegner, April 25, 1955.

⁴¹ BayHSA: MK 71670, Aktennotiz über Besprechung mit Herrn Ministerialdirektor Dr. Heilmann am 26.5.1955.

⁴² BayHSA: MK 71670, Aktennotiz über Besprechung mit Herrn Ministerialdirektor Dr. Heilmann am 26.5.1955.

kilometers away from the proposed reactor site, and since the security measures had to be stringent enough to allow people to operate the research facility, Heisenberg assured Perutz that no radiation could possibly affect the factory. Still, he announced that a delegation would be developed to inspect reactor security. Heisenberg informed Perutz that no nuclear bombs would be built or tested on European soil, and that atomic law would soon restrict isotope application and distribution.⁴³

Although he appears to have been at first satisfied with Heisenberg's reassurance, Perutz resumed his crusade in February 1957, after construction on the *Atomei* was underway, arguing that the FRM was being illegally erected, because the Federal Atomic Law had not yet been enacted. Remembering that Heisenberg and the Bavarian government had assured him that the FRM would have to meet all security measures of an atomic law and atomic commission, he was livid that any research facility was being built without a rigorous approval (*Genehmigung*) process that included detailed inspection of all security measures. Furthermore, Perutz pointed out that until the government passed the atomic law, the Allies' atomic ban of October 23, 1954 still regulated the Federal Republic.⁴⁴ Once the Federal Republic finally passed the atomic law in 1957—an act that had been long delayed in the Landtag, but was rushed through at the last moment to ensure FRM criticality—his objections ceased.

It was not only business interests that questioned the logic of the reactor, but also conservative politicians, particularly those that were determined to defend the new position that Bavaria had assumed under the federalist-structured Basic Law. With the

⁴³ BayHSA: StK 14004, Heisenberg to Rucker, June 4, 1955.

⁴⁴ BayHSA: MK 67488, Otto Perutz to Hoegner, Feb. 14, 1957.

Federal Basic Law, the states had retained authority over nature preservation, landscape care, agriculture, industry, and water management—all of the essential features of state planning.⁴⁵ As a prominent federalist, Josef Baumgartner undertook perhaps the most vigorous campaign against the *Atommeiler*. He was the chairman of the Bavarian Party, a former Minister of Agriculture, and a professor of agriculture at Weihenstephan in Freising, the brewing and agricultural branch of the Technical University; Baumgartner began his personal crusade against the *Atommeiler* on Sunday, January 17, 1954, in front of a rally of the Bavarian Party League of Munich in a conference room at the Hofbräuhaus. To get a sense of where he stood politically, one need only view his previous record. First a member of the newly formed Christian Social Union, Baumgartner served alongside Social Democratic Minister President Wilhelm Hoegner as the Bavarian agricultural minister in 1945 under the American occupational government. The government's primary mission was to draft the Bavarian constitution. Baumgartner, who was selected due to his strong connections with the Bavarian Farmers League, was principally charged with rebuilding Bavarian agriculture, necessary to feed the influx of refugees.⁴⁶ When he did not retain this position, he left the inter-confessional CSU, which was attracting more Protestants from Northern Bavaria, and turned to the ultra-federalist and strongly Catholic, Bavarian Party in 1948. As a very popular man among conservatives, he was named the party chair almost immediately and his switch legitimized the Southern Bavaria mass exodus towards the BP.⁴⁷ Consider, for example, that in the Upper Bavarian region, city elections in April of 1948 resulted in the CSU

⁴⁵ Sandra Chaney, *Nature of the Miracle Years*, 53.

⁴⁶ D.R. Doronodo, *Bavaria and German Federalism* (New York: St. Martin's Press, 1992), 39.

⁴⁷ Mintzel, *Geschichte der CSU*, 100

tabulating only 38% of the electorate, after winning 60% in 1946. Most of these votes drifted to the BP.⁴⁸

It can be overstated, but the resentment towards the influx of refugees from Eastern Europe definitely contributed to this political deluge. In 1945, about 6.5 million resided in Bavaria, plus an additional 1.5 million foreigners. Between 1945 and 1948, 1.5 million more refugees flooded into Bavaria, so that in 1948, 9.3 million people lived in Bavaria—2.5 to 3 million immigrants. Most had settled in small towns in Southern Bavaria, with the greatest share migrating to Lower Bavaria. When the Bizone government in Frankfurt failed to provide for the population in 1947, following a drought, the resulting “potato and meat war” between the Bavarian and Bizone governments led the disgruntled Bavarians to blame both political centralization and “over-foreignization” (*überfremden*). As the agricultural minister during the calamity, Baumgartner seems to have been affected enormously by the chaos, and therefore wished to further strengthen Bavaria’s government against any centralized authority.⁴⁹ During the affair, the Bizone inspectors sent authorities to Bavarian farms to ensure that potatoes were delivered on schedule, and punished any hoarders. This circumvention of Baumgartner’s authority greatly frustrated him, and his subsequent defense of the farmers won him tremendous support with the Bavarian Farmers League.⁵⁰ He was further aggravated by allied unrestricted timber cutting, as the Four Powers felled trees mercilessly in order repay reparations, reconstruct buildings, and to diminish German military might. In a meeting of the state governments in Munich in 1947, he blamed the

⁴⁸ Mintzel, *Geschichte der CSU*, 104.

⁴⁹ Peter Kock, *Bayerns Weg in die Bundesrepublik* (Stuttgart: Deutsche Verlag-Anstalt, 1983), 112-113.

⁵⁰ Dornondo, *Bavaria and German Federalism* 72.

allies for the “slaughter of the German forests,” and declared it a violation of international law.⁵¹

Baumgartner remained out of the limelight for the next few years, but his 1953 speech *First Hand Policy* emphasized that socialization, collectivization, uniformity, national planning, and centralization were the causes of the two World Wars. Accordingly, Bavaria needed to chart a different course; one that reemphasized family, Christianity, *Heimat*, personal freedom, and especially the Bavarian culture and state. Federalism, he argued, was the bulwark against Bolshevism.⁵²

At the Hofbräuhaus, Baumgartner criticized the Bavarian government, prodded the Bavarian Party representatives Ernst and Eisenmann to inquire into the *Atommeiler*, and pleaded for the government to place the *Atommeiler* elsewhere, like Berlin or Bonn. Baumgartner thought the *Atommeiler* would lead to unrest amongst the population and would be a Cold War bombing target, with worse results than Hiroshima.⁵³ At first, the print media, and especially the tabloids, treated the speech with a hint of skepticism and condescension, often comparing Bavarian fears of the *Atommeiler* with those held towards nineteenth century railroad construction. The *Freisinger Tagsblatt* characterized it as an attempt by an old man to gain popularity, in an effort to become the face of Federalism, by raising the specter of the “atomic devil” to engender “atomic psychoses.” It arrived at this conclusion because Baumgartner followed incendiary speeches by BP representative Ludwig Lallinger, in which he demanded the return of the Palatinate to

⁵¹ Quoted in Sandra Chaney, *Nature of the Miracle Years*, 67.

⁵² IfZ-Archiv: NL 132 Baumgartner 119. *Politik aus erster Hand*, Baumgartner on Bayerischer Rundfunk, April 15, 1953.

⁵³ IfZ-Archiv: NL 132 Baumgartner 124, *MM*, “Baumgartner: Keine Hilfestellung fuer CSU,” Jan. 18, 1954; *Bayerischer Tagblatt*, “Atommeiler lieber nach Bonn: Baumgartner sprach vor der weidervereinten Bayernpartei,” Jan. 18 1954.

Bavaria, and Mr. Kube, who defamed East German refugees.⁵⁴ Perhaps the most amusing example of the media's attitude came from an editorial comic in the *Abendpost*, in which several Bavarians, dressed in the *Tracht* (the Bavarian costume), drank beers around a wooden table at the Hofbräuhaus and claimed (in the Bavarian dialect) that they welcomed radish campaigns (*Radi-Aktiv*), but not radiation (*radioaktiv*). In the caption below, Baumgartner expressed his desire to move the *Atommeiler* to Berlin and to have a Landtag debate on radioactive wastes.⁵⁵ The lack of respect in these editorials is quite curious, given the level of popularity he enjoyed prior to 1949, and his contributions towards the framing of the constitution. It almost appears as if he had been forgotten in his brief time outside of the ministry.

Baumgartner did not appreciate the editors' mocking tone, so he rebuked them. After the *Freisinger Tagsblatt* misquoted Baumgartner, he informed the newspaper that he was speaking in the name of the "people's will," citing as evidence the extent of the response he received at the beer hall.⁵⁶ Furthermore, he assured that he was not being politically expedient, but rather, was making an informed debate as a university professor. To ensure that he was correctly quoted and taken seriously, Baumgartner then forwarded a copy of his remarkable "Twelve Questions for the Bavarian Government"—a document that has truly been overlooked by historians. In it he asked:

1. "Where do the negotiations stand in regards to the *Atommeiler* in Munich?"

⁵⁴ IfZ-Archiv: NL 132 Baumgartner 124, *Freisinger Tablett*, "Bayuwarisch-Atomarisches," Jan. 18, 1954; and Johannes Mayer of the *Freisinger Talett* to Baumgartner, Jan. 26, 1954.

⁵⁵ IfZ-Archiv: NL 132 Baumgartner 124, *Abendpost*, "Radi-Aktiv san mer gern, aber mit radioaktiv und Atom da wird's nix," Jan. 18, 1954; The *Münchner Merkur* declared that Baumgartner should speak with Heisenberg directly, in order to get his facts straight. IfZ-Archiv: NL 132 Baumgartner 124, *MM*, "Baumgartner: Keine Hilfestellung fuer CSU," Jan. 18, 1954.

⁵⁶ IfZ-Archiv: NL 132 Baumgartner 124, Baumgartner to the *Freisinger Tagsblatt*, Jan. 19, 1954.

2. Is there such a large plot available in Munich that will prevent the research from endangering the people?
3. Why have not more German cities applied for the *Atommeiler*?
4. How does one intend to dispose of the radioactive wastes that come from the atomic burner (*Atombrenner*)?
5. Have precautions been taken, so that the groundwater is not contaminated by the disposal of the radioactive waste products?
6. What has been done to prevent the radioactive gases from contaminating the air?
7. Is it intended to take precautions, so that tools can be used and disposed of effectively, without an existing danger to people?
8. Has anyone examined whether it would be purposeful to purchase radioactive isotopes—used in medicine—from abroad?
9. Is Munich, by constructing an atomic burner for scientific purposes, turning the city into a desirable target during a war?
10. Does Germany have the necessary Uranium and heavy water at its disposal?
11. What does the Bavarian economy expect from a Munich uranium burner?
12. Have precautions been met, so that with an expansion (*Erweiterung*) of the uranium burner the danger will be minimized?⁵⁷

The *Freisinger Tablett* then reconsidered, published his report verbatim on January 21, and apologized in a letter.⁵⁸ His memorandum to the *Dachauer Anzeiger* contained even more compelling reasoning. First, because the electricity generated would not go directly to the city grid, and the students hypothetically could travel farther if necessary from the Technical University via the rail network, the planners could conceivably place the reactor a greater distance from the city. Second, a traffic accident during the transportation of wastes would leak radiation “at the gates of Munich.” In this eventuality, he argued, the people and the culture of Munich, which included the

⁵⁷ Ifz-Archiv: NL 132 Baumgartner 124, “Fragen an die Bayer. Staatsregierung wegen des Atommeilers,” Baumgartner, Jan. 19, 1954. Stephan Deutinger is the only historian to previously discuss this source: Deutinger, “Eine Lebensfrage für die bayerische Industrie,” 57.

⁵⁸ Ifz-Archiv: NL 132 Baumgartner 124, “Fragen an die Bayer. Staatsregierung wegen des Atommeilers,” *Freisinger Tagblatt*, Jan. 21, 1954, and Johannes Mayer of the *Freisinger Talett* to Baumgartner, Jan. 26, 1954; In an earlier draft of the twelve points, Baumgartner reasoned that it was cheaper to import medical isotopes than to produce them at home, wondered if solar energy could be instead developed, and anticipated that a reactor of a magnitude of one hundred times greater would be constructed soon in Munich, increasing the danger. IfZ-Archive: NL 132 Baumgartner 124, Entwurf der 12 Fragen an die Bayer. Staatsregierung wegen des Atommeilers, Baumgartner, Jan. 15, 1954.

Pinakothek (the famous Museum of Renaissance and Early Modern art) and the Bavarian State Library, would be lost. Third, the *Atommeiler* would be a target in war, resulting in conventional bombs becoming atomic. Fourth, he speculated that while the *Atommeiler* seemed like a gift at the current time, in the future it could turn into a disaster for the capital city, the tourist attractions, and the culture. Typical of conservation thinking at the time, he suggested that ‘progress’ sometimes had hidden or indirect consequences. As an example he pointed to the Inns water control project (*Innstaustufen*), in which the bed of the river raised to a point that barge transport was no longer tenable and turned the nearby agricultural land into bog. To resolve his complaints, Baumgartner finally requested open democratic hearings in the Landtag and the City Council.⁵⁹

If pending doom was not persuasive enough, Baumgartner also pointed to the problems of urban sprawl. His *Dachauer Anzeiger* editorial on January 26 argued that an oft-discussed location, Zeng Moor near Ismaning, was the planned site for the Munich city trash dump. He reasoned that the city refuse problem was of higher priority than atomic research. While he does not specifically frame his disapproval in these terms, it is reasonable to assume that his logic was driven by the realization that the facility would produce further wastes.⁶⁰ As a historian looking at Baumgartner’s letters, one must be impressed with the breadth and width of his criticism. While historians have often dismissed the Bavarian distaste for the *Atommeiler* as simple parochialism, technophobia, or NIMBY complaints, Baumgartner had already advanced nearly all the analyses put forward by the anti-nuclear movement in the late seventies in 1954, not as a leftist, but

⁵⁹ IzF-Archiv: NL 132 Baumgartner 124, Baumgartner, Redaktion des *Dachauer Anzeiger*, Jan 20, 1954.

⁶⁰ IzF-Archiv: NL 132 Baumgartner 124, *Dachauer Anzeiger*, “Münchener Brief: Atom-meiler oder Muell-Abladeplatz?” Jan. 26, 1954.

from the position of an extremely conservative federalist. In addition, while he maintained that he supported atomic research in principle, his poignant, refined, and precise criticism were steering him serendipitously towards a broader, more comprehensive perception of nuclear power.

In response to the media attack, Baumgartner received notice from a friend, Herr Schmidt, stating that he and physics professor Dr. Kuchbauer would attend a meeting of the Bavarian Health Council, to lobby on Baumgartner's behalf. Schmidt was concerned particularly with the affects that the *Föhn*, a South Bavarian weather pattern, would have on radioactive gases.⁶¹ The *Föhn* is technically defined as a compressed warm leeward wind descending rapidly from the Bavarian Alps on the Bavarian Plateau, in which precipitation is released on the Southern side and an unnaturally warm and dry air mass on the (Bavarian) Northern side. The process has the anomalous affect of regulating Southern Bavaria weather, producing milder winter temperatures and less snow than its Northern latitude and proximity to the Alps would otherwise suggest. The warm air mass may also quickly melt snow, resulting in high water flow. For tourists and Alpine enthusiasts, it has the added benefit of providing unique, long-distance visibility. Many Bavarians, especially the elderly, believe that the resulting pressure change has the negative consequence of aggravating ailments and causing headaches, but this condition is not scientifically established. Some climatologists also argue that the *Föhn's* effect is exaggerated, because its infrequency, only happening a few times per year—often in the spring.⁶² Schmidt's impression was that the *Föhn* caused strong shifting of the winds

⁶¹ IzF-Archiv: NL 132 Baumgartner 124, Schmidt to Baumgartner, Jan. 22, 1954.

⁶² For information on the *Föhn* see either the *Encyclopedia Britannica Online*, <http://www.britannica.com/eb/article-57996/Germany#296798.hook>, accessed April 27, 2008; or the

and was a gas-forming body under the nomenclature of “Aran”. The condition was so random that, Schmidt exclaimed, “Heisenberg himself cannot account for it.”⁶³

Two additional documents attached to Schmidt’s letter, likely from Dr. Kuchbauer, provided Baumgartner with considerable knowledge of atomic energy—much more than has been given credit to the ‘backwards’ Bavarians. Highlighted in the papers were: that fission could release radiation into the atmosphere and water; that waste disposal was unresolved and previous policy had been to dispose of it into the ocean; that fission irradiated the used apparatuses; that an isotope separator was necessary to divide plutonium, uranium, wastes, and medical radiation and this process required irradiating water; that cooling water was necessary and it must be stored in a moat until decontaminated; that only in the undetermined future would wastes and apparatus disposal be possible.⁶⁴

Other Bavarians and admirers also wrote Baumgartner showing support. These letters highlight the way that the population mixed global Cold War anxieties and memories of total war with traditional local concerns about climate and Bavarian culture. Amongst a collection of letters, an anonymous author argued that Munich would definitely be a military target; the smoking gun was the bomb shelters currently under construction in downtown Munich. He too remembered when the Innstaufen was constructed, and how there were specialists opposing the project, who were conveniently

website for the *Metereorologisches Institut der Universität München*, <http://www.meteo.physik.uni-muenchen.de/>, accessed April 27, 2008.

⁶³ IzF-Archiv: NL 132 Baumgartner 124, Schmidt to Baumgartner, Jan. 22, 1954.

⁶⁴ IzF-Archiv: NL 132 Baumgartner 124, Schmidt to Baumgartner, Jan. 22, 1954; In a Feb. 3 speech on the Bavarian radio, Baumgartner used this material’ which he said derived from an ‘unnamed’ scientist, to express worries about the state of waste disposal and the unknown affects of the Föhn on the radioactive gases. BayHSA: MWi, 21943, Rundfunksage am 3.2.1954, Pressestelle BSM. W. u. Verk. Feb. 3, 1954.

“eliminated” by those in power. Here the anonymous letter was recalling the unscrupulous policies of the Nazi era. The author complained that the condescending media comparisons made between fission and the railroad were preposterous. Finally, he was especially concerned with local weather patterns, namely the *Föhn*.⁶⁵ With the war firmly in his memory, H. Schröter of Gößweinstein reminded in a letter that during the total wars, the state easily mobilized all industries towards the war effort. He postulated that the *Atommeiler* was no different. Schröter contrasted the way the government treated the numerous concerns about noise pollution from the downtown airport in Riem-Munich, which the government took seriously, with those of the *Atommeiler*. Given this fact, he resented any notion that the people of Munich were “dumb” to question the *Atommeiler*. After all, he reasoned that the Northern cities did not seem to be applying for the project.⁶⁶ Another BP friend declared the *Merkur* to be a party-stooge for the CSU that only printed Strauss’ pro-modernization line. The author threatened to present this information before a folk festival of 30,000 *Trächtler* (Bavarians in costume) at Aufschwung, to show them Strauss’s pro-Bonn leanings and lack of dedication to federalism.⁶⁷

⁶⁵ IfZ-Archive: NL 132 Baumgartner 124, unknown author to Baumgartner, exact date unknown but around Jan. 20, 1954.

⁶⁶ IfZ-Archiv: NL 132 Baumgartner 124, *MM*, “Briefe an die Redaktion: Wie steht es um den Atommeiler?” or “Man soll den Münchener nicht für so dumm halten,” Feb. 6/7, 1954.

⁶⁷ IfZ-Archiv: NL 132 Baumgartner 124, Unknown author to Baumgartner, Jan. 20, 1954; Another letter to the *SZ* complained that the world would not believe that the Germans—for obvious reasons—would refrain from enlarging the research facility into a bomb factory. He also wondered why there was not more information on the project, including comparative information from other nations on the size, scale, and location of atomic facilities in cities like Paris. Letter to the *Süddeutschen Zeitung*, Feb. 19, 1954; Impressed with Baumgartner’s call to send the *Atommeiler* to Bonn, Roman Reger expressed his, his wife’s, and three of his friend’s support for Baumgartner. Roman Reger to Baumgartner, Feb. 1, 1954; In his reply to Reger, Baumgartner stated that the CSU/ SPD hold on the government would be difficult to overcome. Baumgartner to Roman Reger, Feb. 24, 1954; Another anonymous author argued that the radioactive gases released from the steam chimneys would accomplish the death that the Nazis were not entirely able to do. Unknown to Baumgartner, March 10, 1954; See also: Markus Rührmeyer and Josef

Of those who corresponded with Baumgartner, Heisenberg, and the government officials, engineer Martin Rost was the most prolific. In 1953, he wrote a well-informed manuscript *Earth and Men in Circulation* about the purposes of atomic research. In his series of letters, he explained to the government that the atomic question was not about educating just the Bavarians; but rather, the international community of scientists needed to coordinate their efforts to speak with non-professionals, using lay discourse, about the advantages and disadvantages of atomic energy. He was personally giving a series of lectures in which he called for a renunciation of nuclear weapons, an international institution to regulate atomic energy use, and the international cooperation of scientists. Only then, once the entire world was better informed, could the Bavarian government make decisions of precise facility placement. It should be noted, that Rost made this proclamation months before Eisenhower's international Atoms For Peace conferences, dedicated to precisely this aim, which were held in Geneva in August 1955.⁶⁸

Officials in charge of conservation were divided on the appropriate place of nuclear power in the ecology. As the Natural Preservation Official of the Government Construction Bureau on the Danube River, Dr. A. Nenning argued that Bavaria should continue to employ hydroelectric power, instead of atomic energy, because it would be the least destructive towards what he called the "culture land" (*Kulturland*), the Bavarian forests. He had been preserving forests since 1935, the year of the Reich Forest

Freis to Baumgartner, both on March 7, 1954; Franz Merkl worried that if the reactor were to burst open (Sprengen), an area only twenty kilometers from Munich would be contaminated, worse than if a bomb had been dropped. Franz Merkl to Baumgartner, March 22, 1954; Luise Schwalme, on behalf of a retired women's group from Cöburg, said it was irresponsible for a nation that had renounced atomic cannons to build an *Atommeiler* near Erding. Luise Schwalme to Baumgartner, April 24, 1954.

⁶⁸ BayHSA: MWi 21934, Martin Rost to the BWi, 035018, April 23, 1954; 037575, April 28, 1954; 040350, May 5, 1954; 058982, July 7, 1954; DM 111 NL Maier-Leibnitz 002, Martin Rost to Maier-Leibnitz Sept. 4, 1956 and Sept. 18, 1956.

Law, and had recently complained that 750,000 trees were felled during the 1952 Christmas. In replacement of the felled timber, he organized youth to reforest 500,000 trees. Unlike many others, Nenning compared the atomic facility with the autobahn, in that it presented a spatial danger to the forests. While Baumgartner agreed, he believed his own position much more sophisticated than simply nature preservation.⁶⁹ Nenning's opinion was considerably different from noted conservationist Otto Kraus, who in 1965 supported atomic energy in an attempt to stop dam construction on the Upper Lech River. In his mind, as other conservationists had previously stated when hindering a dam construction project on the Partnachklamm in 1949, atomic energy was less intrusive to the scenic rivers and would soon render hydroelectric power obsolete. In a bizarre turn of events, the Bavarian state electricity utility (BAWAG) was initially opposed to nuclear power, viewing it as competition to hydroelectric power, citing in 1955 that nuclear power was much too expensive to operate.⁷⁰

In a rather different approach, medical student H. Fichter offered advice on the effects of radiation. At the time, some politicians and the press discussed the radiation exposure risks, but it is difficult to gauge the extent that common people were aware of it. Accordingly, Fichter described the specific bodily effects of radiation: leukemia, birth defects, heart and lung cancer, among others. As any student of radiation would have known, high dosages were quite deadly. What Fichter uniquely worried about, though, was long-term exposure. Because the first radiation tests were a mere ten years prior in the United States, the effects of long-term exposure—of more than thirty years—were

⁶⁹ IfZ-Archiv: NL 132, Baumgartner 124, Dr. A Denning to Baumgartner, Feb. 3, 1954; Baumgartner to Denning, Feb. 25, 1954.

⁷⁰ Raymond Dominick, *The Environmental Movement in Germany*, 160-162.

virtually unknown, and would take another twenty years to appreciate. Thus, he argued, the current potential benefits of isotopes did not necessarily outweigh the risks.

Baumgartner responded that he was not opposed to science or the project, only the location.⁷¹

Aside from Baumgartner's campaign, the small Bavarian communist party (KPD) also opposed the construction of the facility.⁷² On January 18, the KPD applied to the Munich City Council to stop negotiations for the *Atommeiler*, on the basis that it represented an "immense danger" to a million people, because it would undoubtedly be used for military purposes. The KPD, led by city council member Blieniger, was convinced that the era of militarism had already taught the German people this lesson. He further argued that Germany should only consider implementing nuclear power after it became a neutral nation like Switzerland. A historian would note that this complaint was in 1954, before the Atoms for Peace program established a cooperative effort with the Soviets and East Germany. Thus, the KPD was offering criticism within the context of a Cold War system based on two mutually hostile blocks. Afterward, Bergstermann (SPD) compared the angst towards fission with the first railroads, which many in the nineteenth century considered 'wrongly' to be unhealthy.⁷³

⁷¹ IfZ-Archiv: NL 132 Baumgartner, 124, H Fichter to Baumgartner, Feb. 22, 1954; Baumgartner to Fichter, March 1, 1954.

⁷² IfZ-Archiv: NL 132 Baumgartner 124, *MM*, "Fragestunde: Hunde-Schwarzschlachtung und Atommeiler," Jan. 20, 1954.

⁷³ IfZ-Archiv: NL 132 Baumgartner 124, Stadtrat der Landeshauptstadt München. Wiederaufbaureferat 12/1, Feb. 16, 1954; *MM*. "Stadtrat hält Liliput-Atommeiler für ungefährlich," Feb. 17, 1954; *SZ*, "Atom-Meiler vor den Toren" Feb. 17, 1954; *SZ*, "Wie bei der ersten Eisenbahn....," Feb. 17, 1954; The next day, another *SZ* reporter, initialed J.L., ridiculed Bavarian opinions of the railroad. He contended that at the time of railroad construction, many Bavarians were worried that the train smoke would contaminate the air, or the fast pace of the rail would upset the nerves of the passengers. *SZ*. "Meiler-Steine auf Münchens Weg," Feb. 18, 1954.

At the magisterial level, though, it was the Reconstruction (*Weideraufbau*) Official of the Munich City Council—perhaps a title telling of what atomic energy embodied in the early fifties—Helmut Fischer (SPD) that represented Munich in discussions with the Bavarian government. He responded to the KPD accusations by criticizing the sensationalist media, which made every atomic facility into a bomb factory. The small ‘Lilliput-style’ (named after the British original) 1200 kilowatt to 1500 kilowatt reactor could not produce weapons-grade material, because the Americans required an immense 600,000 KW for this procedure, in addition to profuse amounts of water and space that were not available in Munich. He said that the purpose of this institute would be to produce scientific and medicinal isotopes, which were expensive to purchase abroad and fluctuated in the market. Even though Munich was constructing bombing shelters, the *Atommeiler* would be no more of a target than a conventional factory like Siemens, and it would not be built near any important resource facilities (water, for instance). The probability of explosion was remote, but placing it away from inhabitants would secure it from harming anything in the area. Once again, though, by using this sort of logic Fischer was directly contradicting the idea that the reactor was inherently secure, unintentionally heightening the skepticism. He also reinforced the belief that nearby water sources were endangered.⁷⁴

At the same time, Fischer assured that the *Atommeiler* would produce very little waste, which could be stored safely for two years. He admitted that there would be some gases emitted, but through a process perfected by the Americans, they would be released

⁷⁴ IfZ-Archiv: NL 132 Baumgartner 124, Stadtrat der Landeshauptstadt Muenchen. Wiederaufbaureferat 12/1, Feb. 16, 1954; *MM*. “Stadtrat hält Liliput-Atommeiler für ungefährlich,” Feb. 17, 1954; *SZ*, “Atom-Meiler vor den Toren” Feb. 17, 1954. *SZ*. “Meiler-Steine auf Münchens Weg,” Feb. 18, 1954.

through chimneys fifty meters high into the atmosphere and diluted. At the same time, the facility would lay so that the prevailing winds would blow away from Munich towards the East. In a 1956 report, the Meteorological Institute at the Technical University of Munich declared a location north of Munich particularly favorable, because only 7.1% of the time did it turn towards the city center. Exasperated, Fischer concluded that the current location would not affect the breweries, because even though the reactor required cooling water it remained separated from the irradiated water, allowing him to guarantee the freshness of the brewing water. The facility would be no different than those in Paris, Oxford, Oslo and elsewhere.⁷⁵

Not persuaded by Freund's speech, Bleininger reconfirmed his belief that atomic research would result in militarism. Ludwig Lallinger, speaking on behalf of the Bavarian Party, said that he would not give a "blank check" (*Blanko-Vollmacht*) to the government without further consultation of the public and a specific submitted location. Fischer's speech resulted in the majority of the SPD and CSU in the City Council electing to support the *Atommeiler*, voting thirty-to-eleven in favor. Members of the BP, KPD, and three members of the SPD voted against the *Atommeiler*.⁷⁶

Baumgartner felt Fischer's response was inadequate and put forward his most innovative logic yet. First off, he pointed out that Erding was now upset, because Erding laid in an easterly wind direction from the proposed location. Baumgartner suggested

⁷⁵ IfZ-Archiv: NL 132 Baumgartner 124, Stadtrat der Landeshauptstadt Muenchen. Wiederaufbaureferat 12/1, Feb. 16, 1954; *MM*. "Stadtrat hält Liliput-Atommeiler für ungefährlich," Feb. 17, 1954; *SZ*, "Atom-Meiler vor den Toren" Feb. 17, 1954. *SZ*. "Meiler-Steine auf Münchens Weg," Feb. 18, 1954. For the 1956 meteorological report see: DM NL 80 Gerlach 023, Meteorologisches Institut der Universität München to die oberste Baubehörde im MINN, June 13, 1956. *Münchner Stadtanzeiger*, "Für und gegen den Atommeiler," Feb. 19, 1954.

⁷⁶ IfZ-Archiv: NL 132 Baumgartner 124, Stadtrat der Landeshauptstadt Muenchen. Wiederaufbaureferat 12/1, Feb. 16, 1954.

that Fischer speak with “every little village” to confirm that they too accepted the site. The fact that the wind changed directions, sometimes blowing directly at Munich, should also be taken into consideration. Not only this, but Fischer also did not solve the problem of waste disposal, nor did he discuss where the irradiated water from the separation process would be contained for its required year of dilution. Bavaria also did not have a policy for irradiated apparatus disposal. Besides, Baumgartner believed that the Americans, who were already ten years ahead, would soon develop nuclear technology rendering the *Atommeiler* obsolete. They and the Soviets benefited from large, barren landscapes a hundred miles from inhabitants. The only place suitable in Germany would be on a sparsely inhabited stretch of the North Sea Coast.⁷⁷ Considering Baumgartner’s logic with regards to Erding, his reasoning shifted away from a traditional NIMBY complaint, towards a more comprehensive interpretation more akin to the *nicht anderswo* (and nowhere else) appeals associated with the seventies. He did maintain that he was not theoretically against power plants on the North Sea Coast or on another remote location, but if one followed his argument to its general conclusion—by really asking every village for permission—then the criteria implicitly would make it improbable that any location in Germany would be acceptable. In this sense, Baumgartner, as a true Federalist, was ironically capable within his own logic of protecting every little locale against the mechanizations of the state—something not achievable by other political positions during the fifties. Perhaps in this regard Baumgartner had more similarities with the modern ecological movement, which famously stressed that ‘small is beautiful,’ than Wilhelm Hoegner, who despite his

⁷⁷ IfZ-Archiv: NL 132 Baumgartner 124, Baumgartner to Helmut Fischer, Feb. 22, 1954; SZ, “Baumgartner und Atomeiler, March 16, 1954; *Frankenpost*, “Münchner fürchten den Atommeiler,” March 20, 1954.

atomic fervor in the fifties did defend the Ebersberg Forest from a particle accelerator in 1965.⁷⁸

In yet further forward thinking, Baumgartner pointed out that the grand total expense would not only cost the 25 million DM to build the reactor, but that there was an unmentioned hidden cost of 15 to 20 million DM for additional buildings, including an isotope separator, a storage facility, and disposal units. He suggested that the actual cost of 50 million DM should be weighed against the benefits of medicinal isotopes and the minimal immediate economic incentives. Instead, he felt the 50 million DM could be put towards the housing problem (for the refugees) or other useful programs. Finally, because Baumgartner only opposed the location, not atomic science, he appealed for an independent Bavarian Atomic Commission, comprised of scientists, experts, and representatives of the people, to consider future atomic affairs.⁷⁹ It was not until the mid-nineteen-seventies, when officials began planning a billion DM reprocessing facility, that anti-nuclear activists would again succinctly articulate the discrepancy between announced and actual costs of nuclear power.

Landtag representative and Munich City Council member Ludwig Lallinger was still not convinced in his February 19 speech before the city council. He was determined that the exact location be announced and discussed in public, since it had not yet been released. That day, a northern newspaper leaked the rumor that the location was a small Northeastern farming town on the right bank the Isar, Ismaning—a disclosure that made Adenauer irate. At the same time, Fischer's assuages were not adequate, according to

⁷⁸ See Chapter 3 of this work

⁷⁹ IfZ-Archiv: NL 132 Baumgartner 124, Baumgartner to Helmut Fischer, Feb. 22, 1954; SZ, "Baumgartner und Atomeiler, March 16, 1954; *Frankenpost*, "Münchner fürchten den Atommeiler," March 20, 1954.

Lallinger, because the government had also assured that the 1922 gun powder factory in Rosenheim would not be a problem when it was constructed, and thereafter it continually polluted the city. During the war, the government transformed the factory to war production, all the while proclaiming it was in the name of scientific progress. Lallinger was not against the project out-of-hand, but would vote only if the location was amenable. Tellingly of public opinion, however, he was certain that the ‘people’ of Bavaria were much more hesitant than he.⁸⁰

Fischer tried to respond in April to this new list of grievances. He reiterated that this was not a bomb facility, and there was no danger to Erding. Fischer argued that not all people in Erding were against the project, because the Erding based Bartolith-Werke offered industrial and housing space for the *Atommeiler*.⁸¹ He also addressed the waste problem by arguing that the dissolution of the uranium used little water. At the same time, the amount of radioactive gases emitted would be comparable to the constant radiation level at a high altitude city, like Garmisch. He also peculiarly asserted that if any chemicals were dumped into the water, they would be sealed in cemented barrels. In typical confident fashion common of West German politicians of the day, he proclaimed it incorrect to declare that Germany could not recapture its pre-War prestige in the field of physics. According to Fischer, scientists in Stockholm believed that Germany would once again have the most prominent atomic physicists. Fischer also asserted that no democratic Bavarian atomic commission comprised of laymen was necessary, because

⁸⁰ IfZ-Archiv: NL 132 Baumgartner 124, unknown newspaper clipping, “Das Geheimnis um den Atommeiler” Feb. 19, 1954; “Münchner Stadtrat für Atommeiler,” Ludwig Lallinger to the City Council, Feb. 19, 1954.

⁸¹ BayHSA: MWi 21943, R. Seidl of Barolith-Werke to Hans Seidel, 127681, Dec. 21, 1953.

the scientists could handle such matters. He concluded that if Bavaria did not accept the project, it would remain in “backwardness” (*Rückständigkeit*).⁸²

Most media outlets also held the view that the “bajuwarische Angst” (Bavarian anxiety), as Werner Runge of the *Münchener Merkur* put it, had unnecessarily frightened the international community and the Bonn government away from Munich. To make this point, he emphasized how the so-called “white-blue” mentality of technophobia undermined Heisenberg’s and the Bavarian government’s efforts to bring modernization to Munich. In his mind, the only way to overcome this trend towards backwardness would be to institute a Bavarian atomic commission, which would have the primary directive of informing the public’s atomic consciousness through the press, radio, and television. He did speculate, however, that a Bavarian commission might also be backward-looking and undercut efforts to modernize Bavaria.⁸³ From the records, it appears that the ‘atomic euphoria’ of 1955, which ensued following the August Atoms for Peace conference, was largely a product of journalists siding with the scientists and politicians in a large publicity campaign. Much of the conservative public, who viewed the new technology with skepticism and hostility, did not share this enthusiasm.

The doubts expressed towards the *Atommeiler* had been preemptive and speculative in nature—that is to say, numerous business interest groups, conservationists, federalists, and ordinary Bavarians held skepticism even before the project became a reality. This meant that questions posed were theoretical and abstract, yet practical. Grievances were based in socially constructed ideas of federalism and landscape, but as

⁸² IfZ-Archiv: NL 132 Baumgartner 124, *Münchener Stadtanzeiger*, “Atommeiler keine Gefahr,” April 2, 1954; *Passauer Neue Presse*, “Bedroht der Atommeiler die Sicherheit der Münchner,” May 25, 1954.

⁸³ *MM*, “Zwei Meiler,” Werner Runge, Aug. 26, 1955; See also: *MM*, “Tagebüch,” (date unknown), 1955.

David Blackbourn might reason, they were steeped in concrete and actual issues relating to radioactive emissions.⁸⁴ In general, these complaints had been sensible responses to a new disruptive technology during a period of high anxiety—the Cold War. While the doubts began as a local response, they had been formulated in a way that was regionally comprehensive, and applicable on wider (near universal) scale. However, once Heisenberg and Adenauer announced that the *Atommeiler* would be constructed in Karlsruhe, but Munich would receive a smaller research reactor nonetheless, the debate drifted towards substantial and bureaucratic disputes. Now, the government and the many interest groups had to discuss actual placement of an atomic reactor. This meant, above all, that the first nuclear dispute in German history was between an assortment of competing interest groups over a specific piece of landscape. This required, for the first time, intricate nuclear landscape planning.

1.2 The Munich Research Reactor and the Isar Meadows near Garching

With the decision secured on the research reactor, officials set out to find a suitable location. This process turned out to be much more difficult than imagined. Planners continued to consider a small region northeast of the city on the Isar River to be the most favorable possibility. However, this area was also valued by city planners, conservation officials, farmers, and other interests, and all of them vied for space in the limited landscape. To make matters more complicated, the next couple of years witnessed the high-point of nervousness directed towards the alleged radioactive and

⁸⁴ David Blackbourn argued that while landscape is culturally constructed, it is also based in real, existing geography, so that historians should find some sort of balance. David Blackbourn, *The Conquest of Nature: Water Landscape and the Making of Modern Germany* (New York: W. W. Norton, 2006), 16.

climatic effects of the hydrogen bomb—fears that were directed principally towards the reactor.

Once the Bonn government announced that Karlsruhe would receive the *Atommeiler*, but Heisenberg would still transfer the MPI along with the smaller research reactor to Munich, many felt that public anxiety would abate. Professor Walther Gerlach, specialist on radiation physics at the Technical University, was of this opinion, when he declared the smaller reactor theoretically safe to place in the middle of the city. In comparison to the *Atommeiler*, which processed many tons of uranium, the research reactor only utilized a few kilograms. Heisenberg's choice to head the research station, nuclear physics Professor Heinz Maier-Leibnitz, was of a similar opinion, because swimming-pool reactors had already been placed on the campus of Pennsylvania State College and in Stockholm. In fact, he felt the Germans were more cautious than the Americans or British, because the reactor would reside outside of the city, and the measures to control groundwater radiation were stricter—particularly the designed thickness of the cement walls.⁸⁵ He declared this the first phase in the “White-Blue” atomic age; that is harnessing the power of the atom in Bavaria.⁸⁶ At the same time, Economic Secretary Willi Guthmuths scoffed at the preposterous notion of placing nuclear decision-making in the hands of citizens' representatives, whom he imagined would have similar bizarre reaction to the reintroduction of smoking rations (*Raucherkarte*).⁸⁷ Heisenberg had already decided on a location north of the English Garden, which he felt would end the controversy, especially since this reactor was

⁸⁵ S.tadtA Mü, ZA 40 Atom, Atomreaktor Garching 55, *Freisinger Tagblatt*, “Im Ausland Reaktoren mitten in Städten,” June 6, 1957.

⁸⁶ *MM*, “Das Weiß-blaue Atomzeitalter steht vor der Tür,” Oct. 1/2, 1955.

⁸⁷ DM NL 111 Maier-Leibnitz 003, *MM* Sept. 17, 1956.

significantly smaller. He also favorably compared the atomic industry, which had developed regulations, security measures, and radiation tests from its initial experiments, to the chemical and petroleum industries, which delayed similar measures until decades after of the visible affects of pollution.⁸⁸ However, this optimism also appears to be misplaced, as finding a location continued to be a significant venture through 1957.

Mayor Josef Amon of Garching was one of the strongest advocates of constructing the Munich Research Reactor (FRM) in Garching. Garching was a tiny farming village northeast of Munich, on the left bank of the Isar River. He argued that the reactor would initiate a “golden future,” an economic miracle, for a village that was largely, as yet, untouched by the modernization project, outside of a few requests for building industry. Aside from the commerce and industry that would follow the reactor, for Garching, which did not even have a train station, an autobahn connection would be also a potential major benefit. His ambitious plan was to transform the farming village into the “first atomic village in Germany.”⁸⁹

At a September 3, 1956 meeting with the mayors of Eching, Freising, Ismaning, and Munich, as well as the responsible government agencies, the neighboring mayors were less enthusiastic. The mayor of Eching, a village north of Garching, felt that part of the Eching’s water supply, that which went to nearby Dietersheimer, would be endangered if Garching Mill Creek (*Mühlbach*) was the cooling water source for the reactor. A separate mayor, Zeitler, was concerned because the projected wind direction blew towards his own town, Ismaning, a larger town which lay on the opposite bank of

⁸⁸ *MM*, “München wird Atomforschungs-Zentrum,” Oct. 12, 1955.

⁸⁹ Stephan Deutinger, *Vom Agrarland zum Hightech Staat*, 209 ; see also: Martina Heßler, *Die kreative Stadt*, 69-71.

the Isar, slightly South-Southeast from Garching. Four hundred of its residents lived in the fishing houses at Green Heath, only one kilometer east from Garching Mill Creek, and were eminently threatened from emissions. The FRM jeopardized Ismaning's planned expansion of 150 houses in this residential district. Additionally, several Ismaning water pumps were located in this region. Zeitler's biggest concern, though, were the 150 farmers who lived in the cabbage region North of Ismaning, where they cultivated cabbage famous across the Federal Republic.⁹⁰ He was worried that the emissions, or at least the perceived threat of them, would make Ismaning cabbage uncompetitive with that produced in Schleswig-Holstein. Ultimately though, Zeitler said he would trust the opinion of the scientists.⁹¹

Aside from public anxieties, the State and Regional Planning Authorities had numerous bureaucratic issues to resolve—most of which dealt with very public concerns. Of those who curiously hesitated about the location at this time, long-time proponent of the *Atommeiler*, Helmut Fischer, was the most unexpected. As executive of Munich reconstruction efforts, the FRM represented only a partial, albeit significant, segment of his development design. Garching Mill Creek had been the planned site—since the nineteen-thirties—for a long-overdue enormous water treatment facility for Munich and the surrounding region. The Planning Bureau first selected this location during the Nazi era, but did not undertake the project, due to the outbreak of the Second World War. This plant, Fischer reiterated, was not only an immediate necessity, but would be followed by second one within five to ten years.⁹² To resolve this issue, the Highest Construction

⁹⁰ *MM*, “Der Atommeiler und das Kraut,” Sept. 4, 1956.

⁹¹ *MM*, “In Garchings au hat die Zunkunft begonnen,” Sept 14, 1956.

⁹² *MM*, “Der Atommeiler und das Kraut,” Sept. 4, 1956.

Bureau (*Obereste Baubehörde*) on November 29, 1955, with Heisenberg and Maier-Leibnitz present, suggested a location on the west side of the Munich-Nuremberg autobahn, further west near Dietersheim, in the so-called Berenung Region. They considered this far enough away from the water treatment plant, which suited Fischer. While the land plot was already owned by Munich, it was limited in expansion potential; Heisenberg and Maier-Leibnitz held reservations about its capacity to house both the *Atomei* and the MPI.⁹³

Serving as the new agricultural minister, Baumgartner remained residually involved in reactor planning when it conflicted with the priorities inherited with his office. With the coming of the New Year, he realized that the site west of the autobahn would threaten farming near Gute Dietersheim. In 1954, the Ministry for Agriculture had agreed to construct an experimental system to apply a portion of Munich's treated wastewater on 4000 hectares of arable land, in order to improve production of potatoes and water-intensive crops. The project was designed to remedy the reduced water volume accompanying the sprawl of towns along the Isar, namely Eching, Garching, and Ismaning. Baumgartner worried that the land used by the reactor and the subsequent buildings would disrupt this project. He agreed that the location in the riparian forest along the Mill Creek near Garching lobbied by Amon would be more convenient, because Garching owned most of the property, it afforded a consistent water supply, it remained above the flood plain, and it was approachable on the existing Freising Street.⁹⁴ The Bavarian Farmers League of Upper Bavaria also expressed concern about

⁹³ BayHSA: WMi 21935, "Errichtung von Versuchs- und Forschungs Atomreaktoren fuer die Technische Hochschule Muenchen," Baurat Halter im Oberste Baubehörde of MINN, Nov. 30, 1955.

⁹⁴ BayHSA: MK 67132, Baumgartner to the MK, 06868, Jan. 23, 1956.

agriculture, animal, and plant life near the reactor. This apprehension prompted the Highest Construction Bureau to chart the plant life near the reactor, a team of experts from the Union of German Agricultural Inspection and Research Institutions to take soil and plant radioactivity probes, and the Zoological Collectors of the Bavarian State to obtain animal samples.⁹⁵ Officials from Bavarian Ministry for Education and Culture coordinated this effort and included professors from Weihenstephan, who synchronized probes at 100 meters, 1 kilometer, and 10 kilometers from the reactor site. Of “special importance” was the cabbage region near Ismaning; the Farmers League insisted that cabbage samples be preserved in a safer environment distant from the reactor—in case of “catastrophe”—a rather unique request, to which the agricultural ministers tellingly agreed. The nearby “bird paradise” at the City Reservoir also received considerable priority.⁹⁶

The Highest Construction Bureau also recognized this western location as problematic, since the reactor would be further from the water supply. If constructed west of the autobahn, the reactor would require additional pumping from underground reservoirs. This underground water traveled directly towards numerous drinking-water pumps, and any contamination, from radiation or other chemicals, would endanger these facilities. Furthermore, placing the reactor west of the autobahn would require

⁹⁵ BayHSA: MK 67448, Ministerialrat Henniger Bay. MWi to the MK 5910/At -LP1/3- 81243, Dec. 29, 1956; BayHSA: MK 67228, Hüeber, Direktor of the Bayerischer Bauernverband, Bezirksverband Oberbayern Hauptgeschäftsstelle to the MWi, Dec. 6, 1956; BayHSA: MK 67448, Dr. F Scheffer of Verband Deutscher Landwirtschaftlicher Untersuchungs und Forschungsanstalten--Fachgruppe für Isotopenforschung in der Landwirtschaft--to the Direktor der Bay. Hauptversuchsanstalt für Landwirtschaft, Dec. 11, 1956; BayHSA: MK 67488, Dr. Wolfgang Engelhardt of the Zoologische Sammlung des MK, June 12, 1957.

⁹⁶ BayHSA: MK 67488, Niederschrift über die Besprechung am 10.4.57 nachmittags 16 Uhr im MK, V 31544, April 10, 1957; BayHSA: MK 67459, Dürrewächter of the Bay. SM für Ernährung, Landwirtschaft und Forsten to the MK, 604 a 4 II, March 9, 1957.

construction of a 750,000 DM highway exit ramp, whereas building it on the east side would be significantly cheaper, due to existing exits. This was probably the most decisive factor in moving the site to the east of the autobahn. Placing the reactor near the Mill Creek would solve the water predicament, but would create significant other spatial problems; namely, a drainage canal from the Würm River Valley was planned from Obermenzing-Allach-Oberschleißheim, Northeast of Munich, to Garching in this area. The Isar riparian valley also remained the destination for the water treatment facility and a fish pond. In the State Planning Authority meeting in May 1956, the agency considered transferring the fish pond and water treatment plant 100 meters to the north, but this was too near a water pumping station at Grüneck, which provided drinking water for Mintraching, Neufahren, and Eching.⁹⁷

Upon further review, the State Construction Bureau Munich suggested that the necessary water, for both scientific and sanitation purposes, including the cooling water for the second reactor circuit, could be supplied directly from the Mill Creek. The Bureau categorically denied that the groundwater, when the facility returned the cooling water, would have an influence on the surrounding radiation or biology.⁹⁸ However, two of the leading alliances for water control, the German League for Gas and Waterpower and the Alliance of German Gas and Water Experts, expressed concern that the issues regarding water disposal during the construction and operation of fission facilities were

⁹⁷ BayHSA: WMi 21935, "Reactorgelände bei Garching," Landesplanungsstelle, May 15, 1956.

⁹⁸ BayHSA: MK 67446, Kirschenhofer of Landbauamt München to the Regierung von Oberbayern, 3647-84, Aug. 28, 1956.

not yet resolved. This was especially worrisome in a “densely populated country like Germany.”⁹⁹

The final FRM site was located twenty-six kilometers downstream from Munich, just west of an hilly, uncultivated area covered in riparian shrubbery known as the Isar Meadows (*Isarauen*) on the left bank of the Isar along the Mill Creek. North, West, and East of the reactor was primarily farmland. With 2800 inhabitants, Garching lay two kilometers away, but Dietersheim’s 340 residents resided only 1.5 kilometers from the site. Freising represented the next large downstream town, twenty kilometers north, with approximately 25,000 residents.¹⁰⁰ It appears that local public opposition towards the FRM died down after 1957. Mayor Amon guaranteed no further resistance towards the facility, and in fact, many Garching residents were proud of what they called “the first atomic village in Germany”. The *SZ* speculated that rising land prices contributed to some of the farmers’ newfound jubilation. And, unlike the Baden residents, who were now in strong opposition to the Karlsruhe *Atommeiler*, Ismaning cabbage farmers had also reconciled with the FRM.¹⁰¹

But a few matters persisted until the end of 1957. When the FRM water permit was processed in Landsrat Bureau Munich in 1957, a number of groups filed grievances against it, which were eventually removed because of the protection measures afforded by the secondary water loop. First, Paul Käsmeier, representing the citizens of Dietersheim and Eching, charged that the facility could lower the water table below the

⁹⁹ BayHSA: MK 67448, Deutscher Verein von Gas- und Wasserwerke und Verband der deutschen Gas und Wasserfachmännern to the Ständige Konferenz der Kultusminister, Dec. 20, 1955

¹⁰⁰ DM NL 111 Maier-Leibnitz 111, “Research and Reactors,” CERN tour of reactor, 195?.

¹⁰¹ *SZ*, “Das Atom-Ei auf der Garching Heide,” Jan. 12/13, 1957.

Dietersheim water pump. For the protection of the village, Käsmeier demanded that the sponsors of the reactor pay for the construction of a new water pumping facility. The bureau took the possibility of lowered water table much more seriously than that of radiation contamination, but determined that the facility would only need 5880 liters of water per minute—not enough to lower the water table. Downstream City of Freising charged its waters source was endangered because the water current, both in the Isar and underground, flowed in the direction of the city. Freising dropped its claim, when sufficient security measures were adopted. Munich Water Works demanded that it also receive compensation (*Schadensatz*) if its water pumps near Dietersheim were affected; its condition was met. Furthermore, the city was worried that radioactive dust would affect the planned water treatment plant. Perhaps most interesting was the grievance filed by Bayernwerk. Since 1933, Bayernwerk had been liable to compensate for a third of the maintenance cost of the Isar River in the event water flow was lowered or polluted, in particular if the fishing industry was impaired. Bayernwerk requested that it be relieved of its obligation towards damage caused from radiation leakage or lowering of the water table, in which the atomic facility was declared responsible. The government ruled that Bayernwerk could not legally be removed from liability. All of these complaints forced the further construction of air filters, deemed technically redundant, but necessary to quell protests.¹⁰²

The Bavarian State Authority for Nature Preservation was disappointed that it was not included in the January 31, 1956 decision to situate the reactor in the Isar Meadows,

¹⁰² HATUM: RA C 962, Landratsamt München, Wasserrechtliches Verfahren für den Atomreaktor in Garching, Landkreis München. IVa 462/ 69/57, Oct 25, 1957; MINN:, IVF/ IVR 4 Nr. 9863 d I/136, Jan. 1, 1958.

because the site threatened the central recreational area of the city. On March 3, 1953, this agency had applied to place the English Garden “unbroken” under Nature Preservation, from Oberföhring, south of Munich, to Freising, the furthest Northern town near Munich. The Nature Preservation Authority insisted placing the reactor near the Isar River at Garching, which would encourage subsequent residential and industrial buildup, would jeopardize this endeavor. Given current expansion, the Authority estimated that the English Garden would be threatened within the next twenty to twenty-five years.¹⁰³ While only a bureaucratic affair for officials in charge of conservation in the fifties, with the expansion of the research center in the sixties, this became a constant public complaint. Preservation of the English Garden’s integrity, or the idea that it remained a center of recreation and the largest inter-city park in the world, became even more pronounced with the emergence of a consumer oriented society that prioritized leisure time.

One of the proposed locations for the MPI and its accompanying second ‘Argonaut’ class reactor (an extremely small complement to the FRM that met little fanfare) was the Technical University sports fields, east of Unger Street and north of Aumeist Street. When this location was announced in the press, it elicited a response from the acting chair of the Student Committee, Wilhelm Jösch. Despite the students’ eagerness to improve the prestige and facilities of the University, they regarded the sports facilities too vital to be sacrificed to a research reactor. They wanted another location considered; if that were not possible then they hoped to minimize the amount of the sports complex interrupted, or relocate the entire sports fields. In order to be taken

¹⁰³ BayHSA: MK 67132, Kraus of Bayer. Landesstelle für Naturschutz to MINN, II/A 1 - 150/56, Jan. 31, 1956.

seriously, Jösch wrote directly to Hoegner, asking him to ensure the boundary integrity of the sports fields. The cultural ministry assured Jösch that only a minimal segment of the northern section sports complex would be necessary for the MPI, a pledge that seems to have abated Jösch's worries.¹⁰⁴ Heisenberg, working with the construction official of the Technical University, reassured Jösch that the fields would not have a reactor, only the MPI for physics, and they would limit its breadth.¹⁰⁵ The Agronaut was assembled near the FRM shortly thereafter.¹⁰⁶ This example once again demonstrates how the growing desire for relaxation, leisure, and recreational activities, a feature even more pronounced in the sixties, continually challenged planning officials.

Planning and construction of the FRM had been an ongoing negotiation between officials in charge of agriculture, conservation, recreation, and sanitation. Heisenberg and Maier-Leibnitz offered noteworthy policy-making consultation,¹⁰⁷ but in spite of their vast prestige, lesser known representatives of the public vied for equal consideration of their respective interests. These factors were indeed considered and helped dictate the chosen location. Beyond these seemingly trivial local bureaucratic matters (such an interpretation would be overlooking the very nature of the debates), the public turned its focus on the global environmental issue of the day—the hydrogen bomb. For the public, the fallout from thermonuclear experiments tended to obfuscate the distinction between civil and military applications of fission. For the historian, it elucidates the growing importance of global climate and environment among common Bavarians—who conflated it with local concerns—perhaps even predating environmentalists themselves.

¹⁰⁴ BayHSA: StK 14004, Vorsitzender des Astes des Universität Wilhelm Jösch to Hoegner, Nov. 14, 1955; Staatssekretär Meinholz to Jösch, Dec. 9, 1955.

¹⁰⁵ BayHSA: MK 71670, August Rucker to the Bavarian Landtag, 96579, Dec. 27, 1955.

¹⁰⁶ See Chapter 2 of this work.

¹⁰⁷ See the argument by Catheryn Carson, "New Models for Science in Politics," 115.

1.3 The Hydrogen Bomb, Climate Panic, and Sickness in Salzburg

The convergence of the FRM, the escalating hydrogen bomb experiments, and some prodigious weather in Southern Bavaria resulted in a wide-scale radiation panic in 1956. While this alarm appears on the surface to be artificially manufactured, a consequence of bizarre anxieties about wilting crops and contaminated cisterns, it highlights the way that local fears about the destruction of *Heimat*, landscape, and climate led the public to ponder larger (even global) environmental meaning—without upsetting the current, localized mentality. For the public, there was often no distinction between radiation disseminated by the Cold War and the seemingly more benign research reactor, in part because public officials in charge of detecting, inspecting, and eliminating these health risks were unable to maintain a sufficient demarcation.

As can be imagined, throughout the fifties the nuclear bomb tests were clearly a focus of public anxiety. Although the dangers of the explosions had been in the German mind since the 1954 Bikini Island tests—an event that left a dozen Japanese fisherman physically scarred—the controversy in Bavaria seems to really have come to a head when radiation levels at the Alpine tourist resorts at Salzburg and Garmisch rose considerably in 1956-57. In Salzburg and at other high elevation locations along the German-Austrian border, numerous patients reported to hospitals with the so-called ‘Salzburg sickness’, with symptoms of uneasiness, vomiting, diarrhea, burning eyes, and headaches. On June 20, 1956, the *SZ* published an article about the condition of Salzburg, in which many doctors, including Professor Leopold Schönbauer, were diagnosing the symptoms as

derived from the radioactive rain recorded on June 9. The Salzburg Health Bureau denied that the sickness had any correlation to radiation. Salzburg hotels implored the Salzburg city council to put a stop to the rumors and implications, so that tourists would continue to visit.¹⁰⁸

As word spread throughout Bavaria, other cities began to experience “atomic bomb psychoses,” as more than one newspaper put. From another high elevation town, Garmisch, Hildegard Frauenholz reported sickness following bomb explosions, similar to those witnessed in Salzburg. Previously she had worked in Augsburg, collecting information for authorities on minor illness cases associated with industrial emissions in the region. In Garmisch, she witnessed similar symptoms, especially burning in the eyes following rain, but without industrial factories, and presumed they derived from fallout.¹⁰⁹ When doctors dismissed the Garmisch sickness reports as affects of the *Föhn*, she became adamant that the symptoms were those described in atomic literature written by Professor Werner Klieforth, and followed a distinct pattern—two and a half weeks after every Soviet explosion. She warned that continuation of the hydrogen bomb tests would certainly generate further understandable “unrest” by the peasantry residing near reactors, such as those objecting to the *Atommeiler* now under construction at Karlsruhe.¹¹⁰ Doctors and scientists were both concerned and skeptical of this sickness, which did seem to appear after bomb tests. Those who thought that the hydrogen bombs were causing an immediate epidemic speculated the symptoms derived from inhaling radioactive air or bathing in contaminated water. However, many leading doctors did not

¹⁰⁸ SZ, “Regentropfen bringen Angst nach Salzburg,” June 20, 1965.

¹⁰⁹ DM NL 80 Gerlach 122-01, Hildegard Frauenholz to Ministerialrat Schmelz in the Gesundheitsabteilung im MINN, June 4, 1956. Dr. Hildegard Lutz of Munich reported similar unexplainable headaches following rain, Hildegard Lutz to Gerlach, June 17, 1956.

¹¹⁰ DM NL 80 Gerlach 122-01, Hildegard Frauenholz to Gerlach, Feb. 17, 1957.

believe that thermonuclear bomb fallout had an actual immediate effect of causing these ailments, although most all accepted the long-term skeletal defects associated with Strontium 90, which cumulatively replaced bone marrow. The Bavarian Ministry of the Interior was of this line of thinking, when it declared in the summer of 1956 that there was no proof that the abnormalities were related to the hydrogen bomb explosions.¹¹¹ Only with extremely close proximity exposure would symptoms exhibit a direct correlation.¹¹² Professor Gerlach, still actively trying to end the bomb tests, was also skeptical of these ailments, but did not dismiss them out of hand.¹¹³

Many politicians and scientists of the time, especially Federal Atomic Minister Franz Josef Strauss, claimed that without the bomb, atomic energy would have been well received.¹¹⁴ While the anti-rearmament movement attracted scientists, church leaders, and the social democratic left, who marched in newsworthy extra-parliamentary parades, these groups were usually quite favorable to atomic energy during the nineteen-fifties. Perfect examples were Professors Gerlach and Maier-Leibnitz, who both signed a famous Göttingen Declaration in 1957, vowing to never construct nuclear weapons. This view, though, is not entirely accurate to the situation. Naturally, many in public simply did not understand what atomic energy represented or how a reactor functioned. However, much of the anxiety springs from a series of rival claims on the effects and dangers of radiation, the h-bomb tests, and the reactors. In the late fifties, several institutions, vying to be the authority on detecting radiation levels, made a series of contradicting reportage. When these reports caused confusion, it only heightened the existing problem. To make

¹¹¹ *MM*, "Nobelpreisträger wollen das Volk 'dumm machen,'" July 14/15, 1956.

¹¹² DM NL 80 Gerlach 122-2, Bericht der Zentralstelle zur Überwachung der Radioaktivität im MINN, Nov. 15, 1957.

¹¹³ *Stadtanzeiger*, "Atomprobleme im Stadtrat," June 29, 1956(?)

¹¹⁴ Stefan Finger, *Franz Josef Strauß. Ein politisches Leben*, 123.

matters worse, these same agencies were inspecting the FRM and other reactors in Bavaria. Because of this, the atomic psychosis generated by the bomb tests of the nineteen-fifties fundamentally was inseparable from the concerns about atomic energy.

One of the early glaring examples comes from Strauss himself. The buzzword of the day was ‘tolerance dose’; in theory the amount of radiation in the atmosphere or hydrosphere that was tolerable by the human body. Unfortunately, officials disagreed publicly on the fundamental nature of the tolerance dose. An example came in July, 1956, when radiation was detected in precipitation in Heidelberg, naturally creating considerable apprehension. According to Gerlach, while fallout levels were noticeable in Heidelberg, as of early 1956 they had not reached dangerous levels in Munich.¹¹⁵ On July 29, 1956, Strauss’s ministry also claimed that high doses of fallout radiation detected that day were “harmless.” However, Professor Bechert of the University of Mainz later stated that the observed amount of radiation in drinking water, 1.10^{-7} microcurie per cubic centimeter, was well over the tolerance dose. In response, the Ministry clarified that there was a subtle but important distinction between the “tolerance dosage” and the “danger dosage”. Danger was reached at 10,000 times the tolerance dosage. Speaking on behalf of the ministry, Dr. Sauer assured everyone that he would drink the tolerance dose, without concern of being endangered.¹¹⁶

Yet, a report out of the Central Authority for Inspection of Radioactivity suggested that in 1956, because the long-term effects of minor exposure were still unknown, it was difficult to precisely establish the tolerance dosage. At the same time,

¹¹⁵ DM NL 80 Gerlach 142-02, draft of Gerlach to *Münchner Illustrierten* (exact date unknown) 1956.

¹¹⁶ DM NL 111 Maier-Leibnitz 003, *Süddeutsche Zeitung*, Sept. 14, 1956, collected by Deutscher Verein von Gas- und Wasserfachmännern; DM 80 Gerlach 142-03, *SZ*, “Das Ministerium und die Radioaktivität, Sept. 1/2, 1956.

there was not yet enough standardization in the measuring tools to receive accurate, normative results. The thinking remained, though, that receiving twice as much in a lifetime than one would naturally be exposed to would be quite harmful. The Central Authority agreed that neither medical use of isotopes nor bomb explosions had yet reached this amount.¹¹⁷ Strauss's replacement as Federal Atomic Minister, Siegfried Balke, in 1957 urged biologists and doctors to continue to analyze radiation in order to further understanding of the tolerance dose. He argued that the Institute for Radiobiology, planned for Garching, would be the key in developing this knowledge for Munich.¹¹⁸

Regardless of whether the sickness was real or imagined, it caused pause for SPD City Council member, Hugo Freund, when he spoke before the Munich City Health Committee about the possible location of a reactor in Garching. Freund was a medical doctor, who considered the reports out of Salzburg quite alarming. In addition to considering wind, climate, and hydrology factors, Freund lobbied for the FRM to reside in a "sociologically favorable" position—implying it should take into account the population density.¹¹⁹ Furthermore, as a medical doctor he questioned whether physicists could be responsible for statements regarding radiological biology, medicine, or hygiene. He felt that regulating, examining, and coordinating radiation protection measures were accordingly the commission of a city health bureau, with specialists trained in these biochemical fields. This was not only necessary to protect the people, fauna, and flora of Munich, but also to provide reliable and informed health information on industrial,

¹¹⁷ DM NL 80 Gerlach 122-02, "Bericht der Zentralstelle zur Überwachung der Radioaktivität im MINN," Nov. 7 1956.

¹¹⁸ DM NL 80 Gerlach 023, 7 Sitzung der Bayerische Staatliche Kommission zur friedlichen Nutzung der Atomkräfte, July 27, 1957.

¹¹⁹ *Stadtanzeiger*, "Atomprobleme im Stadtrat," June 29, 1956(?)

medicinal, and military use of radiation, because in his opinion the press was publishing mostly contradictory and confusing stories. In part, Freund was suggesting that the city was not receiving proper representation in its interests, and that the Bavarian state was not yet providing significant regulation. Still, he was comforted that a swimming-pool reactor was significantly safer than other types, such as the Lilliput reactor now destined for Karlsruhe.¹²⁰ It was rare in the fifties, though, that someone from the medical field challenged the physics professors.

City council and SPD Landtag member Dr. Brentano-Hommeyer assured Freund, that while the bombs were quite scary and dangerous, especially with the buildup of Strontium 90, establishing security parameters was the priority of the federal government, not the city. He also guaranteed that the atomic “angst psychoses” generated by the “sensationalist” press was “undoubtedly more dangerous than the radiation danger itself.”¹²¹ The May 28/29, 1955 edition of the *MM* illustrates Brentano-Hommeyer’s contention. On the newspaper’s cover was a large photograph of three young ladies, happily picking dandelions in a field—alleged to be a possible site for the FRM. In the caption underneath, the article speculated that two distinct possibilities could be chosen by the “power of the mind” (*Geist*)—future progress or utter devastation.¹²² City Council member, Dr. Reichel, though, recognized how the discrepancies between different agencies caused panic. As an example he described how a man from Dachau, who was worried that his wilted spinach had been killed by radiation, sent his sample to an examination facility, where it was only diagnosed as frost damaged. The situation, he

¹²⁰ StadtA Mü: RP 729/12 Niederschrift über die 1. Sitzung des Gesundheitsausschusses, June 22, 1956, 39-61, especially 60-61.

¹²¹ StadtA Mü: RP 729/12 Niederschrift über die 1. Sitzung des Gesundheitsausschusses, June 22, 1956, 63-66, quote from page 66.

¹²² *MM*, May 28/29, 1955.

said, was further complicated by competing diagnoses. He placed the blame squarely on Professor Gerlach, the American Academy of Scientists, and meteorologists, among others, for the sensationalized press. It was the responsibility of the Bavarian State and the Federal Government to make announcements on the matter, so that the two governments could convey a consensus.¹²³

City Council member Fischer argued that competing agencies in Munich were redundant since he currently resided on the Bavarian Atomic Commission, to represent Munich. By further discussion in the city council, Fischer reasoned, more panic would be generated. Reichel felt that only placement of the reactor, not the requisite security inspections, was the directive of the city council; however, unlike a train station, which in the nineteenth century was placed anywhere it would fit, he argued that the location for the atomic industry was of extreme importance, and planning could not afford to be in error.¹²⁴ SPD member Bergstermann ridiculed that if the city constructed an institution to test radiation, “every farmer would go there and have every plant that was growing irregularly examined for radiation.” At any rate, he remained certain that radiation fallout could not damage spinach. It was, rather, the responsibility of the meteorological institutes to inspect atmospheric radiation levels.¹²⁵ The year before, Mayor Thomas Wimmer had written Gerlach suggesting Munich build a municipal atomic commission, but Gerlach then felt that this was the responsibility of the Bavarian Commission; and at

¹²³ StadtA Mü: RP 729/12 Niederschrift über die 1. Sitzung des Gesundheitsausschusses, June 22, 1956, 67-75.

¹²⁴ StadtA Mü: RP 729/12 Niederschrift über die 1. Sitzung des Gesundheitsausschusses, June 22, 1956, 67-75.

¹²⁵ StadtA Mü: RP 729/12 Niederschrift über die 1. Sitzung des Gesundheitsausschusses, June 22, 1956, 76.

any rate, there were only two qualified people in Munich for such a commission, he and Maier-Leibnitz.¹²⁶

During 1956, Professor Joos recommended that the Bavarian Atomic Commission should make all reprisals on atomic radiation, in order to squelch sensationalized reports in the press. Towards this goal, the Commission continued to discuss if a Bavarian sub-commission on hydrogen bomb radiation was necessary, since the federal government already had one. Head of the Radiology and Medicine sub-commission, Professor von Braunbehrens, recommended that Bavaria more than any other federal state needed such a commission, which would serve the dual purpose of inspecting Bavarian uranium deposit prospecting. Reports had surfaced that many miners were overcome with sickness.¹²⁷

On June 6, 1956 the *Müchner Merkur* reiterated that the numerous reports from competing sources were “causing confusion” in the public. To solve this problem, a team of scientists and students at the Physics Institute of the Munich University, lead by Gerlach, were to conduct rain tests, so that they could help publish some determinant results. In May of 1956, Gerlach announced that the radiation levels, which were at the highest since April 1955, were not yet dangerous, but certainly concerning. This was the product of a British test on May 16 in Australia and an American test on May 21 at the Bikini-Atoll. Since no one knew the effects of long-term exposure, he felt any declarations in this regard would be tenuous at best.¹²⁸

¹²⁶ DM NL 80 Gerlach 023, Mayor Thomas Wimmer of Munich to Walther Gerlach, Oct. 7, 1955.

¹²⁷ DM NL 80 Gerlach 023, 2 Sitzung des Arbeitsausschusses der Bayerischen staatlichen Kommission zur friedlichen Nutzung der Atomkräfte, April 11, 1956.

¹²⁸ *MM*, “Radioaktive Staub auf unseren Straßen,” June 30, 1956.

This institution did not diminish panic, but rather exacerbated it. Once again, a debate ensued between different agencies over levels of radiation. On Saturday, August 17, 1957, the Physics Institute announced in the nightly *Abendzeitung* that following a previous bomb explosion, the drinking water was discovered to be at levels 100 times over international tolerance dosage. This caused a media panic, in which the tabloids declared not only the drinking water contaminated, but also milk products, from allegedly irradiated cattle. Concurrently filed with the Physics Institute study was the Munich Water Works report, which concluded drinking water was not affected, but the story was released too late to be carried in the media that day. This meant that the Central Authority to Inspect Radiation, a new agency within the Bavarian Ministry of Interior created on July 11, 1956 by the Landtag, had to suppress the Physics Institute's findings, with a Sunday, August 18, counter announcement declaring the drinking water radiation much below dangerous standards. In fact, the memorandum suggested that radiation still lay below that amount which could naturally occur, and was not harmful in any way.¹²⁹ The official position was that the tolerance dosage was not reached, since no one could be harmed from this amount of radiation in such a short time frame.¹³⁰ Furthermore, rain water required approximately three months to seep into the drinking water supply.¹³¹ Gerlach was forced to clarify on August 19 that there was no immediate danger from water consumption, but the long-term effects of drinking Strontium 90 were quite damaging to bone structure.¹³² The German Research Service then inquired into the nature of the tolerance dosage. Was it a one-time exposure amount or did it account for

¹²⁹ DM NL 80 Gerlach 142-02, SZ, "Radioaktives Wasser in München," Aug. 19, 1957.

¹³⁰ DM NL 80 Gerlach 262-01, Deutscher Forschungsdienst, "Bedroht radioaktiver Regen unsere Gesundheit?" Aug. 30, 1957.

¹³¹ *Münchner Stadtanzeiger*, "Ist das Mühchner Wasser radioaktiv?," Sept. 27, 1957.

¹³² DM NL 80 Gerlach 142-02, SZ, "Radioaktives Wasser in München," Aug. 19, 1957.

accumulation? Its answer was somewhat vague—it depended upon the isotope, the amount and length of exposure, and the targeted body part.¹³³

On September 20, City Council member Dr. Reimer-Schmid, who administered the Munich Water Works, reiterated that water required three months after a rain to seep into the water supply. Thus, results could only be tested in October. Before then, it was nearly impossible for the drinking water to be contaminated.¹³⁴ After the incident, Gerlach insisted that his findings were accurate—during the month of August the Physics Institute had measured radiation levels higher than the tolerance dosage in both rain and the drinking supply.¹³⁵ The weather records for the Physics Institute proved a considerable rise in radiation in rainwater: from 7.5×10^{-10} curie per liter August 9, persisting until its height of 288×10^{-10} curie per liter on August 12, then receding from there to 2.7×10^{-10} curie per liter on August 15. He speculated the source was the June 15, 1956 explosion.¹³⁶ Likewise, the institute tested university tap water three separate occasions on August 15, resulting in 12, 3.4, and 6.7×10^{-10} curie per liter, respectively.¹³⁷ When Gerlach provided Hugo Freund these reports, the city council member once again requested comprehensive inspections by the City Health Committee. Freund was adamant that even though the Ministry of Interior had stated that Munich was not in the danger level, Gerlach was unwavering in his contention that radiation had

¹³³ DM NL 80 Gerlach 262-01, Deutscher Forschungsdienst, “Bedroht radioaktiver Regen unsere Gesundheit?” Aug. 30, 1957.

¹³⁴ SZ, “Mißtrauischer Blick in den Wasserspiegel,” Sept. 21, 1957.

¹³⁵ DM NL 80 Gerlach 122-02, Gerlach to Hugo Freund, Nov. 8, 1957.

¹³⁶ DM NL 80 Gerlach 122-01, Niederschlag im August, 1957.

¹³⁷ DM NL 80 Gerlach 122-01, Trinkwasser im August, 1957.

infiltrated the drinking water.¹³⁸ City Council Member Hopf (CSU) was not so kind to Gerlach, whom he blamed for “irresponsible panic making.”¹³⁹

The city council finally concluded that it had limited authority to make inspections, especially on reactors. Garching technically had its own city limits, outside of Munich jurisdiction. Food collection and gas emissions were also difficult to regulate, since both covered large sections of Bavaria, thus were the jurisdiction of the Bavarian Central Authority to Inspect Radiation, which was now asserting its authority. Increasingly, only this Central Authority would release any information collected by the Weather Service, the Physics Institute, or the Technology Inspection Association. Munich did assert its right to inspect its water supply, under the Health Commission and the Munich Water Works. This provided a loophole for the city, with a right to monitor the FRM, if the reactor came in close contact with the Munich water supply, because city interests would be jeopardized. Furthermore, isotopes transported into city limits, particularly on route to the MPI or Technical University, were subject to city examination.¹⁴⁰

To make matters more complicated, local radiation inspection was not reliable due to residual amounts of fallout.¹⁴¹ The Central Authority reported to the Bavarian Senate that scientific radiation measuring throughout Bavaria remained inaccurate,

¹³⁸ DM NL 80 Gerlach 142-2, *Münchener Stadtanzeiger*, “Ist das Mühner Wasser radioaktiv,” Sept. 27, 1957.

¹³⁹ DM NL 80 Gerlach 142-2, *Münchener Stadtanzeiger*, “Ist das Mühner Wasser radioaktiv?” Sept. 27, 1957

¹⁴⁰ StadtA Mü: RP 730/11, Beilage zur Niederschrift über die Sitzung des Gesundheitsausschusses vom 21.11.1957, 66-77.

¹⁴¹ DM NL 80 Gerlach 122-01, Profesor Biermann of the MPI of Physik to Oberpostrat A. D. Denning in Cöburg, Dec. 13, 1955.

because of inadequate or improper testing apparatuses.¹⁴² The Munich City Council Health Committee informed the rest of the city council in 1957 that proper culinary testing equipment would not be available until 1959.¹⁴³ Meanwhile, some experts, like Professor Berhert of the University of Mainz, argued that officials significantly understated the dangers of placing a reactor on the edge of a city.¹⁴⁴ At the same time, Minister of the Interior, Geislhöringer, declared that no flora or fauna had been yet affected by the fallout.¹⁴⁵

These conflicting reports led many Bavarians to send their wilted garden and farm vegetables to labs to be studied.¹⁴⁶ In the summer of 1956, the Munich local papers abounded with letters from horticulturalists who experience crop blight and blamed it on the hydrogen bomb tests. Already in May, many Bavarians began to wonder if the bomb experiments or the research facility had altered climate, but speculation increased when one of the longest cold-spells in recent memory continued into the summer. After Upper Bavarian official Viktor Hoffman announced in the newspapers that his tomatoes and cucumbers wilted on the weekend of June 9-11, numerous people wrote in complaining of similar observations.¹⁴⁷ This put officials in a uniquely precarious position: they had already dismissed the notion that current radiation levels could harm plants and animals; but as vegetables continued to decay, Bavarians concluded that the thermonuclear

¹⁴² DM NL 80 Gerlach 122-02, Max Vöner, Deutscher Gewerkschaftbund, to Gerlach, June 5, 1957.

¹⁴³ StadtA Mü: RP 730/11, Beilage zur Niederschrift über die Sitzung des Gesundheitsausschusses vom 21.11.1957, 66-77.

¹⁴⁴ DM NL 80 Gerlach 142-3, SZ, "Einem Forscher ist bang vor der Zukunft," Sept. 15/16, 1956.

¹⁴⁵ DM NL 80 Gerlach, 122-04, SZ, "Keine radioaktiven Schädigungen in Bayern," Oct. 10, 1956

¹⁴⁶ For example, Anton Putz of Munich sent Gerlach several leaf samples from plants and trees in his Reimerling garden, which he wanted to be tested for radiation. DM NL 80 Gerlach 122-05, Anton Putz to Gerlach, June 12, 1956.

¹⁴⁷ *MM*, "Radiumhaltiger regen auf die Tomaten," June 16/17, 1956. "Auch unsere Tomaten verdorrten nach dem Regen," June 23/24, 1956.

experiments had an even more sinister outcome—anthropogenic global climate change. A heated public debate ensued over whether it was bomb fallout, or H-bomb induced weather change that grayed the vegetables.

1956 saw a protracted, cold winter that lasted far into the typical summer months of June and July. Reports of snow in Southern Bavaria in June, and cold rain further north, fueled rampant speculation that hydrogen bombs tests had artificially altered global climate. Reported in the *Münchener Merkur* on June 26, 1956 was the lack of sunlight in the month of June, which led to spreading rumors at train stations and offices all over Munich that the hydrogen bombs were cooling the earth. On that day, the Munich airport had recorded only 102 hours of sunlight for June; and with only a few days left, June of 1956 would become the ‘darkest’ in recorded history, shattering the previous record of 1903, which had 153 hours of sunlight.¹⁴⁸

Numerous scientific and political officials denied the rumors. Franz Josef Strauss clarified that a hydrogen bomb could only affect the climate to the point of fallout being present in precipitation. An atomic bomb factory or an atomic energy plant could not affect the weather any more than a conventional factory. In fact, he assured, it would be likely that the dust cloud over the reactor would be less noticeable than that which was currently over the Ruhr. He was adamant that an atomic bomb explosion simply did not produce enough power to influence the climate.¹⁴⁹ Gerlach concurred that atomic facilities have less affect on climate than coal power plants, chemical facilities, and

¹⁴⁸ *MM*, Jetzt auch Geigerzähler im Wetterballon, June 26, 1956.

¹⁴⁹ DM NL 80 Gerlach 142-01, “Antworten auf die Fragen der *Münchener Illustrierten*,” Franz Josef-Strauss, May, 1956.

cement factories.¹⁵⁰ Nobel prize winning physicists Heisenberg, Hahn, and Cockcroft on June 27 declared that the relatively weak hydrogen bomb tests could not possibly have an effect on such a powerful system as global climate. While the isotopes released from the bomb—especially Strontium 90—were quite dangerous, they should not be conflated with the energy discharged by the hydrogen bomb itself. Instead the sun, which was millions of times more powerful than a hydrogen bomb, or volcanoes, which produce significantly more dust particles, were the largest influences on climate.¹⁵¹ In spite of these educated opinions, the public reports persuaded the Mannheim Weather Station to test the extent that the bomb could influence weather.¹⁵²

The physicists' proclamations persuaded few Bavarians, especially since the weather continued to be cold into July. In the July 7/8 edition of the *Münchener Merkur*, Barbara Zeller of Königsdorf and Walter Sperling of Bad Tolz were upset that their beans and cucumbers had wilted following a rainstorm the prior week. Barbara had picked some vegetables the day before to save them from hail and these were of high quality; but she claimed those left outside overnight immediately had to be disposed of in the compost. Walter said he could not grow anything, with the cold weather, which the hydrogen bombs had created. However, George Maiersen of Garmisch dismissed these two claims, because it was not radioactive rain that had killed the vegetables; rather, he was certain the explanation was merely the unusually cold and wet weather of 1956. That would explain why the wilting phenomenon was receiving regional traction.¹⁵³ Erwin Ketterman from Rottach-Tegersee who wrote a letter to the *MM*, felt that the

¹⁵⁰ DM NL 80 Gerlach 142-20, *Münchener Illustrierte* "Sind wir alle todgeweicht?" Heft 19 (May) 1956.

¹⁵¹ SZ, "Ist die Sonne am Wetter schuld?" August 16, 1956.

¹⁵² SZ, "Ist die Sonne am Wetter schuld?" August 16, 1956.

¹⁵³ *MM*, Der radioaktive Regen und andere Erklärungen, July 7/8, 1956.

empirical evidence—measurable radioactive precipitation—verified thoughts to the contrary. For Ketterman, it was not possible to believe that the isotopes were not affecting the atmospheric conditions. In particular, Max Heilmann felt that the odd coloring observed on tomato plants was a fungus; possibly caused when the atomic bombs generated increased atmospheric condensation. This would accordingly explain the increased rainfall that was reported at seven to eight times average amounts for the month of May and June.¹⁵⁴

On the other hand, an elderly gentleman, Albrecht Graf Montegelas of Munich, approached the problem as a historian, proving that in even in 1826 and 1827 people had complained about ‘prodigious’ weather patterns. Using newspaper clippings from the era, he presented an article from May 23, 1827, which stated that spring, “for the first time in years” came early to Bavaria. 1826 was an extraordinarily long winter, and contemporaneous reports claimed that winter would never end. He concluded that people had always complained about the weather, long before the hydrogen bomb, and regarded each year as ‘unusual’.¹⁵⁵ A week later, C. N. Nickel replied to Montegelas; in spite of the evidence from 1826, Nickel had never heard of snow in July before. He had also read Charles Martin’s warning about hydrogen bombs and how the dust propelled into the atmosphere could affect rainfall. Martin’s world renowned book predicted what would become known in the nineteen-seventies as ‘atomic winter.’ In Nichel’s homeland in the foothills of the Alps, the results of this “climate change” (*Klimaveränderungen*) were clearly visible, because the potatoes and fruit would not ripen; and to make matters worse, the bees had to leave, because they could find no blooming flowers. If it

¹⁵⁴ *MM*, “Nobelpreisträger vollen das Volk ‘dumm machen,’” July 14/15, 1956.

¹⁵⁵ *MM*, “Nobelpreisträger vollen das Volk ‘dumm machen,’” July 14/15, 1956.

continued, he postulated, it would make it so that fruit could not bloom, or it would damage local tourism, because there was no sunshine.¹⁵⁶ Engineer Otto Muck replied that a hydrogen bomb of twenty tons would warm an area of 12,500 square kilometers one degree Celsius, but would have no affect on European or global weather patterns.¹⁵⁷

Still, the question persisted into 1957, and not just in Bavaria. The well-established journalist for the *Stuttgarter Zeitung*, Georg Böse, sent an inquiry in February to Gerlach:

Besides the damaging effects to health of the atomic bomb explosions, must it not be expected over the long-term to influence weather and climate? And is the crazy (*verrückte*) weather of the last year, that the meteorologists could not easily dismiss, forebode already of such a connection?¹⁵⁸

At the end of 1958, Richard Baring of the *SZ* speculated that the weather misconception originated with the bizarre nature of the Cold War. A few years earlier, the World Meteorological Organization (WMO) conducted a study on whether the hydrogen bomb tests could affect climate. Whereas the Russians at the conference “amusingly” claimed the awful weather in the South Pacific was a direct consequence of American explosions, the Americans naturally countered that weather had always been poor in the region. As part of Baring’s piece, he interviewed Rudolf Geiger of the Munich Meteorological Institute, who explained that one must differentiate between local and regional (over 50 kilometers) effects of bombs. In order to state that there were clear affects of explosions

¹⁵⁶ *MM*, “Der Streit um die Nobelpreisträger und um den radioaktiven Regen,” July 21/22, 1956. A. Schladitz also wrote that it was unwise to question the brilliant physicists, but Otto Sedlmeier argued that a rocket influenced a small amount of weather, so a hydrogen bomb should theoretically transform global climate.

¹⁵⁷ *MM*, “Die Atombomben und das Wetter,” July 28/29, 1965. Medical Dr. Adolf Kimmerle also wrote that there were many years of extra rain: 1860, 1888, 1889, 1890. He also noted that the year 1816 did not have a summer.

¹⁵⁸ DM NL 80 Gerlach 142-01, Georg Böse to Walter Gerlach, Feb. 7, 1957.

two criteria must be met. First, meteorologists must observe change; but weather patterns can only be observed after hundreds of years, and the bomb only existed for 15 at that point. Second, is the consideration of energy. The WMO came to the conclusion that 800 hydrogen bombs would be necessary to halt a hurricane that had only existed four-and-half hours. A normal storm has the power of ten to one-hundred bombs. In other words, he and the WMO concluded that the hydrogen bombs could not affect climate.¹⁵⁹

With respect to Albrecht Montegelas, who rightly postulated that cold weather also existed in the early nineteenth-century, the Munich weather panic of 1956 does represent a new, unique circumstance. In Europe, temperatures had steadily risen since the end of the Little Ice Age, in approximately 1850. Following thirty years of some of the warmest temperatures in human history, 1910-1940, with Europe having its longest summers between 1933-1952, 1956 was one of the coldest, darkest years in recent record. This was the beginning of period of relative cooling, ending in the nineteen-seventies when the Northern Hemisphere experienced record lows—prompting many experts to overzealously claim another Ice Age had begun. Climate historian Rüdiger Glaser, who has charted 1000 years of central European climate, regards 1956 as being an unusually wet and cool summer even within this cold spell, which normally witnessed relatively cool, dry summers.¹⁶⁰ Thus, when Bavarians complained that this was the worst winter in memory, they were correct in their assessment.¹⁶¹ Furthermore, their interpretation of the weather change was new, because they imagined an androgenic global cooling. Unlike

¹⁵⁹ SZ, “Die Atombombe und das Wetter,” Dec. 11, 1958; Gieger also joked that everyone only blamed bad weather on the bombs, since no one seemed to complain about climate change when the weather was beautiful.

¹⁶⁰ Rüdiger Glaser, *Klimageschichte Mitteleuropas: 1000 Jahre Wetter, Klima, Katastrophen* (Darmstadt: Primus Verlag, 2001), 177.

¹⁶¹ H. H. Lamb, *Climate, History and the Modern World*. 2nd edition. (New York: Routledge, 1995), 267-281, 383.

previous cooling phases, such as the year with no summer, Germans believed it was not caused by the natural or supernatural. Rather, it was the result of mankind's pompous experimentation with new technology.

Perhaps this notion stemmed from the recent American project Cirrus, experiments to enhance rain with silver iodide smoke, called 'cloud seeding,' which could be used to bolster agriculture. The American military also researched wartime applications, to potentially attack the Soviets.¹⁶² *Newsweek* reported on the topic in an article on weather modification called the "Race with the Reds" in 1958.¹⁶³ Or this mentality could be the result of concurrent changes in the study of climatology. Prior to weather models and radar technology developed during World War II, the scientific community regarded global climate to be mostly static, changing only over thousands of years, and outside the influence of mankind. In the 1940's, the press was less convinced, and, as a reaction to the warming phase between 1860-1940, began to question whether recent recorded warming would lead to some sort of disaster. It was at this time that Gilbert Pass of John Hopkins University and Dave Keeling of the California Institute of Technology announced in 1955-1956 that it was possible to modify climate through industrial production of CO². However, both experts calculated that this would only happen in the far future. Still, while these theories would not become widely accepted for twenty years, the convergence of the CO² discussion, the ban-the-bomb debates, and the Cold War weather modification gave birth to the idea of anthropogenic global climate

¹⁶² Spencer Weart, *The Discovery of Global Warming* (Cambridge: Harvard University Press, 2003) 23.

¹⁶³ James Rodger Fleming, *Historical Perspectives on Climate Change* (New York: Oxford University Press, 1998), 119.

change.¹⁶⁴ This suggests that a close relationship exists between the cultural memory developed during the short-term cold phase between 1945 and 1975, the Cold War, and reception of new technology during the fifties. Despite their reputation for parochial thinking, the Bavarian peasants rather serendipitously developed a peculiar global climate perspective before even most climatologists.

Confidence in the authorities in charge of inspection further eroded when a series of scandalous mishaps shocked the Munich press. The most noted was the discovery of an iridium capsule at a construction site on the corner of Mauerkircherstraße and Rümelinstraße on December, 17, 1957. Early in the morning, a small capsule from a radiation-measuring device was discovered missing, suspected of lying in thick grass in the construction site. At 7:30 A.M. a special police task force, led personally by Minister of Interior, Otto Bezold, arrived to investigate with Geiger counters, and quarantined the area for fifty meters. When the small capsule was discovered and unlocked, the iridium capsules dropped out, and took some time and effort to recover. The Technical Inspection Association ordered the site evacuated, and the soil excavated for more than fifty meters in diameter, to be sent to a test lab in Garching. A Göttingen Isotope Firm, which had provided the iridium, was called in to remove the wastes. All personnel in the vicinity had to undergo blood testing.¹⁶⁵ To make matters more shocking, the measuring apparatus belonged to a Welding Training and Inspection Center Munich, a company that did not have a state license to own such a device, but had been contracted by the City of

¹⁶⁴ Spencer Weart, *The Discovery of Global Warming*, 22-28.

¹⁶⁵ SZ, "Baustelle in Bogenhausen radioaktiv verseucht," Dec. 18, 1957; *Abendzeitung*, "Atom-Alarm in München," Dec. 18, 1957.

Munich to inspect welds on gas pipes.¹⁶⁶ Once the Ministry of Interior met to discuss the matter, it concluded that even though the Göttingen firm did not have Bavarian permission to provide the Welding Center radioactive materials, the ministry had no jurisdiction over a firm located in Lower Saxony, which did not have the same atomic ordinance.¹⁶⁷

Waste disposal was the most problematic and unsolved of all issues. On site disposal requires the separation of radioactive material into three levels, high, medium, and low. Medium level wastes are evaporated so that any remaining low level wastes can be placed in water ponds and diluted—later to be returned to the environment after a period of time. High level wastes are stored in concrete-lined cans inside of a concrete storage facility, with walls six to eight inches thick. Physicist Max Pollerman foresaw further necessary security measures, which he wanted to present to the International Atomic Energy Agency—but was unable to do so—which included elevating the storage shed to protect it from flooding, surrounding it with trees to block the wind, and fences to keep out non-security level personnel.¹⁶⁸

While he recognized the difficulties surrounding atomic waste management, Dr. Leibmann of the Bavarian Biological Testing Center was confident that Bavaria could become a world leader in the industry, because of first rate water cleansing facilities. He explained that Bavarian sewage management incorporated a mixture of nature and technology, a procedure that would soon be copied all over the world. Furthermore, the Americans had recently proven that Kaolin, a product well developed in the Bavarian

¹⁶⁶ *MM*, “Gammastrahlen in Mülltonne,” Dec. 18, 1957.

¹⁶⁷ *SZ*, “Atom-Unfall macht den Staat Aktiv,” Dec. 20, 1957.

¹⁶⁸ DM NL 111Maier-Leibnitz 014, H. Maier-Leibnitz and Pollerman: The Reactor FRM of Technische Hochschule München: Facilities and Program, July 31, 195?,

plastics industry in the Urgestein region, was quite suitable for ventilating radioactive wastes. With these two coinciding occurrences, Leibmann hoped that Bavaria could find a niche within the atomic industry.¹⁶⁹

Others were less optimistic. Most physicists believed wastes not used in research, medicine, or industry would be eventually stored in old salt mine shafts, which were relatively abundant in Northern Germany, but less so in Bavaria. These types of formations were considered secure from water leakage, and should remain geologically stable for thousands of years, allowing decomposition of the deadly isotopes—or at least until technology was developed that could make sufficient disposal possible.¹⁷⁰ In particular, scientists in the fifties were quite optimistic that in ten to fifteen years fast-breeder and reprocessing technology would be advanced to the point that most wastes could be recycled. Once this was the case, governments would potentially operate nuclear power in a complex cycle of reusable material. The Federal Republic planned to do such a program in the future. In the meantime, the individual states were left to develop a more concrete plan. One Bavarian idea was to store on site for a short time, then ship wastes produced to the United States.¹⁷¹

Regardless of the final destination of Bavarian wastes, be it to America or to a long-term German storage facility, the Bavarian government needed a short-term so-called ‘temporary storage’ (*Zwischenlage*). The initial plan was to construct a centralized facility that would house all Bavarian wastes in concentration, not just those produced from reactors, but also those isotopes utilized in hospitals and industry. At this time, no

¹⁶⁹ *MM*, “Radioaktive Abwässer dürfen nicht einfach versichern,” Nov. 4, 1955.

¹⁷⁰ DM: NL 111 Maier-Leibnitz 001, George Fischer of the Institut für Gesteinskunde der Universität München to Maier-Leibnitz, July 3, 1956.

¹⁷¹ *Frankfurter Neue Presse*, “Bayern will Atommüll nach Amerika schicken,” May 31, 1957.

mountain location was available, so the State Planning Authority in the Ministry of Economics began to scout other types of sites, in particular former World War Two munitions bunkers. In theory, these would have the advantage of being bomb proof, and in relatively remote locations, because the ministry decreed that the waste storage site could be placed neither near residential nor tourist regions.¹⁷² The Authority began looking for a site in Northern Bavaria, in Upper Franconia. This was controversial, because the Upper Franconian Regional Government provided a number of excuses to keep the project out of its region. It noted that the munitions storage at Breitengüßbach was used by the Bundeswehr and the facility near Bamberg by the American Military. Both of these positions, plus the one near Frankenalb were near the water supply for Bamberg and other nearby towns. Just outside of Kronach, at Veste Rosenberg there was a former Messerschmidt plant site that was not near any water sources, but Kronach was a center for tourism. “In order to avoid considerable unrest,” the city of Kronach, by way of the State County Bureau Kronach, asked the government to refrain from using any facility in the region.¹⁷³

The truth remains that all of the administrative districts, from Swabia to Upper and Lower Bavaria, objected to a centralized temporary storage facility on various grounds, usually related to habitation, tourism, or water supply. This was compounded by the proliferation of Bundeswehr and NATO military facilities in Bavaria.¹⁷⁴ Middle Franconia argued that it would only store wastes produced locally in Nuremburg or

¹⁷² BayHSA: MWi 21937, Teicher of the MWi to the Landesplanung, 7260-III 30a- 65753, Nov. 7, 1958.

¹⁷³ BayHSA: MWi 21937, Regierungsdirektor Bickel of the Bezirksplanungstelle of the Regierung von Oberfranken to the Landesplanungsstelle in the MWi, III/8 - 2069/58 3/3, Nov. 28, 1958.

¹⁷⁴ Wolfgang Schmidt, “‘Eine Garnison ware eine feine Sache.’ Die Bundeswehr als Standortfaktor 1955 bis 1975,” in *Bayern im Bund. Band I: Die Erschließung des Landes 1949 bis 1973*, Thomas Schlemmer and Hans Woller ed. (Munich: R. Oldenbourg Verlag, 2001), 357-442.

Erlangen, where the University of Erlangen was beginning an isotope research program. Additionally, all of the likely candidates, former munitions facilities, would likely house the Bundewehr or NATO. The Middle Franconia government was certain that any further investigation into specific locations in any region would lead to “unrest with the county population and immediate protest”.¹⁷⁵ Another idea was storing the waste product in a cave, perhaps in the Alps or the Frankenalb. Unfortunately, the Bavarian Geological Bureau declared most caves near cities attracted tourists and hikers, and those in the mountains were either too difficult to reach, filled with water, or near other tourist regions, such as Berchtesgaden.¹⁷⁶ The State Planning Authority also approached the Administration for Industrial Sites Corporation for suggestions, but it could not recommend any sites, because all were in the vicinity of towns and residential areas.¹⁷⁷ The only solution was to diffuse the material into three smaller facilities, so that a minimal amount would be stored in any one facility. For Northwestern Bavaria, the remote location of Kahl was chosen, in part because it would soon house a test reactor. A site near Fürth-Erlangen would serve the Nuremberg region, and a location outside of Augsburg, or at the reactor in Garching, would house Munich wastes.¹⁷⁸

Finding a suitable location for the smaller facilities remained a problem, particularly for the Munich region. In 1959, the Upper Bavarian Regional Planning Authority discussed the state-owned Hagenau Forest, which lies 3.5 kilometers from Schrobenhausen and 1.5 km from Steingriff, between Augsburg and Munich. But shortly

¹⁷⁵ BayHSA: MWi 21937, Regierungsvizepräsident Hoffman of the Regierung von Oberbayern to the Landesplanungstelle in the MWi, AI/ 4 1610/58, Dec. 3, 1958.

¹⁷⁶ BayHSA: MWi 21937, Direktor Nathan of the Bayerisches Geologisches Landesamt to the Landesplanungstelle in the MWi, 312i-1k-2775, Dec. 12, 1958.

¹⁷⁷ BayHSA: MWi 21937, Verwaltungsgesellschaft für Industriegrundstücke mbH to the Landesplanungstelle, 76055, Nov. 27, 1958.

¹⁷⁸ BayHSA: MWi 21937, Teicher to the Landesplanungsstelle, 7260-III 30 a – 78022, Dec. 11, 1958.

thereafter, it came to the conclusion that the nearby Bolkow Firm, which was known for manufacturing defense contracts, was expanding, so this did not make a good fit.¹⁷⁹ Then the Highest Construction Bureau recommended the forested area known as Neuherberg near Oberschleißheim; but the county and city of Munich, namely Fischer, strongly objected to this proposal, because Oberschleißheim was projected to become a bedroom community (*Entlastungsstadt*) of Munich.¹⁸⁰ At the close of 1959, waste storage was long from settled. In a last attempt to save the Neuherberg location, Teicher tried to distinguish between the waste produced in test reactors, like Kahl, and that which derived from hospitals, science, and industry—a new bureaucratic tactic that did not save the Neuherberg choice, but would become important for the future.¹⁸¹ Beginning in 1960, the Bavarian state suggested storing all radiation produced in Munich—namely from hospitals and the FRM—in Feilen Forest, a move that met strong opposition. Wastes produced in Kahl would remain on site, until the Federal Government constructed a centralized processing facility.¹⁸²

While the issues of thermonuclear explosions, climate change, and waste storage seemed periphery to the construction of a nuclear research facility, they were in fact central to framing the public and administrative understanding of radiation inspection. While it has been said that ordinary people mistakenly conflated peaceful nuclear power with military experiments, they had good reason to do so; the same officials that were

¹⁷⁹ BayHSA: MWi 21937, Regierungsdirektor Steinling of the Regierung von Oberbayern to the Landesplanungstelle, 2303/59, June. 18, 1959. Henniger of the Regierung von Oberbayern to the Landesplanungstelle, 5910 At - LP 3 – 8790, Feb. 20, 1960.

¹⁸⁰ BayHSA: MWi 21937, Vormerkung MI/6 4220/59 At, from Witzmann of the Regierung von Oberbayern, Nov. 26, 1959.

¹⁸¹ BayHSA: MWi 21937, Memorandum by Teicher of the SM für Wirtschaft und Verkehr, 5950/ AT -- III 30a—79015, Dec. 5, 1959.

¹⁸² See the next chapter.

charged with monitoring the reactor station lacked affective coordination of procedure and public announcements throughout the fifties—resulting in numerous public misunderstandings.

1.4 Conclusions

All of the doubts about nuclear fission during the nineteen-fifties, including the medicinal, military, industrial, and scientific applications, crystallized in the debates over the appropriate location for nuclear facilities. This location was categorically bound to a host of cultural, environmental, and meteorological concerns. Of particular importance were traditional local Bavarian endeavors, like brewing, tourism, gardening, agriculture, and the arts. Growing in relevance, though, were wide-ranging regional concerns about hydrologic and atmospheric safety, climate change, reprocessing and waste storage, and the threat of the Cold War. At the same time, while some historians, like Wolfgang Müller, have categorized this period's opposition as mostly 'bureaucratic' in nature,¹⁸³ the records make it clear that the civil service consistently adhered to standards demanded by ordinary Bavarians. Implicitly, as these criteria became increasingly more comprehensive and well articulated, it ensured that nowhere in Bavaria would suitably meet the requirements. However, it was not until after the spread of the consumer oriented society of the nineteen-sixties that these demands became explicit.

By the end of the decade, the Bavarian government had learned some valuable lessons about developing the nuclear program, which it would employ in the next, more

¹⁸³ Wolfgang Müller, *Geschichte der Kernenergie in der Bundesrepublik Deutschland Vol. II: Auf der Suche nach dem Erfolg—Die Sechziger Jahre*. Stuttgart: Schäffer—Poeschel Verlag für Wirtschaft, 1996.

tranquil decade. First, because environmental and cultural factors played such a large role in public perception, more remote sites were selected, such as in small towns like Kahl or Gundremmingen. In the sixties, the government began to more strictly coordinate planning, in a larger, more technocratic manner, organizing large regions of Bavaria (*Raumordnung*). Second, the government would much more forcibly disassociate the hydrogen bomb from civil energy production. Third, they would purposefully coordinate announcements, to better relay a unified consensus.

Unfortunately, the government never found a solution to the final major problem—that is waste disposal—which continues to preoccupy German officials in the present today. It should also be noted that the rise of the consumer oriented economy of the sixties temporarily deflected attention away from the nuclear program, in part because electricity was so vital. By the late fifties, as Paul Erker points out, most Bavarian officials had turned towards fossil fuels as the source of Bavarian modernization, which for the short-term was a cheaper, easier, and less controversial solution.¹⁸⁴ Consumption also reduced traditional Bavarian industries in importance—particularly agriculture—diminishing the number of farmers alienated by new nuclear facilities; on the other hand, it generated new relevant grievances that would dominate the decade—namely those associated with leisure activities.

¹⁸⁴ Paul Erker, “Keine Sehnsucht nach der Ruhr,” 480-511.

Chapter 2: The Consumer Economy, the Diminishing Landscape, and Nuclear Power

Between 1955 and 1965 Bavaria underwent a notable structural transformation. It was towards the end of the Economic Miracle that Bavaria's modernization effort would have been most evident. While generally welcomed in an era in which economic growth and electrification were conflated with progress, the change did meet some growing pains. In particular, government agencies, corporations, nature preservationists, farmers, and ordinary Bavarians competed for space in the diminishing available landscape. One of these interests—perhaps one of the more contentious—was the plan to electrify Bavaria by using nuclear fission as a source of power. With the general acceptance of the economic miracle, most Bavarians adapted to living with the construction of nuclear power, as long as it did not invade local space. However, the industrialization of Bavaria, while in the short term reducing the influence of principal opponents of atomic energy, namely the farming and federalist interest groups, generated the new conditions that would threaten its future ambitions. In particular, the expansive spatial needs of a full scale nuclear power plant would have to contend with urban sprawl, the limitations of hydrologic, atmospheric, and terrestrial resources, and the consumer oriented economy.

This chapter will explore the social and economic transformation of the early nineteen-sixties, by first examining the modest attempts in the late fifties to erect a nuclear power program, a partially successful endeavor which ultimately led to the growing reliance on petroleum and natural gas. It will then analyze the social ramifications of this shift in energy emphasis, in terms of developing a consumer oriented

economy based upon automobile transportation and leisure activities, and the skepticism in turn raised by the diminishment of available landscape. Finally, it will look at two examples of nuclear power and science in the early sixties—in Gundremmingen and Garching—in which urbanization and industrialization tested the limits of space, particularly in terms of water consumption and nature preservation, resulting in minor disputes that would point the way towards larger, more complex protests discussed in Chapter 3.

In the decade between 1955 and 1965, the Bavarian political scene changed considerably, but energy ambitions remained largely intact. Between 1945 and 1948, the Christian Social Union was the dominant party. Originally conceived as the heir to the Weimar era Bavarian People's Party (BVP), a bastion of federalism against the centralized government, it was also a sister party to the larger Christian Democratic Union, an ecumenical party of Christian democracy. These two clashing goals generated an awkward character of dualism in the party. On the one side was the liberal branch of the CSU, led by Josef Müller, which pursued strong ties with the CDU, liberal modernization, Christian interconfessionalism that would appeal to the Protestant North Bavaria, and moderate federalism. On the other side was Fritz Schäffer, who pushed for strict Catholicism, firm federalism, and conservative agrarianism, which appealed strongly to Southern Bavaria, especially the regions of Upper and Lower Bavaria. In the constitutional convention election of 1946, the CSU won in a landslide, obtaining 58.1 percent of the electorate.¹ But by 1948, the two factions had split, as the strict federalists left the party in droves, moving into the Bavarian Party, as a reaction against the refugees from Eastern Europe. From 1949-1955, the CSU lost about half of its members, and was

¹Thomas Schlemmer, *Aufbruch, Krise und Erneuerung*, 90-91, election tallies from 123.

spiraling in crisis. In the 1949 Bundestag election, Bavarians voted 29.2% CSU, 22.8% SPD, 20.9% BP, with the rest going to other splinter parties devoted to addressing refugee grievances. The CSU had its strongest showing in Protestant dominated Franconia, and the Bavarian Party gained greatly in the Catholic and agricultural South.² The CSU was wedged in a precarious position, between the radical federalists, who were voting Bavarian Party, the modernizers of Northern Bavaria, who tended to vote SPD, and supporters of the liberal FDP.

The 1954 Bavarian state elections were a disaster for the CSU, even though it received 33% of the votes cast, because the SPD, BP, FDP, and the splinter party known as the Alliance of the Refugees (GB) formed the so-called Coalition of Four, under SPD leader Wilhelm Hoegner, excluding the CSU. Hoegner pursued a policy of Bavarian industrialization under the guidance of cultural minister and former director of the Technical University of Munich, August Rucker, whose 1956 plan proposed spending 1.8 million DM on science, education, and technology. Of principal importance were the Bavarian nuclear energy and atomic physics programs.³ It was under the leadership of younger politicians, namely Hans Seidel, Franz Josef Strauss, and Otto Schedl, that the CSU was able to navigate out of this dilemma, by coupling federalism with modernization. These followers of Müller argued that the way to preserve Bavarian federalism was to exploit the position of the CDU in Bonn, in order to bring modern technology and industry into Bavaria.⁴ They also emphasized local urban culture and Bavarian identity that was bound to German history, arriving at a more inclusive view of

² Schlemmer, *Aufbruch, Krise und Erneuerung*, 356; See also: Bernhard Taubenberger, *Licht übers Land: Die bayerische Viererkoalition 1954-1957* (Munich: Münchenverlage, 2002).

³ Stephan Deutinger, *Vom Agrarland zum High-Tech Staat*, 135

⁴ See: Mark Milosch, *Modernizing Bavaria*. 49-60.

the Bavarian State, which allowed both Franconians and Sundentenland refugees to integrate into the party.⁵ Adopting ideology from both the SPD and the BP permitted the CSU to appeal to their principal rivals' electorate. At the same time, the 1954 results motivated the party to transform from a "party of notables" to a "mass...party of a modern type."⁶ In the 1957 Federal and the 1958 Bavarian elections, the CSU returned to power, on the basis of an appeal to modernizing federalism. Increasingly, the refugee splinter coalition and the BP diminished in importance and were absorbed by the CSU—as was the case the 1958 election, with the CSU collecting 46% of the vote, and the BP falling to approximately 8%. By 1962, the CSU was garnering just under a majority of the electorate (47.5%), the SPD 35%, and the entire rest of the field about 18%.⁷ In the sixties, like the Federal Republic, Bavaria became a "two-and-one-half-party" system. Unlike the Federal Republic, by the highpoint of the 1974 elections, the CSU was politically "hegemonic," with 61.1% of the vote.⁸ Although the CSU stormed into the lead of politics in Bavaria, replacing the Four Party Coalition, they largely adopted the previous program. In many ways, the political transformation resulted in policy continuity.

⁵ Graham Ford, "Constructing a Regional Identity: The Christian Social Union and Bavaria's Common Heritage, 1949-1964," in *Contemporary European History* 16, 3 (2007), 297.

⁶ Alf Mintzel, *Geschichte der CSU*, 68-69.

⁷ Alf Mintzel, *Geschichte der CSU*, 416.

⁸ Alf Mintzel, *Die CSU-Hegemonie in Bayern. Strategie und Erfolg, Gewinner und Verlierer*. (Passau: Wissenschaftsverlag Richard Roth, 1998), 47.

2.1 The Atomic Commission Plan

After the success of the Research Reactor in Munich (FRM), the Bavarian government and Bavarian Atomic Commission went forward with the intention of developing a largely sustainable atomic energy program. In the mid-fifties, Federal Republic politicians promoted atomic energy as a way to solve the so-called energy deficit (*Energielücke*), which they prognosticated would result when energy consumption overtook available coal resources.⁹ At the same time, West Germans articulated atomic energy as a path to both European integration, by partnership in international research, and a hope for energy autarky, if they could develop uranium and plutonium reprocessing. Joachim Radkau considers this hope to be largely “illusory,” in part because the technical requirements lay far into the future.¹⁰ Whereas the Federal Republic regarded fission as a method of achieving German sovereignty from the American monopoly, it represented a means for Bavaria to gain a measure of energy independence within the federalist system.¹¹ Hoegner had campaigned on the slogan, “Light over the Land,” an extremely popular appeal to provide electricity to the countryside.¹² The Hoegner led Four-Party Plan for Bavaria of 1956 prioritized the introduction of cheap energy sources—above all petroleum, natural gas, and domestic uranium. For the nuclear program, Hoegner hoped to mine domestic uranium and graphite, and build energy producing reactors in 10 to 15 years.¹³ Up to that point, Bavaria had been a resource deficient state, which relied on importing coal from the Ruhr

⁹ Joachim Radkau, *Aufstieg und Krise*, 113.

¹⁰ Joachim Radkau, *Aufstieg und Krise*, 169.

¹¹ DM NL 111 Maier-Leibnitz 003, Strauss speech to the Wirtschaftsbeirat der Union, July 9, 1956.

¹² Stephan Deutinger, *Vom Agrarland zum High-Tech Staat*, 135.

¹³ *MM*, “Hoegner baut auf Öl und Uran,” Jan. 18, 1955.

Valley, or on small-scale hydroelectric power.¹⁴ In 1960, Bavaria still imported 75 percent of its energy.¹⁵ In order to achieve relative Bavarian energy autarky, the Bavarian Atomic Commission pursued a three pronged course with the hope of eventually achieving sustainability: researching, testing, then constructing nuclear power; Uranium production and processing; and disposal of nuclear wastes. Each of these tasks met difficulties in finding suitable locations and approaching price competitiveness. The result was that Bavaria did not achieve nuclear autarky, but rather modernized in the short-term through the consumption of fossil fuels—oil and natural gas.

While after about 1960 Bavarians displayed a growing acceptance of nuclear energy, in part because of increased energy consumption, in part because of the international cessation of all but subterranean thermonuclear explosions, and in part from the remoteness of the new locations, public doubts about the FRM carried over to the Kahl Test Reactor, the first German test reactor of its kind. The reactor program represented part one of the Atomic Commission Plan, designing viable prototype reactors within the Bavarian landscape. Kahl was a tiny village on the Main River in the far Northeastern corner of Bavaria, near the Hessian border. In spite of the fact that few Bavarians had previous knowledge of the little known village, people in the region and in Munich paid close attention to the planning process of the 15 megawatt reactor from 1956 until 1960. Although the grievances were less broad than those faced at Garching and more easily overcome by the officials in charge, the affair highlighted the difficulty in surmounting media speculation and public anxiety. It also pointed towards the

¹⁴Stephan Deutinger, "Eine Lebensfrage für bayerische Industrie," 48-49.

¹⁵ Alf Mintzel, *Geschichte der CSU*, 256.

signature environmental problem of the sixties for nuclear landscape planners—the hydrologic system.

Writing in the *MM* in 1957, Werner Runge noted how most Bavarians generally welcomed the notion of atomic energy, but created such strenuous requirements on location and security, that these criteria were nearly impossible to meet. Even after significant planning, Runge worried that the Kahl reactor would remain forever entangled in the bureaucratic process. While on the one hand this procedure served as a trial run, in which the German and Bavarian governments could test their administration, on the other hand, they had to plan for every possible contingency. These included flood prevention and erecting dikes, waste disposal, sewage, potential reactor catastrophes, plant and animal life, sabotage, the atomic law, and even “the psychology of the German people.” By the last criterion, Runge was negatively comparing the apparently more reluctant German acceptance with others, particularly Anglo-Americans, who seemingly lived contentedly in close proximity with reactors (or so the German press believed).¹⁶

By 1956 or 1957, most officials that had been swept up in the whirlwind atomic euphoria of 1955, came to the stark realization that atomic energy would not be cost-effective in the near future. At an estimated 10 pfennig (1/100 of a DM) per kilowatt hour, the price of nuclear energy would need to be halved in order to compete with the six pfennig per kilowatt hour that brown coal offered. Energy from Ruhr Valley coal was even cheaper. Beyond building reactors to scale, the only projected way of reaching this goal of competitive prices required operating the reactor twenty-four hours a day, with

¹⁶ *MM*, Werner Runge, “Türen ohne Klinken,” July 17, 1957.

three shifts. In Bavaria this was not considered a viable option.¹⁷ Still, directors at RWE, Rheinland Westphalia Electricity Company, described the fifteen megawatt reactor planned for Kahl, the first test reactor on German soil, as a positive step towards making nuclear energy profitable—in ten to fifteen years. Bayernwerk also purchased a twenty percent share in the project, with the intention of gaining experience for Bavarian utilities. The data compiled from this test reactor would be extrapolated to larger reactors, estimating future expenses. Siemens-Schuckertwerke, a subsidiary of the Siemens Corporation, would undertake the construction, at an estimated cost of 20-30 million, at a former brown coal mine near Dettingen on the Main River, just across the Bavarian border from Frankfurt in Hesse.¹⁸ For RWE, the Kahl project represented a continuation of the twenty year ambition to expand southward into Bavaria, and was further prompted by the 1957 West German coal crisis resulting from the first postwar coal oversupply.¹⁹

The area near Dettingen was chosen for a number of reasons. Perhaps the most prominent was the relative proximity to Frankfurt, some sixty kilometers west, allowing the electricity to be easily bound to the city's energy grid. A conventional power plant already operated at the site. While the small reactor would not provide significant energy output, future expansion on the site would be an integral part of Frankfurt's supply system. This was important, because officials estimated that Frankfurt already needed an

¹⁷ *Bayerische Staatszeitung*, Sorger Rosenheim, "Atomstrom aus Kahl," June 19, 1961.

¹⁸ *Handelsblatt*, "RWE baut 10000-kw-Atomkraftwerk," 98 (August 20, 1956). *Die Atomwirtschaft*, Heinrich Mandel, "Die Plaung des RWE auf dem Atomsektor," 10 (1956).

¹⁹ Joachim Radkau, "'Wirtschaftswunder' ohne technologische Innovation? Technische Modernität in den 50er Jahren," in *Modernisierung im Wiederaufbau: Die westdeutsche Gesellschaft der 50er Jahre*, Axel Schildt and Arnold Sywottek ed. (Bonn: Verlag J.H.W. Dietz Nachf., 1993), 151.

increase of 450 MW, with a further 300-400 MW necessary in the future.²⁰ Some newspapers attempted to couple the energy output of the reactor with the new consumer market, and particular those gender roles that had developed out of it. For instance, one newspaper reassured the housewives of Frankfurt that fission-generated electricity would “cook their soup,” in the same manner as conventional electricity.²¹ Furthermore, this area rested on a convenient rail line, which ran from Nuremberg-Bamberg, crossed the Main nearby, and proceeded directly to Frankfurt. The site also resided favorably on the Main River, which would provide the necessary cooling water, and a method of water disposal. Finally, avoiding the considerable debate about the proximity of the FRM to Munich, this site, as a former coal mining region, was considerably more remote and less likely to raise attention. It also met geologic and metrological requirements. All of these criteria made the location also favorable for future expansion, for a prospective second reactor of 300 MW.²²

According to the residing regional government of Lower Franconia, the Dettingen area presented several problems for construction. Foremost was the probability for flooding. Surveys from the Water Bureau confirmed that the planned site resided at 106.5 meters over sea level, 1.2 meters lower than the 1882 flood that reached 107.81 meters. In other words, the location lay in the hundred year flood plain. Historical evidence suggested floods of an even greater magnitude were possible. In 1342, the Main crested at 109.2 meters over sea level, registering the greatest flood in the last 1000 years—making the 1000-year flood plain at 110 meters. The bureau suggested erecting

²⁰ BayHSA: MWi 22185, MWi, “Niederschrift zur Besprechung am 27.3.57 in Aschaffenburg- Dettingen, IV F 3 - E 966 III”, March 27, 1957.

²¹ *8 Uhr-Blatt*, “Atom-Strom für den Küchenherd,” June 15, 1959.

²² BayHSA: MWi 22187, Bayerisches Landesamt für Wasserversorgung und Gewässerschutz to the Oberste Baubehörde in MINN, 4225-4264, 1957; MINN to Wilhelm Hoegner, May 23, 1957.

water control measures, perhaps a dike or dam. However, this was left open to interpretation, because the 1882 flood was prior to water controls constructed at the turn of the century. Since then, no flood had reached that height; but without at least one hundred years of evidence, any claims at precise flood predictions were tenuous and tendentious at best. And the Water and Direction Authority believed the control measures were not as effective in flood prevention as was often presumed.²³

Additionally, recent historians have emphasized how flood control measures, by restricting the river's natural ability to inundate upstream lowlands, actually can increase the breadth of flooding downstream and the frequency of so-called hundred-year floods.²⁴ Thus, the Land Planning Authority not only required flood prevention measures, but also a contingency plan if inundation occurred.²⁵ A four meter earth wall was erected, to raise the area 110 meters over sea level, with the strong confidence that the Main would never surmount this elusive height.²⁶ While naturally one might assume that these flood prevention measures were normal procedure when constructing any sort of industrial facility, the press and the public regarded it to be a special circumstance occurring out of extreme necessity. Simply put, with a nuclear reactor, officials were expected to render inundation categorically impossible.

Of additional concern was the exploitation of the Main River. The Water Authority declared normal reactor operations would not represent a radioactive danger

²³ BayHSA: MWi 22185, Ministerialrat Henniger of the MWi to RWE, 5930 /E5- LPI 3- 45280, July 12, 1957. Wasser-und Schiffartsdirektion Würzburg, "Gutachtliche Stellungnahme," July 8, 1957; Regierung von Unterfranken Bezirkplanungstelle to the Landesplanungstelle, Oct. 25, 1957.

²⁴ See for instance David Blackbourn, *Conquest of Nature*, 10; or Mark Cioc, *The Rhine an Eco-Biography. 1815-2000* (Seattle: University of Washington Press, 2002), 5.

²⁵ BayHSA: MWi 22185, Ministerialrat Henniger of the Bay. Sm für Wirt u Verk. to RWE, 5930 /E5- LPI 3- 45280, July 12, 1957. Wasser-und Schiffartsdirektion Würzburg, "Gutachtliche Stellungnahme," July 8, 1957; Regierung von Unterfranken Bezirkplanungstelle to the Landesplanungstelle, Oct. 25, 1957.

²⁶ BayHSA: MWi 22185, MWi to the Landesplanungstelle, 5930/ E5 - III 30a-57443, Oct. 31, 1957;

for drinking water, but the thermal discharge presented further problems. As the Kahl reactor would be quite small, the Authority assumed it would not overheat the water, but the Main was already distressingly “heavily burdened” from regional water disposal. In particular, the city of Aschaffenburg and the nearby glass factory and power plant already heated the water to 28 degrees Celsius, and the region desperately required a water treatment facility. While the Kahl reactor presented little threat to existing conditions, the Water Authority was extremely hesitant to allow RWE to expand in the area. Furthermore, since the Main flowed into the Rhine River, which then left West Germany for the Netherlands, the Water Authority wanted to ensure that radiation levels met not only Federal Republic regulations, but also international ones.²⁷

Another problem was rooted in the surrounding landscape. As was convention in the United States, small reactors required a half-mile radius of uninhabited land, where only farmland could exist. According to the physicist on the project, Dr. Mandal, this was more for psychological consideration than for actual health concerns, since radiation was contained within the primary water circuit, unable to leak. The State Bacteriological Testing Office determined that the village of Groß-Welzheim, 300-500 meters from the reactor, directly along the border between Groß-welzheim and Kahl Counties, would need to be relocated. Given its inconvenient location on the borderline, this would present difficulties for the responsible authorities. Additionally, the Lower Franconia government wanted RWE to pay for preliminary probing of the flora and fauna, the soil,

²⁷ BayHSA: MWi 22187, Bayerisches Landesamt für Wasserversorgung und Gewässerschutz to the Oberste Baubehörde in the MINN, 4225-4264, 1957.

and water, in order to avoid “upsetting the population.”²⁸ When the authorities pre-examined the area for radiation, some of the media offered a reassuring tone to its readers. For instance, the *8-Uhr Blatt* stated that, though sheep would graze near the base of the reactor, the examinations ensured that “no wool on a loveable lamb’s [head] would be disturbed for the sake of progress.”²⁹

Given the remoteness of the location, the Land Planning Authority debated the name of the reactor. The name had to reflect that this was a momentous project, even though it was being constructed in an otherwise unknown location, on the border of several villages. A second consideration was put forward by the Landrat, Heinrich Degen, who preferred the name Groß-Welzheim to Dettingen, to avoid confusion with the older, conventional power plant. RWE official, Heinrich Mandel, suggested the name Kahl, because it had a post office and rail station, and, however diminutive, was at least displayed on a conventional map. Committee members, however, including Minister President Hölzl, disapproved for “psychological reasons”, suggesting Groß-Welzheim/Post Kahl. His reasoning was that the name Kahl would not elicit enough attention. The debate was settled by the state secretary of the Ministry of Economics, Willi Guthmuths, when he argued that the “Kahlgrund” (Kahl region) is known in tourism, and would thus avoid the “psychological” deficiencies. In particular, Kahl Lake was a beach destination for residents of Frankfurt and Aschaffenburg. The secretary’s announcement proves to be an exception to the general guideline for tourism under which planning committees functioned. In the case of Kahl, instead of making all efforts to avoid coupling a reactor

²⁸ BayHSA: MWi 22187, Regierung von Unterfranken to the Oberste Baubehörde in MINN, IV 6 - 956 a 7, April 17, 1957. See also: BayHSA: MWi 22185, MWi, “Niederschrift zur Besprechung am 27.3.57 in Aschaffenburg- Dettingen, IV F 3 - E 966 III”, March 27, 1957.

²⁹ *8 Uhr-Blatt*, “Atom-Strom für den Küchenherd,” June 15, 1959.

with a tourist region, which almost always caused vehement public opposition, the Land Planning Authority encouraged the association, in order to boost recognition.³⁰ The *8 Uhr-Blatt*, a tabloid paper known for its sensationalism, later actually reassured the Frankfurt bathers that testing of Kahl Lake would continue to make it an attractive location for sunbathing, camping, and swimming.³¹

To the great surprise of RWE and many in the Bavarian ministries, which had attempted to maintain strict control over press releases, the Lower Franconian media leaked these Kahl discussions, leading to considerable public “unrest.” Several local institutions, led by the Groß-Welzheim village council, complained that they had not been “properly informed” on the project and wanted to be included in a lengthy deliberation with RWE and the state representatives.³² Degen, quite upset with the inexplicable press release, soon discovered that Guthsmuths had given the *Nürnberger Zeitung* permission to reprint the planning session.³³ By 1958, the Bavarian Atomic Commission felt that it had lost control of the media’s coverage of the nuclear program, such as the case of the misplaced Munich irradiated apparatus (chapter 1), the Kahl reactor, and in Karlsruhe, where public misconception that the reactor could produce weapons-grade plutonium intensified after 1955.³⁴ Beginning in January of 1958, it established the Subcommittee to Educate (*Unterrichtung*) the Public, with the sole

³⁰ BayHSA: MWi 22185, Landesplanungsstelle, MWi, Protokoll über die Sitzung zur Durchführung des Raumordnungsverfahrens betreffende Errichtung eines Kernnergie-Versuchskraftwerkes der Rheinisch-Westfälischen-Elektrizitätswerke A.G., June 13, 1957.

³¹ *8 Uhr-Blatt*, “Atom-Strom für die Küchenherd,” June 15, 1959.

³² BayHSA: MK 22185, Grasser of the Landesplanungstelle, 5930/E5 /LPI 3 / 44271, July, 2, 1957.

³³ BayHSA: MWi 22185, Guthsmuths to Degen, 5930/ E 5 - St – 44271, July 2, 1957.

³⁴ R. J. Gleitsmann, *Im Wiederstreit der Meinungen*, 89.

responsibility of coordinating press releases through the State Chancellor Office, in order to “enlighten the public” and combat sensationalist media.³⁵

While probably not a common point of view, one man felt that spending Bavarian money in Alzenau county—or anywhere in the Aschaffenburg region for that matter—was a waste, because it was historically owned, and would be eventually returned, to Hesse. He believed that the watershed area known as Spessart, which was east of Aschaffenburg, was the natural border between Bavaria and Hesse. Some people of the region were hesitant to metaphorically give Bavarian resources to Hesse—in this example, by giving up electricity—but this man believed that the infrastructure improvements, in the future, actually would be taken from Bavaria. He did allow for an exception, in which RWE provided the capital for the reactor; this meant that there would be no risk to Bavaria.³⁶ While I remain hesitant to place too much emphasis on what appears to be a solitary document from an exceptional source, this would suggest that some Pre-World War II ideas of particularistic identity and borders played a role in Bavarian fears in the region. Integration of Franconians and Hessians into Bavaria was an uneven process. While officials in Munich were using the opportunity to consolidate the Western border into Bavaria, some border residents were reluctant to do so.

Due to the inability of RWE to secure nuclear materials from its intended source, American Machine and Foundry Firm, the energy utility began to have doubts about the

³⁵ BayHSA: StK 12959, StK, Auszug aus dem Protokoll der 3. Sitzung des Arbeitsausschusses der Bayerischen staatlichen Kommission zur friedlichen Nutzung der Atomkräfte, Jan. 17, 1958; DM NL 80 Gerlach 023, StK, 3 Sitzung des Arbeitsausschusses der Bayerischen staatlichen Kommission zur friedlichen Nutzung der Atomkräfte, Jan. 17, 1958; BayHSA: StK 17019, StK, Bayerische staatliche Kommission zur friedlichen Nutzung der Atomkräfte; Unterausschuss zur Unterrichtung der Öffentlichkeit, July 23, 1958.

³⁶ BayHSA: MWi 22185, Anonymous to Guthsmuths, zum Bau des Bayerischen Atom-Versuchskraftwerks bei Kahl am Main, 43454, June 23/24, 1957.

project in the summer of 1957. Once alerted, the Munich press again began to rehash negative publicity—further aggravating Guthmuths. The *MM* stated that the project may never go forward, that the “carelessness and superficiality” (*Leichfertigkeit und Oberflächlichkeit*) of the project may indefinitely hinder its conclusion. RWE was forced to back out of its deal with AMF in the fall of 1957.³⁷ According to the press, by January 1958 RWE concluded that nuclear energy could not compete with the traditional energy sources, and began discussing a permanent delay in the project, preferring to wait until larger, more efficient reactors could come on line. RWE planned to build a large, commercial “Calder Hall” reactor, regardless of the outcome of the research reactor.³⁸ This setback delayed construction by approximately two years (from 1959 to late 1960), but AEG, General Electric Company, eventually came to the rescue and took the place of AMF in mid-1958.³⁹

By 1959, the *MM* reported, in connection with the soon-to-be-operational Kahl reactor, that nuclear power could lead to water shortages in Bavaria. Representative of Tolz and Garmisch-Partenkirchen counties, Kasper Seibold, complained that fallout radiation was contaminating Bavarian water sources, including in the surrounding Alps. What began as a discussion of the hydrogen bomb explosions quickly became a critique of nuclear power plant utilization of water. Whereas the debate over the *Atommeiler* only encompassed the possibility of irradiated water, the discussion in the sixties shifted to include the so-called ‘water budget’ of Bavaria. Professor Hans Liebmann, Director of the Bavarian Biological Testing Agency, speculated that one day, not far in the future,

³⁷ BayHSA: MWi 22185, Heinrich Mandel of RWE to Guthmuths, Nov. 6, 1957.

³⁸ *MM*, “Atomkraftwerke sind nach Ansicht des RWE noch nicht aktuell,” Jan. 22, 1958.

³⁹ BayHSA: MWi 22185, Niederschrift über die Besprechung am 7. Juli 1958 vorm. 9.30 Uhr im MWi, July 7, 1958.

regions in proximity to plants would have to delegate water supply. He hypothesized that the people who maintained the last water reserves would hold considerable power. The article labeled nuclear plants as “water devourers” (*Wassserfresser*), because of the demands for cooling water. In 1962 the release of the State Water Report Atlas was planned, and this would shed light on water reserves—probably leading to a scramble by politicians and businessmen to lay claim. This was probably the first article in Bavaria, in which water pollution and atomic energy were discussed in terms of usage, rather than just connected to radiation. This topic, while no means prevalent at the turn of the 1960’s, became a huge national point of discussion in the course of the decade.⁴⁰

Liebmann’s prophesy occurred unexpectedly precipitatively, when later that summer the Würzburg Shipping Authority appealed to the Munich Highest Construction Authority to examine water flow on the Main, to determine if the reactor would threaten shipping traffic. The Shipping Authority was worried that Kahl was located at an important shipping lane on the Main, one already reduced by a substantial amount of industrial water intake upstream near Aschaffenburg. In the event of radiation leakage or catastrophe, it stressed, the entire shipping district would be closed for an indeterminate amount of time. Here, the Shipping Authority argued that security measures should not only be established for residential areas, but also in the interests of the shipping industry. Secondly, it criticized the embankment development plan, which was extremely expensive, due to poor soil composition, and suggested that another site would more cost-effective. Finally, the Authority wanted to prohibit further expansion of nuclear facilities

⁴⁰ *MM*, “Die Atomwirtschaft zapft das Wasser an,” April 17, 1957.

in the area. Due to the small intake of the reactor, bureaucrats worked quickly and resolved the appeal.⁴¹

Subsequently, the Kahl reactor went forward, and was considered a great success in reactor development. Still, the slower-than-expected progress was discouraging for those who sought immediate gains in energy production. For the purposes of this study, Kahl represents a subtle shift in emphasis that becomes more evident at Gundremmigen. While it began with some relatively peculiar doubts about regional loyalties and radiation leakage, which found traction in the sensationalist press—sparking further consolidation of publishing control within the chancellery—discussions shifted towards the uncertainties about hydrologic consumption. In particular, officials became increasingly concerned about the water distribution and thermodynamics of the Main River. In the course of the sixties, this issue moved to the forefront of administrative landscape criteria. At the end of the fifties, it remained only on the periphery with comparison to radioactive contamination, which also received high priority in the Bavarian Atomic Commission's second phase of nuclear endorsement—uranium prospecting.

Uranium represented one of the few 'domestic' sources of energy for Bavaria. In the fifties, before the oil boom, the Bavarian government regarded hydroelectric power and uranium as the only way to develop independence from Ruhr coal. The Federal Atomic Commission considered Bavaria, along with the Black Forest in Baden, as the strongest possibilities for a German source of uranium. Because of this, the Bavarian Atomic Commission designed a sub-committee to work solely on prospecting Bavarian

⁴¹ BayHSA: MWi 21937, Möhlmann of the Wasser- und Schiffahrtsdirektion Würzburg to the Oberste Baubehörde in MINN, K 3519/59, Aug. 5, 1959; Regierungspräsident Hölzl of the Regierung von Unterfranken to the Landesplanungstelle, I/6-311-2012/59, Oct. 14, 1959.

uranium and graphite. Like other aspects of the atomic program, this sub-committee also began inspecting locations for uranium mines and processing. At this time the Federal Republic Atomic Commission turned towards its so-called 'Middle Way' for processing Uranium. In nature, Uranium exists in two isotope forms, U235 and U238, with a ratio of about 97% of the latter. For easy fission in light water reactors, refined U235 is necessary, but Germany was unable easily to process the uranium, because the USA had a near monopoly on the facilities. Great Britain, though, had developed the gas cooled, graphite Calder Hall reactortype that produced plutonium to supplement the deficiency in refined U235. West Germany, on the other hand, chose to test both types of reactors in the 1957 Eltviller Program, but with an emphasis on a mixture of relatively low concentrate of U235 and a high amount of U238.⁴² For Bavaria, the expectation was that Alzenau County, the remote area surrounding Kahl in the Fichtelgebirge, would be the center of uranium mining and processing.

While the government was not initially forthcoming with information, reports began to surface in the early fifties. The first major location considered was in the woods of the hilly region in Upper Franconia known as Fichtelgebirge, near Weißenstadt. Probes in 1955-56 suggested that 750 grams of U238 existed per ton of rock, with possibly 100 tons of uranium in total. This site excited the Federal government, because it was centrally located in relation to the major atomic projects of the day: Karlsruhe, Munich, and Jülich near Aachen. At first, Heisenberg hoped to prospect uranium from this location, but with the Atomic Commission's realization that only nine tons per year were available—much too little to supply an economically viable reactor—officials began to search for thorium. The very abundant and slightly radioactive Thorium 232

⁴² Joachim Radkau, *Aufstieg und Kreise*, 51-56.

can be transformed into fissible U233. Given the secretive nature of the project, journalists' columns remained speculative. The *Main-Echo* declared the thorium find “sensational,” because out of every ton of granite mined, 25 grams of thorium could be extracted. If this were a consistent ratio, each ton of granite was the equivalent of 30,000 kilograms of coal.⁴³ In 1956 the Bavarian economic ministry devised a three point plan of attack: large-scale testing to discover anomalies; closer probes to determine size of the deposit; construction of extraction facilities.⁴⁴

Beginning in 1957, the Bavarian government chose to encourage and subsidize private industry to expedite the expensive process of prospecting, coordinated with the Bavarian Geological Bureau. Brunhilde Union inspected an area in Oberpfalz Woods, while the Bavarian Brown Coal Industry Corporation Schwandorf (BBI) was assigned to an area near Wackersdorf and Nuremburg. The German Well Construction and Deep Boring Corporation probed the Bavarian Forest near Schweinfurt and the Ironworks Corporation Maximilianshütte (Maxhütte) searched the Fichtelgebirge. This last proved to be the most promising.⁴⁵ Further prospects existed in Oberpfaltz Woods, along the Bavarian Forest in Eastern Bavaria, particularly at Wackersdorf, a brown coal industrial community that would in the 1980's become connected to the largest anti-nuclear demonstration in German history—over a reprocessing plant. BBI revealed an estimated

⁴³ *Main-Echo*, “Atomenergie aus Granit,” Jan. 7, 1954; BayHSA: StK 14004, StK, 3. Sitzung der Bayerischen Staatlichen Kommission zur friedlichen Nutzung der Atomkräfte, June 6, 1956.

⁴⁴ BayHSA: MWi 27235, Bayerisches Obergamt to the MWi, July 3, 1956.

⁴⁵ DM NL 111 Maier-Leibnitz 107, Deutsches Atomkommission, Fachkommission III Technisch-wirtschaftliche Fragen bei Reaktoren der Deutschen Atomkommission, Aug. 19, 1959.

20-500 grams of rock per gram of Uranium. Near Nabburg, the Flußspatberg promised two tons of oxidized Uranium per year.⁴⁶

In order for a reactor to be self-sufficient, the Bavarian government also wanted to extract its own graphite, to be used as a moderator. Since the Second World War, the graphite mines in the Bavarian Forest had been producing considerable resources. The MPI determined that natural graphite was superior to artificial graphite, when used in an atomic reactor. This meant Graphite Firm Kropfmühl wanted to construct a processing plant at the cost of 1.5 million DM, but needed public funds to lessen the risks of the venture.⁴⁷

The German Gold and Silver Smith Agency (DEGUSSA) out of Frankfurt was contracted to expedite the development of an uranium ore mine in Alzenau county, three kilometers from the village of Alzenau, and near the Kahl reactor site. The hope was that a centrifuge separation facility nearby would further upgrade the procedure. But by 1958, it was becoming clear that domestic uranium production was much more expensive than the equivalent Canadian imports. Instead of producing its own uranium, domestic extractions would be used in emergencies, or Bavaria would have to wait until technology could process it more efficiently.⁴⁸ The Maxhütte Uranium Mining facility at Weissenstadt in Fichtelberg was vacated after this decision.⁴⁹ The cost-benefit analysis really curtailed the process, and made the West Germans reevaluate their Middle Way plan. Instead of domestic autarky based on semi-enriched uranium, they would import

⁴⁶ DM NL 111 Maier-Leibnitz 108, Deutsches Atomkommission, Kurzprotokoll über die zweite Sitzung des Arbeitskreises 3 der Fachkommission III des Deutschen Atomkommission, May 3, 1956.

⁴⁷ BayHSA: MWi 27235, Graphitwerk Kropfmühl AG to Staatsminister Otto Betzold of the MWi, May 25, 1956

⁴⁸ BayHSA: MWi 27235, *Oberbayerische Volksblatt*, "Inflation in Uran," Nov. 11, 1957.

⁴⁹ BayHSA: MWi 27235, *SZ*, "Der erste war der letzte," Nov. 28, 1957.

enriched Uranium for the time being, and develop light-water reactor technology. In the future second generation, breeder technology would allow the use of thorium and plutonium, replacing the enriched U235.⁵⁰ A breeder, like the test facility at Karlsruhe, would produce not only energy, but also more fissionable material than it had started with. In other words, breeder technology greatly increased the availability and cost-effectiveness of fissionable agent. Some physicists believed this was the future method of achieving autarky.

By 1959, little known Alzenau County, on the border between Bavaria and Hesse, was becoming known as an atomic research center of the Federal Republic. Besides RWE's future plans to construct a large reactor that would produce electricity, AEG announced that it intended to construct a reactor testing facility, complete with a ten megawatt reactor, on the site of the Kahl reactor. With DEGUSSA planned Uranium processing facility at the village of Hörstein, Alzenau could claim (with some exaggeration) to be an almost self-sustaining atomic county.⁵¹ The Degussa project earned the village of Hanau the right, in the eyes of the media, to vie for the title with Garching of first "atomic village" of West Germany.⁵² With the price of Uranium making it near impossible to competitively extract uranium ore out of Alzenau County, after 1960, the area faded out of memory, except for the Kahl area reactors. Declining in promise, the uranium project gave way to more immediate energy sources, particularly natural gas and petroleum. Uranium prospecting, like nuclear power production, would have to wait until additional technological development. With the bureaucratic

⁵⁰ Joachim Radkau, *Aufstieg und Krise*, 70-71.

⁵¹ *Main-Post*, "Alzenau Atomforschungszentrum," June 21, 1959.

⁵² BayHSA: MWi 27235, *Handelsblatt*, "Das erste deutsche Atomdorf errichten," 1958.

difficulties discovered in the late fifties, it was unlikely that the third branch of the nuclear plan, waste disposal, would fare much better.

The final phase of Bavarian atomic program was the search for a waste storage facility. As stated in the previous chapter, the Bavarian Economic Ministry in 1960 named Feilen Forest, South of Ingolstadt near Manching, the new location for short-term storage of atomic wastes coming from the reactors in Garching and the hospitals of the Greater Munich Area. This suggestion was rejected by the Highest Construction Authority, Landrat representative Eisenmann, and the District representative of Pfaffenhofen on two grounds. First, the Authority argued that transportation from Garching would be dangerous, with the potential for accident. Instead, they felt the wastes should remain onsite, in Garching, until the Federal government built facilities for permanent storage or disposal. The Ministry of Economics responded that Feilen Forest was on the autobahn from Garching to Lagenbruch for convenient transport. Furthermore, unlike coal, one needed to only transport radioactive wastes on rare occasion, and the strictest measures could be incorporated.⁵³

The second objection was on the basis of forest preservation. According to the Planning Committee of Ingolstadt County, which signed a formal resolution protesting the project on November 15, 1960, military bases already threatened to destroy the forest. In particular, the military facility's expansive airport and weapons storage facilities were a point of contention.⁵⁴ After the release of the newspaper article, a planning committee from Ingolstadt County demanded the "sharpest protest" against the facility on four additional grounds: that the proposed area, already home to the 5000 residents of

⁵³ *Donau Kurier*, "Ministerialbehörden meinen: 'Atom Müll ist kaum gefährlich,'" Nov. 16, 1960.

⁵⁴ *Donau Kurier*, "Ministerialbehörden meinen: 'Atom Müll ist kaum gefährlich,'" Nov. 16, 1960.

Ebenhausen and Reichertsofen, was expected to expand considerably; that this was an important, new industrial region; that the location was in Baarer-Weiher recreational zone, which was significant for a recreationally “deficient” region; that the citizens had already “sacrificed” considerably by giving space to the military facility.⁵⁵ The *Donau Kurier* was especially dedicated to opposition, arguing that the area south of Ingolstadt, recently industrialized and soon to be densely populated, was not the most ideal location for nuclear waste storage. In fact, the radioactive wastes were even less popular than the military bases, which the newspaper declared comparatively a “necessary sacrifice”.⁵⁶

According to the newspaper, only the Land Planning Authority supported the project, while all local institutions opposed. Forced to join in an awkward alliance with the neighboring population, even the Bundeswehr considered the waste facility an imposition to its training mission. Accordingly, the only acceptable location for an atomic waste dump in “overpopulated” Germany was the desert or the ocean. It was these kinds of criteria that made it near impossible for the Bavarian government to ever find a location.⁵⁷ Through the mid-sixties, wastes continued to be stored on site, with no solution in sight. Without a disposal system, many Bavarians would continue to question the logic of nuclear power. However, typically waste disposal remained out of the limelight (until the late-seventies) and other dangers loomed more pronouncedly—such as the thermonuclear explosions.

Following the Russian hydrogen bomb tests in 1962, the summer witnessed what was probably the last thermonuclear fallout panic in Bavaria. This time, the Bavarian

⁵⁵ BayHSA: MWi 21937, Stinglwagner of the Ingolstadt Landesratamt, Auszug Niederschrift: zu der am 15 November 1960 in das Landratsamt Ingolstadt für 9 Uhr vormittags geladenen Sitzung des Planungsausschusses, Nov. 15, 1960.

⁵⁶ *Donau Kurier*, “Atommüll soll in den Feilenforst,” Nov. 15, 1960.

⁵⁷ *Donau Kurier*, “So Wird Misstrauen Gesät,” Dec. 17/18, 1960.

Ministry of the Interior released a public statement announcing that unfiltered water found in homes with cisterns could be dangerous, and should have aluminum chloride added and/ or be poored through coffee filters. At least 3000 households had cisterns. Following the considerable panic, Walther Gerlach was incensed. In his letters to the ministry, he warned that only the Atomic Commission, and his office, had the right to issue such releases regarding atomic matters. Furthermore, it was the mission of the new public relations sub-commission to combat these kinds of sensationalist stories. Alfons Goppel, as Minister of Interior, countered that his ministry, not the Atomic Commission, had jurisdiction over matters of health and safety—the rubric under which drinking water contamination fell.⁵⁸ The records during this era make it clear that constant infighting between government officials made for the conditions under which there was considerable public panic and mistrust. Perhaps the banning of aboveground nuclear bomb testing in 1963 significantly reduced public apprehension, leading to a decline in protests against both civil and military fission. According to the Bavarian Environmental Ministry in 1978, the amount of traceable Gamma radiation in Chiem and Starnberg Lakes reached highs in 1963 and declined sharply thereafter. Strontinum 90 levels peaked in Bavaria a year later.⁵⁹

By 1960, the Rucker plan had considerable success in development of scientific knowledge, research, and education. The Research Reactor Munich and the Kahl Test Reactor were internationally renowned for developing solid state physics and reactor

⁵⁸ SZ, Martin Rehm, “Mit Kaffeefiltern gegen Radioaktivität,” April 9, 1962; BayHSA: StK 12959, Gerlach to the Bayer. Atomkommision, III- 01703-2, April 10, 1962; StK, Sondervermerkung zur Sitzung des Ministerrats am Dienstag, den 8.Mai. 1962, May 8, 1962; Niederschrift über die Besprechung der Vorsitzenden der Unterausschüsse der Bayerischen Staatlichen Kommission zur friedlichen Nutzung der Atomkräfte, Oct. 16, 1962.

⁵⁹ Monika Bergmeier, *Umweltgeschichte der Boomjahre*, 312. Original source: Bayerische Staatsregierung, *Umweltpolitik in Bayern: Ein Programm* (1978), 312.

technology, respectively. Initiatives met less success in producing a new energy source, because of technological inefficiency, lack of price competitiveness, and difficulties in finding suitable locations. All three phases of the early nuclear program—reactor development, uranium prospecting, and waste disposal—did not meet the exceedingly lofty expectations of 1955. Because of these limitations, Bavaria did not establish uranium autarky, but turned rather to petroleum and natural gas importation in the nineteen-sixties. This new course achieved stunning results, transforming the economic landscape of Bavaria. At the same time, however, the economic revolution also generated new demands and challenges for landscape planning, as industry, cities, and other interests covered the available geography. Besides the concerns from atmospheric and hydrologic pollution produced from fossil fuel consumption, increasing affluence and free time generated new demands on public space. In particular, it produced a consumer oriented society that increasingly required land planning for leisure activities and recreation.

2.2 The Sixties Syndrome: Transformation of Bavaria

With the promise of immediate nuclear power quickly fading, Bavaria followed the rest of the Western World, adopting the petroleum-natural gas economy. This decision had the benefit of producing near immediate results, as electricity costs plummeted across Bavaria, quickly transforming everyday life. It allowed Bavarians to become consumers, as the cheap energy lowered the prices of basic goods. Energy intensive technology, like plasma (fusion) and aeronautic research flourished. However, it also created new landscape demands, as industry and society spread out, augmenting

the spatial problem created first by the flood of refugees. Ten years later, Bavaria would be crowded, with competing interest groups filling up every available space.

According to Paul Erker, Bavaria's self-identity transitioned in the sixties from an agrarian to industrial state. This self-identification was a feature of Bavarian Landtag debates in the fifties, in which representatives of the modernization and federalist camps debated the direction of Bavaria. In 1959, Minister President Hans Seidel referred to Bavaria as a "Prototype Industrial-Agrarian State." Ten years later, Minister of Economics, Otto Schedl, employed the nomenclature "Industrial State" to describe Bavaria.⁶⁰ To be sure, Erker makes it clear that pockets of Bavaria had been long on the way towards industrialization in the 1930's, even in comparison to other Southern states, such as Saxony and Württemberg, which were measured as (non-Ruhr) models for industrialization. Consistently, the Bavarian officials considered the Ruhr to have been a "mistake" (*Fehler*) of industrial planning, in which the region was plagued with social problems arising from overly dense industry and population. While industrialization programs of the Nazi era established a foundation on which the South could have success after the war, all traditional economic indicators pointed to a major leap forward between 1950 and 1970.⁶¹ Take for instance the transition of the three major sectors of the economy: agriculture, industry, and service. In 1950, approximately 31% of Bavaria's labor was still employed in the agrarian sector; by 1960, 22%, and by 1970, 13%. Industrial workers increased from 36% in 1950, to 45% in 1961, and finally to 47% in 1970. Perhaps making the most prominent rise, though, was the service sector, which increased from approximately 29% in 1950 to 34% in 1960, and finally to 39% in 1970.

⁶⁰ Paul Erker, "Keine Sehnsucht nach der Ruhr," 480.

⁶¹ Paul Erker, "Keine Sehnsucht nach der Ruhr," 481-482.

Given this data, Erker suggests that Bavaria transformed into an “industrial and service state.”⁶² This transformation would have become most noticeable after about 1960. It was in 1959/1960 that the Bavarian government, most particularly Schedl, announced its second administrative plan for endorsing Bavarian energy. Above all, this included the construction of an oil and gas energy network, radiating out from the refinery center in Ingolstadt. By 1966, oil accounted for 51% of Bavaria’s energy production, with coal only providing 29%.⁶³

Before the rise of petroleum consumption after 1960, Germans strongly considered numerous possibilities for energy use in the fifties, as they realized that coal would soon lose its competitiveness. At the time, West German energy consumption increased an astounding 7-8 percent a year, doubling after only ten years! As a 1956 speech by a physics professor Dr. Fickelnburg of the University of Erlangen demonstrates, Bavarians considered solar and wind power as possible alternative forms of power in the fifties. He explained that wind power showed promise in the flat North, near the North Sea, but unfortunately Bavaria lacked trade winds. Solar power demonstrated more potential for Southern Germany, especially for Baden-Württemberg which had long, clear days most of the summer. For Bavaria, though, with its many cloudy summer days—a result of the Alps—it would not be nearly as hopeful. At the same time, solar collection was not technically competitive in the fifties, and would not be relevant any time soon. Other possibilities, like tidal electricity, were not even a remote possibility in Bavaria, and had limited potential along the Northern Coast. In terms of water resources, hydroelectric had been excellent to Bavaria, but suitable

⁶² Paul Erker, “Keine Sehnsucht nach der Ruhr,” 491-492.

⁶³ Paul Erker, “Keine Sehnsucht nach der Ruhr,” 509.

locations for conversion dams were becoming scarce. Still, these alternatives received substantial attention and were real considerations in the fifties.⁶⁴ It was the sixties “oil boom” that made the Bavarian government and population forget about alternatives to fossil fuels.

Petroleum was brought to Bavaria through the near legendary negotiations between Otto Schedl and the Esso and Shell petroleum corporations in 1960. The pipeline was a result of some clever maneuvering by Schedl, who used the proposal of Italian national oil company ENI’s (Ente Nazionale Idocarburi) president, Enrico Mattei—to construct a pipeline over the Alps in order to compete with the Big 7 oil conglomerates—to force an extension of the Marseilles-Karlsruhe pipeline into Bavaria. In 1957, the major concerns planned to construct the pipeline only to Karlsruhe, because the Bavarian market was still considered too insignificant. Mattei approached Schedl in the hopes of constructing a pipeline directly from the Mediterranean Sea through Northern Italy, which would bypass the long transport route via the North Sea. This would allow ENI to compete with the seven major international conglomerates, including Shell. After much fanfare, Mattei’s threats to undercut the majors forced their hands. Soon Esso, Shell, BP, Texaco and others began to construct refineries at Ingolstadt, with six operating after 1967. Pipelines that traversed the Alps from Trent and Genoa soon followed. Following construction of the oil grid, the price of energy noticeably declined. Mark Milosch points out that the price of oil had been 50% higher in Bavaria than in Hamburg in the fifties; by the end of the sixties, petroleum was roughly the same price.⁶⁵

⁶⁴ BayHSA: StK 18792, Vortrag des Herrn Professor Dr. Finkelnburg, Erlangen, vor Mitgliedern der Interparlamentarischen Arbeitsgemeinschaft, March 3, 1956.

⁶⁵ Mark Milosch, *Modernizing Bavaria*, 85-92, with data coming from 92.

By 1970, approximately 22 million tons of oil flowed into Bavaria per year.⁶⁶ This allowed a major decrease in prices throughout the economy, most evident in the cost of gasoline, allowing increased travel and tourism. Also highly significant for Bavaria was the cheapening of domestic heating oil, which replaced coal as the dominant source of domestic heat.

Schedl also tapped the domestic and imported natural gas potential of Bavaria, and in 1969 he negotiated a pipeline from the Soviet Union via Czechoslovakia, constructed in 1973.⁶⁷ In 1945, Bavarian hydroelectric and coal plants only produced 908 megawatts combined, and by 1949, this could only fill 87 percent of domestic energy needs—necessitating a substantial energy importation. After considerable effort, primarily with the construction of hydroelectric power, natural gas, and oil plants, Bavaria only imported 10 percent of its energy needs in 1960, even after expanding consumption to 16 billion kilowatts. By 1973, Bavaria consumed 40.2 billion kilowatts, 90 percent domestically produced, more than doubling output and consumption in only a decade.⁶⁸

While belated in comparison to most of Germany—not noticed until the late fifties or early sixties—once the price of energy dropped, Bavaria too experienced Christian Pfister’s so-called “50’s syndrome,” the transition from industrial to consumer society. Due to its late arrival in Bavaria, it may be more proper to refer to the phenomenon as the ‘sixties syndrome’. According to Pfister, the industrial economy is most characterized by its exploitation of coal as the primary energy source; thus

⁶⁶ Stephan Deutinger, “Eine Lebensfrage für die bayerische Industrie,” 68.

⁶⁷ Alf Mintzel, *Geschichte der CSU*, 259.

⁶⁸ Stephan Deutinger, “Eine ‘Lebensfrage für die bayerische Industrie,’” 79-81.

transportation was mostly limited to the rail network and cities remain relatively compact, only spreading out to the edge of secondary transportation systems (like street cars) and organic travel (human and horse). While industrialization generated considerable air and water pollution, it was relatively confined within limited regions, such as the Ruhr, leaving much of the landscape less affected. Furthermore, due to relatively high costs of production and transportation, industrial society encouraged a mindset of comparative energy saving. The consumer economy, though, was founded on oil consumption (and less so nuclear power), which became cheaper than coal in Germany after 1958, and Bavaria after 1960. With the new energy source, society exchanged public for individual transportation and encouraged the sprawling of cities, construction of the autobahn network, and the growth of air travel. With significantly cheaper transportation costs and expanded mobility, goods of all types, and especially foodstuffs, decreased in price. Pfister believes that affordable consumer goods encouraged society to use resources at higher rates, and then discard refuse and leftovers, instead of sparing, reusing, and recycling. In comparison to previous epochs, the consumer society consumed space and resources and produced wastes to a pathological extreme, leading to the global environmental crises after 1970.⁶⁹

Government and industrial efforts to bring electrical consumption to the farm and the household, which started in the mid-fifties, came to fruition in the early sixties. According to Deutinger, Wilhelm Hoegner was motivated by the Bavarian Constitution article 152, which stated implicitly that the government was obligated to provide Bavaria

⁶⁹ Christian Pfister ed. *Das 1950er Syndrom: der Weg in die Konsumgesellschaft* (Bern: Verlag Paul Haupt, 1995), 13-47.

with electrical power.⁷⁰ Hoegner's interpretation was presented in the Bavarian SPD 1955 program, "Light over the Land," a proposal to provide electricity for every village in Bavaria. Quite popular—it propelled Hoegner forward to the position of minister president—the slogan was bound with the idea of progress. Electrification promised the development of agriculture, social progress, and "emancipation of the workers."⁷¹ Statistics demonstrate that about 95% of normal houses had electrical hookups in the early fifties, but this statistic is misleading, since a huge proportion of Bavarians lived on farms where electricity was less available. Furthermore, many homes that had electrical utilities were unable to afford to turn the lights on, preferring cheaper oil lamps. Thus, when the SPD meant Lights over the Land, they explicitly meant providing electricity that was cheaper than burning oil.⁷²

Advertisement manufactured the image of the ideal house wife—one in which she was supplied with time saving electrical gadgets—and this model mandated an abundant source of cheap energy.⁷³ The introduction of these electrical appliances was categorically bound with the idea of progress.⁷⁴ In the mid-fifties there was a debate over the role of atomic energy in providing this need. The City of Munich planned a series of exhibits to promote the ways in which the atom could revolutionize the household and the kitchen. With the title, "Isotope—Helper of Mankind," the Association Exhibition Park Munich scheduled an exhibition for 1957, which would

⁷⁰ Deutinger, "Eine Lebensfrage für die bayerische Industrie," 42.

⁷¹ Deutinger, "Eine Lebensfrage für die bayerische Industrie," 58.

⁷² Deutinger, "Eine Lebensfrage für die bayerische Industrie," 87-88.

⁷³ For more on creating a household consumer market in the 1950's: Michael Wildt, *Am Beginn der Konsumergesellschaft: Mangelerfahrung, Lebenshaltung, Wohlstandshoffnung in Westdeutschland in den fünfziger Jahren*, Forum Zeitgeschichte band 3 (Hamburg: Ergebnisse Verlag, 1994).

⁷⁴ Arne Anderson, *Traum vom Leben, Alltags und Konsumgeschichte vom Wirtschaftswunder bis Heute*. (Frankfurt: Campus Verlag, 1999), 234.

show how the atom would be useful in everyday life. A considerable amount of exhibit space was to be devoted to industrial applications, but also to promote nuclear power in the electric kitchen. The exhibit was delayed one year, and reduced in size, because of protest from industry, which felt it would be more advantageous in 1958, and officials in Stuttgart, who believed that Karlsruhe would be the proper location for such a display. The smaller 1958 exhibit, part of the Munich 800 birthday celebration and sponsored by the Association for Atoms for Peaceful Purposes, focused on current more practical uses, particularly for industry. This above all meant isotope use in industry, medicine, and food preservation. While this reduced exhibit, now primarily advertised to industry, the implication was that households could also benefit from longer lasting foodstuffs and improved medicine.⁷⁵

While Munich organizations, such as Atoms for Peaceful Purposes, were busy promoting household applications of the atom, coal interests attempted to dissuade consumers from replacing coal with nuclear power. Beginning in 1957, the German House Wife League and the Professional House Wife Organization, in association with the City of Munich, arranged annual Home and Technology exhibits. The exhibits displayed the latest in washing machine, refrigeration, and kitchen gadget technology, while promoting the social value of a house wife. One of their 1957 exhibits, sponsored by the Ruhr Coal Consultation Corporation, argued that coal, not nuclear energy, was the only way to achieve the housewife ideal in the near future. It charged that nuclear energy, in spite of the wide publicity, would remain too expensive for the next twenty years. However, the Home and Technology exhibit still operated upon the assumption

⁷⁵ BayHSA: MK 71670, Maurer of the Verein Ausstellungspark München to the Oberregierungsrat Dr. Erich Stümmer, 84178, Oct. 19, 1956; Atomtechnische Fachausstellung München 1957, Radioisotope--neue Helfer der Menschheit, Expose, 78874, Oct. 3, 1957.

that cheap energy and electrical appliances were necessary for an efficient and happy home—this dream would only have to wait a few years, before it would be powered by nuclear plants.⁷⁶

Above all, the Economic Miracle produced a transformation of lifestyle in Germany. With the destruction of the war and the influx of Eastern refugees, Bavaria had been largely focused before 1955 on constructing housing, rebuilding demolished churches, and developing the energy supply, through hydroelectric projects. The scarcity of goods meant that Bavarians had to attend to immediate needs instead of luxury. With the coming of the Economic Miracle, cheap consumer goods provided the means for everyone, not just a few bourgeois individuals, to participate in the “dream” of “living in commodity paradise.”⁷⁷ Economic guru Ludwig Erhard first articulated the notion that consumption was an “essential democratic fundamental right,” in 1951, and this mentality spread to the general population thereafter.⁷⁸ While at first, consumption was oriented towards increasing the living standards of individuals (food, clothing, and appliances), and moved towards luxury goods like television and radios, it quickly became most associated with automobiles and leisure activities, so much so that the enjoyment of leisure was also soon perceived as a fundamental right of Germans. Historians of Bavaria talk about the transformation of everyday life (*Alltags*). Consider for a second the expansion of purchases of refrigerators and washer machines. In 1955, the two Southern states, Baden-Württemberg and Bavaria, registered only about 7 percent of families with refrigerators and 5% with washer machines; in 1962, 52% had fridges

⁷⁶ StadtA Mü: ZS 243/3 Heim und Technik, *MM*, “Heim und Technik: Energiewirtschaft braucht die Kohle,” April 18/19, 1957.

⁷⁷ Arne Anderson, *Der Traum vom guten Leben*, 8.

⁷⁸ Arne Anderson, *Der Traum vom guten Leben*, 15, original quote from *Verhandlungen des Deutschen Bundestages*, 1951, pg. 4800.

and 34 percent washers. By 1972, 91 % owned fridges and 83 percent washers. Only later did Bavarians purchased televisions, but once they began to buy them, we see equally large increases; in 1958 only 5 % of Bavarians owned a television, and by 1965, 43%.⁷⁹

Automobiles were the most visible new consumer product. During the decade 1955-1965, individual motor vehicles (PKW) increased from .52 million to 4.1 million in West Germany.⁸⁰ In terms of heavy industrial vehicles, agriculturally based Bavaria motorized at a slightly higher rate than other states.⁸¹ In Bavaria, this trend was spurred on by the slogan of the 1957 Deutsche Landkreistag, “Good roads to the smallest village!” a decree that required not only the construction of an autobahn system, but also renovation for village streets as well.⁸² During the early years of the Federal Republic, roads were constructed and maintained by state governments. The exception was the autobahn system, which received federal funding and oversight, but was implemented by the states. With its lack of infrastructure and its state policy promoting decentralized industry and tourism, especially in the Alpine regions, highway construction took on added emphasis in Bavaria, as a means of sponsoring “economic development.”⁸³

Approximately 730 kilometers of Bavarian autobahn were constructed between 1951 and 1979.⁸⁴

⁷⁹ Deutinger, “Eine Lebensfrage für die bayerische Industrie,” 90-91.

⁸⁰ Thomas Südbeck, “Motorisierung, Verkehrsentwicklung und Verkehrspolitik in Westdeutschland in den 50er Jahren,” in *Modernisierung im Wiederaufbau: Die westdeutsche Gesellschaft der 50er Jahre*, Axel Schildt and Arnold Sywottek ed. (Bonn: Verlag J.H.W. Dietz Nachf., 1993), 171.

⁸¹ Deutinger, “Eine Lebensfrage für die bayerische Industrie,” 97.

⁸² Alexander Gall, “‘Gute Straßen bis ins kleinste Dorf!’ Verkehrspolitik und Landesplanung 1945 bis 1976,” in *Bayern im Bund, Band I: Erschließung des Landes 1949 bis 1973*, Thomas Schlemmer and Hans Woller ed. (Munich: R. Oldenbourg Verlag, 2001), 122.

⁸³ Gall, “Gute Straßen bis ins kleinste Dorf,” 147.

⁸⁴ Ernst Hopflitschek, “Der Bund Naturschutz in Bayern. Traditioneller Naturschutzverband oder Teil der neuen sozialen Bewegungen?” (Ph.D Dissertation Free University Berlin, 1984), 75.

Not only did Germans now have the means to travel, they soon had the free time as well. Beginning in 1955, the working week steadily decreased after its Post-War high of 49 hours per week that year. By 1970, the average was 45 hours.⁸⁵ At the same time, Germans enjoyed more weekend time off, with holiday and vacation time steadily increasing. In 1954, 56% of Germans vacationed by rail, with only 19% by car. By 1965 the favorite means of holiday travel had reversed, with 56% by car, and 34% by rail.⁸⁶ It was probably the combination of the mobility afforded by automobiles and the desire to enjoy leisure time that most contributed to the need to rethink landscape planning. In the sixties, officials placed considerable priority, effort, and finance into designing facilities for recreation and relaxation.

At the time of the planning of the *Atomei*, international tourism, one of Bavaria's largest traditional industries, had played a considerable role in the formulation of spatial policy. This was particular the case when the lakes of Bavaria were selected as possible water sources, only to be removed from consideration because they resided near tourist resorts. Tourism remained a high priority in the depressed regions of Bavaria, near the Alps, where it was the sole industry. After the Economic Miracle, now that Germans had money for vacations and recreation, the Bavarian bureaucracy had to progressively plan more space for it. Increasingly, all over the Federal Republic, conservation in the 1960's became tied to the anthropocentric concern of human health and relaxation. With the growth of an affluent consumer society, increasingly politicians, doctors, and nature enthusiasts called for nature parks to be included in urban design. These small green areas, reachable by public transportation, were places to escape the dangers of urban

⁸⁵ Anderson, *Der Traum vom guten Leben*, 207-208.

⁸⁶ Anderson *Der Traum vom guten Leben*, 188.

sprawl and urbanized living, without significant travel time. Doctors coupled increased stress and other health related problems to urban living and argued that spending time in nature, relaxing, would revive the worn down health of individuals, allowing them to return to the stressful environment associated with urban labor. These parks were not about leaving consumer society and the city, but rather were an expression of consumption of nature from within, or on the edge of the city.⁸⁷

While there are numerous examples of this trend, one such recreational zone was the so-called ‘forest belt’ surrounding the South and West of Munich. Given the strong migration from all over Bavaria to Munich, government and city officials considered it crucial to offer nearby places for recreation. The spatial demands of industrialization, sprawl, and residential housing—created by the refugee emigration—made the task challenging. In Bavarian law, the government could not prohibit migration to any one region, but did have the power to organize strict zoning laws to protect landscape that held public value.⁸⁸ In 1962, the county of Ebersberg offered the nearby Ebersberg Forest (a small section of the Munich forest belt) for landscape preservation. Later in 1963, the Alliance for Protection of German Forests lobbied the Regional Government of Upper Bavaria to extend this zone to the entire forest belt. The Upper Bavarian government did not accept the Alliance’s request, because it had to be sufficiently proven that “the protection of nature, in its entirety or in part, for scientific, historical, *Heimat*, or folklore reasons or because of its landscape aesthetic, lay in the public interest.”⁸⁹ With

⁸⁷ See Sandra Chaney, “For Nation and Prosperity, Health and a Green Environment: Protecting Nature in West Germany, 1945-1970,” in *Nature in German History*, Christof Mauch ed. (New York, Oxford: Berghahn Books, 2004), 93-118; also see Jens Ivo Engels, *Naturpolitik in der Bundesrepublik*, 97-101.

⁸⁸ StadtA Mü: RA 93467, Wittman of the Regierung von Oberbayern Bezirksplanungsstelle, Landschaftschutz im Voralpenland, M III/ 22 2057/62 Ng, June 12, 1962.

⁸⁹ StadtA Mü: RA 93467, Regierung von Oberbayern, Schutz der Landschaft im Umkreis der Landeshauptstadt München, II/ 2b - 1037/ 37 (62), May 27, 1963.

this decision, Ebersberg Forest and the English Garden were deemed vital to the public interest and worthy of preservation, while other sites were still under consideration. In this consumer oriented economy, it was necessary to strictly zone landscape preservation, in order also to meet the growing demands of the transportation and energy sectors.

Opposition to autobahn construction was modest during before 1965, coming from a minority of nature preservationists, and based mostly on principles of landscape aesthetics developed by Alwin Seifert during the Nazis period.⁹⁰ In particular, these ideals elevated the notion that the autobahn should be a flowing, organic part of the landscape, enhancing its appeal. In other words, they did not perceive the autobahn as intrinsically damaging to the landscape or as artificial technology intruding in nature; rather, they wanted to blend the autobahn with the landscape, like an artist with a paintbrush.⁹¹ Unequivocal objections towards automobiles were rare, but localities would criticize noise and air pollution, in particular near airports. Since the late 1950's, Germans increasingly associated a number of health problems with excessive noise pollution, particularly scrutinizing jet engines.⁹²

During the fifties, preservationist critiques of energy production usually centered on the hydroelectric destruction of local landscape aesthetics. Such was the case when the Bavarian state electrical utility (BAWAG) proposed a series of 26 dams on the Lech River, to produce electricity and aid in the surrounding groundwater table. Surprisingly the conservationists only stringently denounced one dam, near Schongau, which they

⁹⁰ Dietmar Klenke, "Autobahnbau und Naturschutz in Deutschland. Eine Liaison von Nationpolitik, Landschaftspflege und Motorisierungsvision bis zur ökologischen Wende der siebziger Jahre," in *Politische Zäsuren und gesellschaftlicher Wandel im 20. Jahrhundert: Regionale und vergleichende Perspektiven*, Matthias Frese and Michael Prinz ed. (Paderborn: Ferdinand Schöningh, 1996), 465-498.

⁹¹ Thomas Zeller, *Driving Germany: The Landscape of the German Autobahn, 1930-1970*, Translation by Thomas Dunlap (New York: Berghahn Books, 2007), 190.

⁹² Raymond Dominick, *The Environmental Movement in Germany*, 144.

claimed would ruin the pristine scenic water flow. In 1955 a number of conservation groups staged protest float trips in defiance, and wrote Hoegner, who acted as intercessor proposing a reduction of the dam's height. Undeterred, BAWAG sued the government two years later, ultimately resulting in the court upholding Hoegner's position.⁹³

Oil, coal, and gas power plants potentially presented new ecological problems, but they usually elicited less attention than the few nuclear plants of the 1960's. An exception was the early 1962-64 coal plant by Franconia Corporation near Erlangen, over which protest escalated for several years. The resistance originated once again from the lack of space for a large project. Juggling the demands of nature preservation, the planning of the Rhine-Main-Danube Canal, the autobahn, and recreation zones was a great burden for the crowded region. Then the Bavarian Bureau for Water Protection criticized the site because the water source, the Regnitz River, was already heavily exposed to residential use, and superior locations were available on the Main and Danube Rivers. The City of Erlangen further protested that the smoke and steam disturbed the landscape and the recreation of the region. Finally, citizens of Erlangen, including University of Erlangen professors, formed an Interest Alliance; it complained to the Highest Construction Authority in 1964 that the plant would lower property value of their homes, which were built in a so-called 'green' region. In addition, the Alliance was concerned about warming of the water, noise pollution, endangering of drinking water, and destruction of the landscape and recreational facilities. Despite increasingly difficult

⁹³ Raymond Dominick, *The Environmental Movement in Germany*, 128-130.

requirements placed upon the power plant by the Water Bureau, Franconia Corporation chose to construct rather than to relocate.⁹⁴

Given the concentration of refineries in Ingolstadt, planners were aware that emissions would be a problem, but the need for more energy pressed the planning forward. To combat sulfur dioxide emissions, Bavarian authorities erected strict supervisory mechanisms; however after 1967 the control was shifted to the more lax Technical Guidance Air (TA), which the Bavarian government constantly criticized for lack of regulation. Protest against the refineries came first from the Farmers League in 1960—mostly against land purchases that inflated land prices. Doctors from Ingolstadt, though, raised concerns about the health consequences of the refineries, including the emissions and noise pollution resulting from increased traffic necessary to move the product. In response, Shell denied that there was danger originating from the sulfur dioxide emissions. By 1962, the nature preservationist groups, namely the German Natural Protection Alliance, the German Forest Protection Alliance, the hunting clubs, and noted conservationist Alwin Seifert joined the cause, writing a resolution arguing that the facilities endangered the *Heimat*, the landscape aesthetic, as well as the “biology of the landscape.” These grievances were not technophobic; rather, the preservation groups wanted a solution through improved regulation measures and maintenance. Thus, the promise of strict governmental regulation was enough to abate the opposition. According to Monika Bergmeier, speeches by Schedl and Balke in 1960 indicate that they were aware that the refineries posed an environmental threat, particularly to the water, but they

⁹⁴ Monika Bergmeier, *Umweltgeschichte der Boomjahre 1949-1973*, 217-220.

went forward with the projects, under the assumption that Bavarian competitiveness trumped environmental procedure.⁹⁵

By 1965, the State Planning Authority emphasized urban, autobahn, refinery, and airport expansion, as well as the hydrosphere and leisure activities in zoning procedure. The shrinking landscape made selecting locations even more difficult than in the fifties, albeit for different reasons. As Sandra Chaney points out, conservationists in the sixties increasingly framed concerns within the context of the diminishing “living space” (*Lebensraum*)—a curious euphemism to say the least, considering its connection to Nazi policy.⁹⁶ Within this climate, interest groups vied for inclusion of their respective initiatives within land planning administration. This feeling of spatial restraint was particularly perceptible in the debates about the nuclear industry.

2.3 Two Examples: Gundremmingen and Garching

As we will see in the next chapter, the spatial demands of urbanization, modernization, and leisure generated significant potential for conflict. However, debates surrounding the first German nuclear power plant (AKW) at Gundremmingen and the expansion of the Research Center in Garching already displayed many of the characteristics of later disputes, in more subtle form. Like the Kahl reactor before it, the Gundremmingen nuclear plant provides a glimpse at how water became an internationally valuable resource in the sixties, as factories, cities, and nature competed over diminishing reserves. The Research Center at Garching offers a different

⁹⁵ Monika Bermeier, *Umweltgeschichte der Boomjahre*, 169-181.

⁹⁶ Sandra Chaney, *Nature in the Miracle Years*, 135.

dynamic—one that highlights the demands produced by urban sprawl and leisure activities. As Garching was transformed from an agricultural village into a suburb of science, it experienced some growing pains; in particular, the requirements of urbanization and research facilities vied for space with the demands of agriculture and nature preservation. In both cases, we witness a partial shifting of agenda for land planners—setting the tone for the mid-sixties.

The second major project of the early sixties was the first German production (*Leistung*) nuclear power plant. After briefly examining sites at Wertingen and Donau-Alluvium, Bertoldsheim in Neuburg County on the Danube River was the first realistic choice for the 237 megawatt plant. Wertingen had been the priority location in 1957-1959, because officials searched for an extremely uninhabited region. With advances in reactor security, a location closer to settlement was possible; and Wertingen, which was far from a source of water, was not economically viable.⁹⁷ After two years of negotiations, RWE (Rhineland Westphalia Electricity) and Bayernwerk formed a corporation to undertake the project in 1962, with the Federal and Bavarian governments and Euroatom providing assistance for the estimated 340 million DM construction costs. Bertoldsheim was chosen for its proximity to the Danube, which would provide abundant, cheap cooling water, and its climate was considered optimal for providing safety to the population. The location also had the bonus that it resided above the flood plain, not requiring any water control measures.⁹⁸

⁹⁷ BayHSA: MWi 22188, MINN, Kernkraftwerk Standort Wertigen, 5930 E 5 - L 2a – 35011, June 25, 1962.

⁹⁸ *Volkswirt: Wirtschafts- und Finanz- Zeitung*, “Bayern schießt quer,” (July 10, 1962), 1329.

RWE began the Land Planning Procedure (*Raumordnungsverfahren*) in 1961, but by 1962 the Bavarian Bureau for Water and Sewage objected to the site, on the grounds that it could potentially affect the drinking water for the greater Nuremburg-Erlangen-Fürth metropolis region. On the Danube, Bertoldsheim lay inconveniently in the middle of a recently erected water protection zone that was intended as the principal future water source for the quickly growing Nuremberg. In the last few years, Nuremberg funded 200 million DM for pumping facilities in the area. When this slowed the approval process, Federal Atomic Minister Siegfried Balke expressed concern that RWE would follow through with threats to build outside Bavaria, or even the Federal Republic. The utility had aired its grievances on the Bavarian State Television, a brazen move that incensed opponents, including Nuremberg Mayor, Urschlehtor. With the backing of the water administration within the Ministry of the Interior, Urschlehtor felt that Bavarian law prevented construction of water-demanding facilities within the water protection zone. He would oppose construction of any nuclear facilities that threatened the region. Other officials, particularly those in Munich, such as then Landtag representative of the region and later Minister of Economics, Anton Jaumann, attempted to expedite the project on the basis that it represented little threat to the water supply. After much negotiation, and even with the state authorities in Munich and RWE claiming that there was no danger to the water supply, the pressure from the city of Nuremberg and the regional authorities moved the project in July, 1962 to Gundremmingen, near Günzburg and Augsburg.⁹⁹

While opposition to power plants could be expected in Upper Bavaria, Protestant and long industrialized Franconia, typically known for supporting the more liberal wing of

⁹⁹ BayHSA: StK 18796, Balke to Minister president Hans Erhard, A 1-5226-1- 28/62, June 5, 1962; Mayor Urschlehtor of Nuremberg to Minister president Hans Erhard, I-2462-4, July 3, 1962; Jaumann to Erhard, III-11060-74, June 6, 1962.

the CSU and even the SPD,¹⁰⁰ here protested the project when it infringed upon the livelihood of its residents. This suggests that, while many Franconians were eager to request many projects (such the proton accelerator in chapter 3), the industrial sections of Bavaria, not just agrarian region of Upper Bavaria, also felt the crowding imposed by increasing urbanization.

To understand the administrative difficulty of location selection, one need only examine a June 1, 1962 memorandum from the Land Planning Authority to the government of the Upper Palatinate. The Authority examined twelve sites and rejected them all, in favor of Bertoldsheim. Site one was too near a NATO airport and village at Neuberg, compounded by a poor water supply in the region. The next location was abandoned because it was near the NATO airport at Manching and preselected for an oil refinery. Since site three was prone to flooding and would soon have an autobahn, it was also ruled out. Site four was far from available electricity power lines and in the vicinity of Holfkircken; while location five lay on the Austrian border, in a landscape preservation zone in the Bavarian Forest. With numerous settlements in the vicinity and lying in high quality agricultural land, the Authority did not accept site six near Landshut. Sites seven and eight were on the Austrian border near the heavily settled region of Rosenheim, were under landscape preservation, and featured an unsuitable climate. As the trade winds blew directly towards Mühldorf, location nine was rejected, and set aside for natural gas exploration at Ampfing. Regions ten, eleven, and twelve were too near

¹⁰⁰ Alf Mintzel, *Geschichte der CSU*, 103.

the border at Kirchdorf, Haidhäuser, and Laufen, respectively, and protected by nature preservation.¹⁰¹

The Bavarian Bureau for Water Supply and Protection added strict criteria on nuclear power plants; namely that the nearby water table could not be detrimentally reduced, the facility must be at least twenty kilometers upstream from a drinking water source, and the water source must be able to handle the thermal discharge. This last criterion required a minimum of four times the water consumed by the plant; i.e. for every 1 cubic meter water per second necessary, there must be 4 cubic meters water flow per second in the river. These requirements unequivocally ruled out construction on the Main River upstream from Kahl and the Danube west of Lech, except near Günzburg, where a reactor operating under 500 megawatts capacity was acceptable. In addition, the Bureau would further cautiously explore questionable locations on the Danube: Steppberg, where water flow was in the direction of Ingolstadt, even though the city used ground water pumping stations; Neustadt, where the current conventional power plant excessively consumed water; Schwabelweis, where the water supply was used in Regensburg and the Bavarian Forest; Hofkirchen, which supplied drinking water for Passau; and Passau, which was mountainous terrain unsuitable for construction. On the Isar there were a few sites equally problematic: near Landshut, which supplied water for Landshut and had a high cliff face on the right bank; near Rosenheim, where the water was heavily burdened by industry; west of Mühldorf, which was near a water works;

¹⁰¹ BayHSA: MWI 22188, Regierungsdirektor Mayer of the Landesplanungstelle to Regierung der Oberpfalz, 5930 E 5 - L 2a – 26322, June 1, 1962.

Salzach and Pockinger, which both provided a poor groundwater source. There was a small area on the Salzach River that would be suitable.¹⁰²

Gundremmingen, on the Danube near the western border with Baden-Württemberg, fit with the aspiration of the Ministry of Economics to place a power plant in the western part of Bavaria. Guthsmuths also considered this region more socially amenable to the nuclear plant.¹⁰³ In particular, the *MM* described the project as a major source of tax revenue, and because it would require 150 workers, a local economic stimulus. Additionally positive, was the quickness with which the town of Gundremmingen approved of the project, in a meeting with government officials in July 1962.¹⁰⁴ To add further hope, the Nature Preservation League congratulated the area for acquiring a nuclear plant, in order to condemn the aesthetically unappealing damming projects on the Lech River.¹⁰⁵

Guthsmuths recognized several major difficulties with the location. First, like the Kahl reactor, the area was situated in low ground known for flooding. However, unlike at Kahl, the proposed dikes and dams were of little controversy. He also anticipated some trouble acquiring the necessary land, but was not overly concerned. Most problematic for Gundremmingen, unlike the more favorably located Bertoldsheim, was the 3.8 kilometer distance from the river. To the chagrin of Guthsmuths, who still advocated Bertoldsheim, this meant that an expensive piping system would have to be constructed, along with a water holding facility. A final criticism was leveled towards Guthsmuths; after the delay, the reactor type had become dated, no longer competitive

¹⁰² BayHSA: MWi 22188, Bayerisches Landesamt für Wasserversorgung und Gewässerschutz to the Oberste Baubehörde in MINN, 26996, Feb. 5, 1962.

¹⁰³ BayHSA: StK 18796, Guthsmuths to the Bundesatomministerium, 5390 E 5-ST-32 888, July 5, 1962.

¹⁰⁴ *MM*, "Atomstrom hebt Steuerkraft," July 19, 1962.

¹⁰⁵ BayHSA: ND/P 1165, "Atomkraft im Vormarsch," in *Blätter für Naturschutz*, 2 (April, 1963), 36.

with newer, state-of-the-art reactors. He, however, considered this reactor to be able to produce electricity at a comparable price with more modern reactors.¹⁰⁶

Plans for the Gundremmingen reactor met immediate responses from local interest groups. The Launiger Sport Fishing Association and the Schwabian Danube Fishing Cooperative complained that fishing on the Danube might be ruined by either contamination or increased water temperatures. Their positions were based on several claims. First, the continual construction of water control measures and industrial plants in the last thirty years had transformed the river to such a degree that it had greatly diminished the possibilities for salmon fishing. Further use of the river would be problematic. Second, the Fishing Cooperative claimed that people were guaranteed the “right” to bathe in “free water”, which required the proper water environment. Third, the government had not yet constructed an eminently appropriate water treatment plant to help remedy the problem. Fourth, rising water temperature threatened the spawning area of Lauingen-Dillingen. Fifth, the construction of a nearby oil refinery, with the anticipated leakage, would also damage the water. Sixth, the Fishing Cooperative considered any resolution devised for the watershed of Bertoldsheim to be equally applicable to Gundremmingen.¹⁰⁷ Since the fishing alliance filed an early claim, the Ministry of Economics was rather dismissive of it, deflecting attention towards the regional bureau in Günzburg, which would be inspecting such matters.¹⁰⁸

¹⁰⁶ *MM*, “Atomstrom hebt Steuerkraft,” July 19, 1962.

¹⁰⁷ BayHSA: StK 18796, Max Mathes of the Schwäbische Donaufischereingenossenschaft to the Staatsregierung, Errichtung eines Atomkraftwerkes in Gundremmingen, hier Einspruch wegen fischereilicher Schädigung III-77060-76, Aug. 4, 1962.

¹⁰⁸ BayHSA: StK 18796, Guthsmuths to the Schwäbische Donaufischerei, 5930E5-L28-39482, Sept. 22, 1962.

In one of the first interstate debates on water distribution, something that became more frequent with the construction of larger reactors in the seventies, the Baden-Württemberg Government complained that the radiation emitted through normal operational procedure threatened the groundwater that flowed into the mutually shared Danube.¹⁰⁹ Since this held the potential to affect the drinking water of “one-and-a-half million” residents of North Württemberg, especially between Langenau and Sontheim, the state government of Baden-Württemberg urged its inclusion in the negotiations.¹¹⁰ The Bavarian government felt that this request was purely an oversight on the part of the BW government, since Construction Director Landel of the BW Ministry of Interior had been present throughout.¹¹¹ Additionally, Schedl explained to the BW government that the nuclear plant would lie 1.2 kilometers east of the Danube, with ground water flowing east away from the BW water supply, which traveled north and south, eight kilometers away.¹¹² The BW government rescinded its complaints in 1964, but was still worried that decreasing water flow could hurt the Rhine-Main-Danube Shipping Corporation.¹¹³

The most notable protest came from the Emergency Association Atomic Power Plant Gundremmingen-Offingen (NAKG). Formed in July, 1962 from local groups, and especially farmers in Offingen and the surrounding region, the NAKG chose factory owner Offerman as spokesman. On July 13, he sent a telegram to Hans Erhard announcing the NAKG’s intention to protest “with all legal means” if the government,

¹⁰⁹ SZ, “Bedanken gegen Atomkraftwerk,” Aug. 22, 1962.

¹¹⁰ BayHSA: StK, 18796, The Minister President of Baden-Württemberg to Hans Erhard, III-11060-18, Aug. 1, 1962.

¹¹¹ BayHSA: STK 18796, Minister of Economics, Otto Schedl, to Hans Erhard, III-11060-18, Sept. 4, 1962.

¹¹² BayHSA: StK, 18796, Schedl to the Baden-Württemberg Innenministerium, 5930 E5-L2a-39430, Sept. 11, 1962.

¹¹³ BayHSA: StK 18796, StK, Auszug aus der Niederschrift des Ministerrats vom Freitag, den 24. Juli. 1964, July 24, 1964.

who bypassed the people, did not release proper information.¹¹⁴ Later that day, the mayors of Lauingen and Offingen, city council members from Burgau, and Bavarian Farmer Association president Erich Musselman joined the NAKG and drafted a resolution to be presented to the liaison to the government, Landrat Bruno Merk; the resolution threatened a demonstration march to Munich with a final destination of the Ministry of Economics building. Grievances filed within the resolution highlight the growing sense that no further landscape was available for industrial expansion; an airport, a garrison, and several power plants already were located in Günzburg and on the Danube, and no further industry could be handled. Furthermore, it claimed that a catastrophe would threaten 25,000 people. However, Merk, who reasoned that the nuclear plant would provide farmers with beneficial electricity, felt the farmers' tempers cooled some in the subsequent days. In his opinion, they did not oppose the project, but were concerned with property issues. He thus gave the NAKG the ultimatum that if their appeal was not properly handled by 9:00 AM on July 19, then the farmers should march to Munich.¹¹⁵ The NAKG apprehension did wane, and it elected to file formal grievances through the proper bureaucracies, rather than demonstrate in Munich.

With the criticality of the Gundremmingen reactor nearing, projected for May or June of 1966, the hydrologic uncertainties surrounding the project became a source for legal action in 1965. The Alliance for the Water Supply Stuttgart (in Baden-Württemberg), headed by Stuttgart mayor, Klett, filed civil lawsuit with the regional administrative court in Augsburg in June, 1965, against the Construction Permit of the Bavarian Ministry of Economics. Implicating radiation contamination from normal

¹¹⁴ BayHSA: StK 18796, Notgemeinschaft Atom-Kraftwerk Gundremmingen Offingen telegram to Hans Erhard, 04702, July 13, 1962.

¹¹⁵ SZ, Manfred Körber, "Protest gegen Atomkraftwerk abgeblasen," July 14/15, 1962.

operational procedure and also catastrophe, the claim argued the nuclear plant threatened water sources on the Danube seven kilometers away at Niederstotzingen. Bayernwerk predicted that with the support of EUROATOM and the Federal and Bavarian governments the project would only be delayed, not halted entirely, but was concerned that the bad publicity would have financial and public relations repercussions—a sentiment to which Schedl agreed.¹¹⁶ This prompted the Bavarian Minister of Interior, Heinrich Junker, to contact his counterpart in Baden-Württemberg to get a resolution. The Baden-Württemberg minister, Fillibinger, who in the seventies had to fend off staunch criticism of the nuclear plant in his own region at Wyhl, had sympathy at this time for the Alliance at Stuttgart and the health of the Danube River, and suggested that Stuttgart have access to an emergency water supply, “in the case of catastrophe.”¹¹⁷ After the Augsburg court subpoenaed the Technical Oversight Association of Cologne in October, 1966 to testify that it foresaw no potential for harm, the Alliance met with RWE and negotiated the dismissal of its suit. Nonetheless, the Alliance set precedence and established innovative tactic for battling nuclear power plants—the legal injunction to halt its criticality. While not particularly affective at this juncture, it would become a staple of protest after 1974.

Bayernwerk was correct in its PR assessment, as representatives of six different interests officially filed grievances against the so-called Zero Production Test Permit,¹¹⁸ which allowed reactors to undergo inspection while operating at fewer than two

¹¹⁶ BayHSA: StK 18796, Bayernwerk AG to Otto Schedl, March 17, 1966; Schedl to the Vorstand der Bayernwerk AG 7265 b 10-III 6- 14 726, April 5, 1966.

¹¹⁷ BayHSA: StK 18796, Staatsminister des Innern Heinrich Junker to Bayernwerk AG Vorstand, IVR3 - 9309 c VII/43I, April 4, 1966.

¹¹⁸The following paragraph comes from: BayHSA: StK 18796, MWi, Vollzug des 7 Atomgesetz, 237 MW-Kernkraftwerk des Kernkraftwerk RWE-Bayernwerk GmbH in Gundremmingen, Genehmigung zur Durchführung der Nulleistungsversuche, August, 9, 1966.

megawatts. Included was Josef Ebner, who claimed the reactor would produce plutonium for weapons, that the region was densely populated and would be a target during war, and that there was no tolerable radiation dosage. Walter Schweiger of Munich, who had honed his craft in protest against the Ebersberg facility in 1965 (chapter 3), objected to all nuclear plants on the grounds that they represented a threat to produce waste and cause warfare. Representing the City of Günzburg and a host of residents and firms was Dr. Abmayr, who objected to the reactor, but rescinded on the condition that ample security measures were employed.¹¹⁹ The third complaint came from Bavarian Wollfilzfabriken Offerman Firm and Josef Horntasch, representing numerous interests in Offingen, who also withdrew complaints after implementation of certain security conditions.¹²⁰ Neighbor to the reactor, Alfred Sing, filed complaint believing his water well was in jeopardy, but this was removed when officials declared it highly improbable.¹²¹ A final group, led by Dr. Hugo Musselman, demanded a “catastrophe protection plan” for the surrounding area—a condition that was also met.¹²² In early 1967, the reactor went into full operation, and produced 237 MW of electricity for the power grid.

Three significant developments came out of the negotiations for Gundremmingen. The first was the increased relevance of hydrologic ecology in terms of contamination, water consumption, and thermal discharge. All of these issues dominated the debates after 1970. Second, while eminently practical business interest groups continued to

¹¹⁹ Abmayr represented: City of Günzburg, W.u.H. Kühle KG Firm, Prof. Josef Schmid, Firm Wilhelm Lutz, and Dr. Paul Ermer, all of Günzburg.

¹²⁰ Horntasch represented: Karl Friedmann, Karl Ewald, Alfred Roskosch, and the Firm Gebr. Littwin.

¹²¹ Included also were several unspecified complaints: Robert Meindl, Marth Meindl, Veronika Krawczyk, Josef Zurek, Anni Zurek, Josef Fendt, Kreszens Huber, and Anton Meindl.

¹²² This group was: Frau Elfriede Musselmann, Dr. Edgar, Dr. Erich and Dr. Hugo Musselmann

frame the debates, particularly traditional industries like agriculture and fishing, we witness the growing importance of city, regional, and interstate alliances that organized officials and citizens to a greater scale than before. Perhaps equally innovative was the noticeable shift in the medium of expression, not only as farmers threatened to resort to marches and demonstrations, but also the class action lawsuit filed by the citizens' alliance. While neither method successfully halted the criticality of the reactor, these tactics would be imitated more forcefully by citizens' initiatives in the seventies. It is with the novel varieties of issues that arose from urbanization—not new forms of protest—that we turn to the new developments in Garching, where urban expansion required amplified government administration.

After the establishment of the *Atomei*, Garching began to change, from a farming village, to a research-based suburb of Munich. For some time, farmers and young scientists coexisted in a peculiarly mixed city. On the one hand, farmers could be seen plowing their fields behind an oxen team in the shadow of the futuristic egg hull. The 'new Garching', on the other hand, was a research center, within an emerging city, surrounded by hastily erected dormitory style apartments. When interviewed on the Bavarian television, the farmers remained proud to be living in the "First Atomic Village," or "Germany's most modern village." At the same time, the researchers distinguished themselves with their white coats, use of High German, and disposition towards Social Democracy, whereas the pro-CSU (or BP) farmers spoke with a pronounced Bavarian dialect.¹²³ But the new arrangement, while not producing any sort of protest until the construction of Research Reactor II, did engender stress. In particular, the growing research center began to occupy space that was not only valuable to the

¹²³ Stephan Deutinger, *Vom Agrarland zum High-tech Staat*, 210.

farming community, but also to the citizens of new Garching and Munich proper—namely the English Garden. Garching grew from about 2200 residents after World War II, 800 of which were refugees, to 4180 residents in May, 1963 and about 15,530 in 1996, with the borders indistinguishable from the surrounding suburbs.¹²⁴ This suburbanization provides an example of city manufactured by the construction of high-tech research. It also demonstrates how expansive nuclear science facilities could compound the feeling of restricted space, in era of a growing need for natural preservation and recreational zoning.

In 1958, the Munich area public was still apprehensive about the operation of the *Atomei*. In July of that year, some irregularities had been discovered in test probes within the hull. The physicist in charge, Dr. Martin Obenhofer of the Technical University, considered the detected amounts of radiation to be well within reasonable standards and likely the product of fluctuations within the fissionable, namely, that it was not as ‘thick’ as necessary. With all reactors, there was an adjustment phase—child sickness (*Kinderkrankheit*) as Obenhofer referred to it—and in this case, the cooling water had become slightly irradiated. However, he was certain that the radiation would remain within the hull of the aluminum shell, well below the tolerance dosage.¹²⁵ Several of the newspapers, though, gave the false impression that the hull was “not thick,” representing a threat to the surrounding area. For example, the *Abendpost* headline was the misleading “Munich: Warning! *Atommeiler* not thick!”—a dubious exaggeration that greatly upset the Ministry of Economics.¹²⁶ The fears of radioactive leaks subsided thereafter; instead public focus turned towards the spatial pressure generated by the research center.

¹²⁴ Stephan Deutinger, *Vom Agrarland zum Hig-htech Staat*, 212, 223.

¹²⁵ SZ, “Radioaktiver Atom-Meiler,” July 16, 1958.

¹²⁶ BayHSA: MK 67461, MWi III55 961, July 16, 1958

With the growth of suburbs like Garching, Munich residents had witnessed considerable recent urban sprawl, and there were further plans to facilitate economic and population growth, by constructing an integrated transportation system. Endorsed both by the City of Munich and the Bavarian government, the so-called Jensen Plan of the early sixties called for the construction of the suburban rail lines (S-bahn), designed to transport passengers from the suburbs to Munich city center, a three ringed Los Angeles style intercity autobahn, and eventually a Munich city underground (U-bahn). Based upon the population growth rates since 1948, the Jensen Plan worked under the assumption that the Greater Munich Area would need to accommodate between 2.4 and 3.8 million residents by 1990.¹²⁷ From 1956-1962, Munich was the fastest growing city in the Federal Republic, with 157,000 new residents (from 963,000 to 1.12 million), a nearly 15 percent increase in five years. In 1962, Greater Munich accommodated 1.4 million and Upper Bavaria 2.8 million residents, respectively.¹²⁸ Forecasting intense suburbanization in the next thirty years, these State Land Plans for the Greater Munich Area predicted an additional population increase of up to 25,000 in Garching, 12,000 in Ismaning, 6,000 in Oberschleißheim, 25,000 in Unterschleißheim, and 8,000 in Unterfröding.¹²⁹ In the case of Garching the planning overestimated by a considerable 10,000 residents.

The Jensen plan, and the structural transformation of Munich, provoked a few conservatives, who were skeptical of the expansion. One of the earlier and more vocal critics of the Jensen plan came from Bavarian Landtag representative of the district of

¹²⁷ BayHSA: MWi 21744, Prof. Jennsen, Die Aufgaben der Arbeitsgemeinschaft Stadtentwicklungsplan München, June 6, 1962.

¹²⁸ SZ, Alois Hahn, "Zustrom nach München ständig in Fluß," August, 22, 1962.

¹²⁹ BayHSA: MWi 21749, Hecker of the Landesratamt München to the Bezirksplanungstelle, IV/1-4067/63, Oct. 10, 1963.

Miesbach, Wolfratshausen, and Starnberg, CSU member Franz Gleißner. Gleißner had a long-time rivalry with Social Democrat, and proponent of the Jensen Plan, Munich Mayor Hans-Jochen Vogel. In his 1963 letters and publications, Gleißner argued that the Jensen Plan, and the pro-expansion Vogel administration, would undesirably transform Munich into a new Ruhr region, in which multiple cities would sprawl in every direction—or even worse—an automobile city like Los Angeles. Chief among potential problems would be traffic jams, pollution, housing difficulties, and social displacement. Instead, he believed the government should develop a ‘Bavarian’ zoning policy to discourage high population density (*Ballung*). This alternative would include: decentralization of housing, preservation of farmland and small villages, preservation of recreational and natural spaces, and the discouragement of the speculative housing market.¹³⁰

In response to these complaints, Vogel dismissed Gleißner as a reactionary *Entballer*, meaning roughly someone who irrationally opposed high density urbanization. However, Gleißner took issue with Vogel’s generalization, arguing that his position was considerably more nuanced. He worried about the aspiration for unrestricted growth of industry and population that coupled with the pursuit of creating a world-class city. On the one hand, officials encouraged this unending growth, but on the other hand they complained about the consequences: hectic traffic, housing shortages, air and noise pollution, and urban sprawl into the surrounding agricultural areas, all of which worsened living conditions. Gleißner wanted to prevent this particular situation.¹³¹ About a year later, Gleißner requested that Vogel establish a new migration policy for Munich, which

¹³⁰ BayHSA: MWi 21744, Franz Gleissner, “Gefährlicher Konzentrations- und Ballungsprozeß in München und Umgebung, 32581, 1963.

¹³¹ Franz Gleißner, “Die berechtigten Sorgen eines prominenten Entballers,” *Bayern-Kurier*, issue 30, 1963.

would slow the current growth rates of the city. Vogel, perhaps misunderstanding, asked Gleißner if a wall should encircle Munich. Perhaps Vogel had Berlin in mind. Munich, according to Gleißner, was the only major city in West Germany that was swelling (*aufblähen*), leaving the city with a considerably worse living situation than other West German cities of similar size. He reiterated that since Munich's airport was downtown (at the time it was at Riem, which sat in the Eastern half of the city near the right bank of the Isar), and the transportation infrastructure was so poor, the people suffered from noise and air pollution. To stop this trend, Gleißner felt the city mayor should develop a plan that prohibited the selling of farmland to industry, slowed general industrial development, and left more space for recreation. The problem, according to Gleißner, was that Munich had aspirations to become an international city ('with heart' as was often said), an industrial city, a research city, a tourist city, a city of art, and a cultural city all at once, lacking in direction. His concerns point towards how the identity of the city connects with its spatial use, and that there was some tension about the direction of building in Munich.¹³² Concerned with the enclosing landscape, federalist politicians, who were considered reactionary in the sixties (and perhaps still today), posed legitimate criticisms of unmitigated urban growth—complaints that would be later taken up by environmental organizations on the political left.

As some had predicted, the *Atomei* became an international destination for sightseers and scientists.¹³³ Siemens also constructed a very small research reactor nearby for the Max Planck Institute, which met little fanfare. In fact, because of its

¹³² BayHSA: MWi 21724, Gleissner to Vogel, "Kann man die Aufblähung Münchens verhindern?" June 15, 1964. For a scholarly interpretation of CSU attempts to redefine Bavarian urban centers during this time period, see: Graham Ford, "Constructing a Regional Identity," 277-297.

¹³³ Stephan Deutinger, *Vom Agrarland zum High-tech Staat*, 215.

diminutive size, the Argonaut reactor facility ‘piggy-backed’ the FRM, as it was linked to the same water supply, without the long permit process of the first reactor.¹³⁴ A permit was issued superfluously only to practice the administrative process.¹³⁵ The one potential problem lay in the public relations nightmare associated with purchasing the property from local farmers; and for the sake of “not unsettling the population,” the state acquired the plot, not Siemens.¹³⁶ The reactor went online in 1959.

With the further expansion of the research center, by way of the Institute for Plasma Physics and Institute for Radiochemistry in 1964, stress was inevitable. This not only brought with it some 1200 researchers, who had to be housed in the village, but also required significant land.¹³⁷ The Technical University wanted 250-400 hectares to expand on, but it had to compete with the Village of Garching, which desired the land for residential or agricultural use, the municipality of Munich, which needed a water treatment facility, and the state of Bavaria. Northwest of Munich also resided a Bundeswehr training facility, which obstructed expansion in that direction. Canals, schools, streets, and power lines followed the research centers. Of particular necessity was expanding the water treatment plants to meet the expected needs of 10,000 residents and the considerable consumption of the research centers.¹³⁸ In 1960, Josef Hoggar, a Catholic priest in Garching, heard about the possible expansion of the research institute and inquired of Maier-Leibnitz whether it would be wise to construct a church within a couple kilometers southwest of the *Atomei* to serve new settlements—it would be a

¹³⁴ BayHSA: MWi 21937, Niederschrift über die Besprechung im MWi am 1. August 1958. 7265 A - III 30a – 48917.

¹³⁵ BayHSA: MWi 21937, Niederschrift über die Besprechung im MWi am 30 Dez. 1958, 7265 B/6 - III 30a – 244.

¹³⁶ BayHSA: MWi 21937, Guthmuths, 5910 At - Lp1 3 – 51048, 1958.

¹³⁷ Stephan Deutinger, *Vom Agrarland zum High-tech Staat*, 221.

¹³⁸ HATUM: RA V 99-5, C 366, Ministerrat Elemenau of MK to the Regierung von Oberbayern, Vorläufige Behelfskläranlage in Garching, 35875, May 19, 1961.

church dedicated to bringing the white coats and farmers together in worship. Maier-Leibnitz responded that residential housing would not be allowed there.¹³⁹ Some plans for the expansion of the Munich airport in Riem, on the Isar, also would create difficulties at Garching. In these blueprints, one of the runways would take off directly at the research institute. Members of the Landesrat Bureau were concerned that this would cause the apparatuses to malfunction, or that the noise would distract the scientists.¹⁴⁰

To operate such high intensity facilities as the Plasma Physic Center (plasma and fusion research requires enormous energy), Garching had to upgrade its electricity grid. The Land Planning Authority had a rigorous challenge of designing the Isar-Amperwerke 110 kilovolt high voltage power line and transformer necessary to bring in this output. The plan was to bring it from Neufinsing to Garching, crossing the Isar River. Every interest that had a stake in the layout of the power line managed to file grievance. Since munitions storage lay nearby, the army wanted the river overpass to be moved north. This solution, however, upset the Bavarian National Radio, headquartered in this direction, because it would disrupt its radio waves. It suggested a southern route, near the City Reservior. The Bavarian Farmers League and Ismaning farmers also chimed in, and were amenable with this solution, if it were built in such a way not to disturb their farmlands.¹⁴¹ With the power lines crossing a landscape preservation area, namely the northern part of the English Garden, the Highest Forest Authority Munich required that it be constructed high enough so that the lines would not damage the trees, except for the very tallest ones. The authority unequivocally refused to allow the wires to be

¹³⁹ DM NL 111 Maier-Leibnitz 012, Josef Hoggar to Maier-Leibnitz, March 31, 1960.

¹⁴⁰ DM NL 111 Maier-Leibnitz 019, Dr. Hecker of the Landratsamt Munich to Maier Leibnitz, April 2, 1963.

¹⁴¹ HATUM, RA V99-6, C 367, Landesplanungstelle to Isar-Amperwerke AG, t5930 E 20 - L 2a – 37549, August 29, 1962.

constructed parallel to the river, because this would cause massive aesthetic and physical damage. As the City of Munich still planned a water treatment facility, it vied for space as well.¹⁴² The City had already moved the planned facility north for the first research reactor, and did not wish to push it still further north, accommodating either the power line or an expansion of the research facilities. Water would already be transported with a twelve kilometer canal—the maximum length technically feasible.¹⁴³

If the institute was going to expand, of major importance was saving an area of landscape preservation along the Isar River. For some time, the municipal and state governments had attempted to protect the English Garden between Wolfratshausen, South of Munich, to Freising, North of Munich. This included the riparian woods by Garching, which the Ministry of the Interior was adamant remain untouched, because it had been protected under law since 1935.¹⁴⁴ Beginning in 1958, the CSU faction of the Munich municipal council, among others, was concerned that expansion of the Garching facilities would encroach upon the recreation area in the state-owned section of the riparian woods. Because South Munich was rich in recreation area, and the North was deficient, the group planned to develop the Northern area's camping, hiking, and swimming facilities. They considered recreation zones necessary to provide for the

¹⁴² HATUM, RA V99-6, C 367, Landesplanungstelle to Isar-Amperwerke AG, t5930 E 20 - L 2a – 37549, August 29, 1962; At this time, the reaction to construction of the high-tension power lines remains understudied and will be a future point of departure for further research. Bergmeier claims that the power lines generated no “meaningful protest”, unless they disturbed tourist or nature conservation zones, and then only within the bureaucracy. The situation appears to warrant further investigation. Monika Bergmeier, *Umweltgeschichte der Boomjahre*. 221.

¹⁴³ BayHSA: MWi 21748, Regierung von Oberbayern Bezirksplanungsstelle, M III/22 723/63 Rp 3, Feb. 7, 1963.

¹⁴⁴ HATUM, RA C367, Regierung von Oberbayern, Naturschutz; Inschutznahme des Isartaales zwischen Icking und Freising, 2436, March 8, 1963.

expected population increase;¹⁴⁵ the specific plot played a vital role in relaxation and the landscape aesthetic. One proposed solution was to establish under the responsibility of the State Forest Administration, namely the Forest Bureau Munich North, care for the trees on the reactor land, in part because of noticed fungal and insect damage.¹⁴⁶

Within only a few years of its foundation, the research facilities already threatened the integrity of the riparian woods. The institute already protruded against the restricted landscape area, which was zoned to follow Garching Street going to Freising, and the Jensen plan dictated that further reduction was necessary. Jensen planning presumed that a portion of the plot owned by the institute was already in the landscape protection zone (that beyond Garching Street); thus, expanding the research institute towards the Isar was out of the question for conservation officials.¹⁴⁷ At the same time, a 1967 news story reported that the Free Body Culture Club Osiris (nudists) felt that their refuge in the Isar Valley riparian woods was threatened.¹⁴⁸ However, Ministerrat Elemenau of the Ministry for Education declared that some of the land in question, aside from the riparian woods, not particularly “worthy of protection,” and thus should be further inspected for development.¹⁴⁹ But the Regierungsrat, Kemitzer demanded that a 250 meter strip along the Isar remain untouched. Additionally, Mayor Amon of Garching requested that some of the land along the Isar be left to residential or agricultural uses. He claimed that the forest was receiving undue attention compared to agriculturalists,

¹⁴⁵ BayHSA: MWi 21747, Fackler of the Stadtratsfraktion der Christlich-Sozialen Union to the Oberbürgermeister München, Thomas Wimmer, 25870, Nov. 11, 1958.

¹⁴⁶ HATUM: RA C 364, Maier-Leibnitz to the Rektor der Technische Hochschule, 6106, July 28, 1959; Oberregierungsbaurat Orlamünder of the Landbauamt München to the Institute für Techn Physik, 6106, July 20, 1959.

¹⁴⁷ HATUM: RA C367, Regierung von Oberbayern, Entwurf der Bezirksverordnung über den Schutz von Landschaftsteilen entlang der Isar zwischen Icking und Freising, II/2b - 1025/18, March 13, 1963.

¹⁴⁸ Martin Pabst and Margot Fuchs, *Technische Universität München*, 509.

¹⁴⁹ HATUM: RA V 99-6, C367, Ministerrat Elemenau of SM Unterricht und Kultus to Regierung von Oberbayern, V 24478, April 4, 1962.

which following the industrial and state expansion under the Jensen plan were compelled to relocate. The Bundeswehr training facility had already expanded in this direction, squeezing out the small farmers.¹⁵⁰ Even though the area surrounding the proposed extension was considered poor for agricultural use, the Bavarian Farmers League projected a considerable improvement, after irrigation from the water treatment plant commenced.¹⁵¹ The Bavarian Construction Director, though, suggested that Garching would soon lose its “agricultural character” anyway, as it changed into a research/ industrial city, and considered the farmers of little consequence.¹⁵² Conversely, the State Ministry for Agriculture and Forestry recommended 300 meters from the center of the river for the riparian woods, instead of the 200 proposed by the Land Planning Authority of the Ministry of Economics, which prioritized the research center over all else.¹⁵³ Apparently as mediator, the Ministry of Interior convinced the Technical University to respect the boundaries, only reducing the nature preservation area a bit, but also to erect “greenland” surrounding the facilities, particularly soccer fields.¹⁵⁴

With this development, all of the regional tension shifted away from the scientific facilities and towards the Bundeswehr’s recent expansion, which would crystallize grievances about suburbanization for several years to come. This expansion of Bundeswehr facilities was perceived negatively in the context of the militarization of the

¹⁵⁰ BayHSA: MWi 21748, Regierung von Oberbayern Bezirksplanungsstelle, M III/22 723/63 Rp 3, Feb. 7, 1963; BayHSA: MWi 21749, Gemeinrat Garching, Stellungnahme des Gemeinderats Garching bei Muenchen zum Raumordnungsplan Muenchen-Nord, Oct. 4, 1963.

¹⁵¹ BayHSA: MWi 21747, Regierung von Oberbayern Bezirksplanungsstelle, 6. Sitzung der Bezirksplanungsgemeinschaft Oberbayern am 15.10.63, 54934, Oct. 15, 1963.

¹⁵² BayHSA: MWi 21748, Regierung von Oberbayern Bezirksplanungsstelle, M III/22 723/63 Rp 3, Feb. 7, 1963.

¹⁵³ BayHSA: MWi 21749, Ministerialdirektor Hopfner of the Bay. SM. für Ernährung, Landwirtschaft, und Forsten to the MWi. 053324, Nov. 11, 1963.

¹⁵⁴ BayHSA: MWi 21748, Ministerialdirketor Riedel of the MINN to the MWi, Landesplanungstelle, IV B 3- 9123/ 2-34, Feb. 5, 1965.

forests, in which German forests were seen as victims of NATO and Bundeswehr bases constructed in previously wooded regions.¹⁵⁵ In spite of this, in 1973 noted nature preservationist Otto Kraus lamented in retrospect that the *Atomei* should have been constructed in front of the riparian woods, instead of directly in the middle of it, preserving the character of the English Garden.¹⁵⁶

This episode in Garching, while not resulting in any form of mass demonstration, represents an additional type of administrative nightmare that arose as a result suburban sprawl.¹⁵⁷ As the nuclear facilities expanded, it presented challenges to officials who were charged with juggling municipal needs and state preservation. Often in the early sixties, industrial and urban expansion were given precedence over preservation, but the growth of urbanite leisure activities persuaded planning officials to rethink this prioritization. Typically, these disputes were settled behind closed doors in the Land Planning Authority in the early sixties, but the potential for the public to become involved increased as apparent open landscape continued to diminish.

By 1965, the Economic Miracle had greatly transformed the administration of nuclear facility planning. In particular, recreation, urban sprawl, hydrology, air quality, and landscape preservation had been elevated in importance in comparison to older issues, such as farming, tourism, and Bavarian culture. These landscape controversies had the potential to reshape the participants in the nuclear debates; urbanites and

¹⁵⁵ See the example of Lüneburg Heath in: Sandra Chaney, *Nature in the Miracle Years*, 60-64. Some 65 garrisons were constructed between 1955-1975 in Bavaria, with accompanying housing and practice facilities: Wolfgang Schmidt, "'Eine Garnison war eine feine Sache.' Die Bundeswehr als Standortfaktor 1955 bis 1975," in *Bayern im Bund. Band I: Die Erschließung des Landes 1949 bis 1973*, Thomas Schlemmer and Hans Woller ed. (Munich: R. Oldenbourg Verlag, 2001), 357-442, specific page is 360.

¹⁵⁶ Bay.HSA: ND/P 1167, Otto Kraus, *Blätter für Natur und Umweltschutz*, "München-Freising: Englischer Garten von Morgan," 3 (July 1973), 93.

¹⁵⁷ For additional information of the suburbanization of Garching and the resulting disputes see: Martina Heßler, *Die kreative Stadt*, 69-162.

bureaucratic specialists of biology, forestry, and hydrology now had vested interests in the outcome of landscape planning. Instead of a lack of government awareness of ecological issues, we see rather infighting between ministries over landscape planning, with the Ministry of Economics promoting modernization, and the Forestry Ministry, Water Bureau, or Ministry of the Interior endorsing water or nature protection. Nuclear projects all over Bavaria met some resistance, waning a bit in the sixties as Bavarians wholeheartedly accepted electrification, but it remained the heavily populated Munich Region, with the intense spatial demands triggered by the transformation of Garching, that had the greatest potential for conflict. As Chapter Three demonstrates—on the plans to construct a particle accelerator in nearby Ebersberg Forest—the sheer scope of the atomic research projects necessarily caused them to collide with the demands of urbanization, consumption, and preservation. It crystallized all of the anxieties, doubts, and skepticism associated with the disappearing landscape. Because nuclear fission had been publicly demonized in the fifties more so than any other industry, of all the possibilities for condemnation of pollution (oil refineries, autobahns, etc.), it would remain in the forefront of public concern.

Chapter 3: The Forest War in Ebersberg Forest

Between 1963 and 1965, CERN (Council for European Nuclear Research) in coordination with Bonn and the Bavarian governments investigated whether a location near Munich would be appropriate for a proposed atomic synchrotron, which would be the largest in the world. After about two years of internal negotiations, CERN's plans first became public knowledge in January 1965, sparking widespread newspaper and letter protest throughout Southern Bavaria. For the next few months, the proposed location, Ebersberg Forest, just east of Munich, became the focal point for a discussion of the role of technology and nature in the Bavarian consumer society. Much has been made of the so-called Ebersberg Forest War of 1965, but the much publicized event has been largely portrayed as episodic and less relevant to the transformation of Bavarian attitudes, rather than what it should be considered, a quintessential example of a transition in social and environmental attitudes. This oversight is in large part because it has either been described from the viewpoint of the government and scientists—in the case of Deutinger's excellent analysis, in which he argues that the 'European' project was an attempt to initiate economic development in Bavaria¹—or from the point of view of very local protest figures from Ebersberg County, Hans Sponholz and Anton Micheler, who headed the Society to Preserve Ebersberg Forest.² The conflict, however, was

¹ Stephan Deutinger, "Europa in Bayern? Der Freistaat und die Planungen von CERN zu einem Forschungszentrum im Ebersberger Forst bei München 1962-1967," in *Oszillationen: Naturwissenschaftler und Ingenieure zwischen Forschung und Markt*, Ivo Schneider, Helmuth Trischler, and Ulrich Wengenroth ed. (Munich: R. Oldenbourg Verlag, 2000), 297-324.

² Wolfgang Webersinke, "Die Schutzgemeinschaft zur Erhaltung des Ebersberger Forstes und ihr Kampf gegen die in den 1960er Jahren geplante Großbeschleuniger-Anlage," in *Der Landkrieg Ebersberg. Geschichte und Gegenwart. Nutzungen, Wandlungen und Gefährdungen des Ebersberger Forstes*,

widespread, involving more than just a county or an even a region, and captured the imagination of most the residents of Southern Bavaria. It involved the transformation of ideas on a number of the day's most noteworthy topics, including, but not restricted to, the nature of democracy, park and landscape use, the essence of a forest, localized climate and geology, the role of science in society, urban sprawl, and the relationship of government and civil society.

The affair at Ebersberg Forest offers a convergence of the trends established in the previous chapter. As in the debate over the Munich Research Reactor, the discussion continued to be framed within the context of traditional *Heimat* and landscape preservation, blended with Cold War anxieties over thermonuclear annihilation. Increasingly however, the agenda of debate was shifting, due to the inherent pressures on the landscape generated within the development of a consumer society. The affluence of the Economic Miracle allowed additional expectations in landscape planning, particularly by demanding more space for leisure activities, new nascent ecological perspectives, and a greater role of local administration within the state decision-making process. When these expectations were not initially met, Bavarians expanded the means of debate, holding petition drives, local parades, and deliberations on the nature of democracy within a Federal framework. Additionally, since the particle accelerator was an example of a massive technological project, it confirmed any fears about the overall diminishment of available landscape, as it competed with the sprawling needs of the consumer society. After a short narrative account of the events, this chapter will examine the transformation

Kreissparkasse Ebersberg ed. (Stuttgart: Deutscher Sparkassenverlag GmbH, 1990), 94-105; the incident also garners brief mention, as a foreshadow of the atomic controversy that begins in 1968, in Wolfgang D. Müller, *Geschichte der Kernenergie in der Bundesrepublik Deutschland: Band II*, 29.

of discourse during the Ebersberg Forest affair, by proceeding through a series of relevant contemporaneous questions—moving from traditional to more innovative themes—in order to assess overall continuity and discontinuity with debates over the Research Reactor at Munich.

Since the mid-fifties, the CSU had adopted the modernization project originally endorsed by the Hoegner-led Social Democrats. While all sections of society continued to display substantial enthusiasm, the mid-sixties saw the first significant implementation of the nuclear energy program, outside of the small research facilities at Garching and Kahl. Even though most everyone was still in favor of building a nuclear power network, most of the plans had remained theoretical, never dealing with existing landscape issues. As Heisenberg, Maier-Leibnitz, and the Bavarian Atomic Commission had been requesting for years, the Federal government and CERN began to exam Munich as a possible location for a new particle accelerator. In 1960, Niels Bohr was part of a team to commence the first large synchrotron in Geneva. The European project was designed to map out the atomic universe, on a scale that could not be equaled by the Americans and the Soviets. A particle accelerator has a long track, usually circular, on which magnets propel atoms at a high velocity, near the speed of light. Once the particles reach terminal velocity, they are released from the track, colliding with other specifically chosen atoms and molecules. Scientists then calculate the energy, particles, and anomalies that remain from the impact, providing information on the composition of the atoms. Once the approximately 30 GeV (Giga-electron volts or billion electron volts), 200 meter diameter Geneva accelerator was operational, the physicists were elated to discover numerous subatomic particles that were not even a part of the theoretical framework a few years

earlier. At top speed, an accelerator of this magnitude allowed examination of areas as small as a hundred-billionth of a centimeter. However, the scientists in charge quickly realized that the accelerator was much too small for what Heisenberg wanted to accomplish—namely developing a mathematical formula of the subatomic universe. CERN almost immediately began planning a larger facility in 1961, at 300 GeV, which would be theoretically designed to do just that—map out the smallest of atomic particles.³

The Ebersberg Forest, just outside the city of Munich, was for CERN, the Federal government, and Heisenberg—who once again specifically campaigned for his hometown—a very suitable location. First, it offered a significant area of ‘untouched’ land. The synchrotron ring, which would be approximately 2.4 kilometers in diameter, or 7.64 kilometers in circumference, would require an area at least twenty square kilometers, about 500 hectares. Ebersberg Forest offered at least three times this amount, an uninhabited land plot seldom found in densely populated Western Europe. At the same time, CERN’s geologic requirements were extremely demanding. In a *Bayerische Staatszeitung* article, specialist reporter Alfred Karbe explained the sheer difficulties of building such a project. As Heisenberg had elucidated, the extremely precise calibrations required the particles to travel constantly at one-ten-thousandth of a millimeter above the magnet track, propelled by 3800 ton magnets that may shift less than a tenth a millimeter over a space of one-hundred meters, at any given time. The calculations must also

³ For more on accelerators in Germany see: Claus Habfast, *Großforschung mit kleinen Teilchen. Das Deutsche Elektronen-Synchrotron DESY 1956-1970* (Berlin, 1989); Maria Osietzki, “Physik, Industrie und Politik in der Frühgeschichte der deutschen Beschleunigerentwicklung,” in *Wissenschaft für Macht und Markt: Kernforschung und Mikroelektronik in der Bundesrepublik Deutschland*, Michael Eckert and Maria Osietzki (Munich: Verlag C. H. Beck, 1989), 37-70.

compensate for seasonal variances and seismic vibrations,⁴ while the accelerator also demanded a water table below twelve meters.

Director of the Geologic Institute at the Technical University in Munich, Professor Max Knießl, who had previous experience with geological measurements for the DESY (German Electronic Synchrotron) accelerator at Hamburg, was chosen by CERN to begin probing sites and processing data. After assessing a number of locations, he considered Ebersberg Forest ideal, because it was extremely flat due to its distinct formation by glacial erosion, fit the necessary tectonic criteria, and had a water table below thirty meters. CERN also required that a sufficient water and power supply were available, and Munich's vicinity, as well as a groundwater flow of 100 cubic meters per minute, made Ebersberg Forest an ideal candidate. According to the Councilor of Ministry of Energy and Water, Dr. Mayer, the accelerator would require two to three cubic meters of water per second to fill the reservoirs initially; thereafter, only .5 cubic meters per second. Given the amount of groundwater under the forest, the facility could be cooled, the 10,000- 20,000 settlers accompanying the facility could be provided drinking water, and the forest could also have sufficient water circulation to function properly. Furthermore, like with the Research Reactor near Munich, CERN wanted the accelerator to reside within vicinity of a major university and research center. Here, Munich offered the University of Munich and the Technical University, the state library, the Max Planck Institute, and the numerous research facilities in Garching. Munich also presented a fairly centralized European location, reachable from EUROATOM centers in Geneva and Ispra, Italy. In order to accommodate the spare time wishes of the scientists, CERN

⁴ *Bayerische Staatszeitung*, Alfred Karbe, "CERN—das große Abenteuer der Physik," Jan. 29, 1965.

wanted the accelerator to lie in close proximity to a ‘cultural’ center. In this regard, Munich was ideal, in view of its numerous tourist attractions, beer halls, and museums, but also because it was conveniently located near abundant recreational lakes, forests, and Alpine vacation resorts.⁵

The Bavarian government, led by CSU chairman and new minister president, Alfons Goppel, considered this to be a boon for Munich, as well as Bavaria. As the *Süddeutsche Zeitung* put it, Goppel felt the facility would not only accelerate protons, “but also accelerate the march of Free State of Bavaria in an opportunity-laden future.”⁶ However, prior to 1964, the Federal government in Bonn already had articulated the project’s relevance. It was the golden opportunity to return Germany to its ‘rightful’ competitive position in the field of physics and to facilitate the immigration of noteworthy European physicists. Federal officials also considered it a chance for Bavaria to gain prestige and economic windfall. The accelerator’s construction costs of 1.5 billion DM and annual operation expenses estimated at a half billion DM—of which West Germany would be obligated to fund only 100 million DM yearly—would be spent entirely in Bavaria.⁷ In late 1964, Goppel eagerly anticipated the facilitation of the transformation of Bavaria, from a region dependent upon tourism to an industrial and research-based state. He was, however, not without his reservations about the project. As someone with a longtime reputation of promoting nature preservation from within the Ministry of Interior, he too had concerns about the location; and, after meeting with his fellow ministers, Heisenberg, and Knießl, he proposed the alternatives of Holfolding

⁵ BayHSA: StK 14005, Knießl to Goppel, May 8, 1964; BayHSA: StK 14005, “Aufzeichnung über die Besprechung am 25.1.1965.

⁶ SZ, “Das Streitlicht,” March 3, 1965.

⁷ Stephan Deutinger, “Europa in Bayern?” 309-310.

Forest near Munich and the Upper Palatinate, northwest of Munich on the route towards Augsburg. Once CERN declined all but Ebersberg Forest, he began to campaign actively for the project in his Bavarian radio interview on January 20, *First Hand Policy*, which noted that it benefited the public welfare of Bavaria and was supported by thirteen other nations.⁸ Beyond economic development, the state-sponsored pamphlet, *A Proton Accelerator in Ebersberg Forest*, which circulated in the mailbox of hundreds of protestors, argued that it would enhance the reputation of Bavarian science as well. The European research center would be globally renowned, attracting international scientists to the region. Once this knowledge was shared with the local universities, the researchers would educate the future generation of scientists, who normally would train abroad.⁹

Even though the ministry and the scientists endorsed the project, the Bavarian bureaucracy had been reviewing the accelerator plan, and as early as 1963, regional planners had objected to the proposed site. The Regional Government of Upper Bavaria, including the High Forest Commission, the Ebersberg and Munich State Bureau Council, and the Munich Water Works, evaluated the viability of Ebersberg, Holfolding, and Höhenkirchen Forests as possible locations for a future facility that year in the Regional Planning Authority (*Bezirksplanungstelle*). It came to the conclusion that felling 1500 hectares of forest for the particle accelerator, along with the accompanying wind and storm damage at the edges of the construction site, would be too great a “sacrifice”. Holfolding Forest, threatened by private farming, and Höhenkirchen Forest, endangered by industry and an American weapons storage facility, would be destroyed. The

⁸ BayHSA: StK 14005, Goppel, “Politik aus Erster Hand,” Bayerische Rundfunk Presse- und Informationstelle Sendungen, Jan. 20, 1965.

⁹ BayHSA: 14008, StK, *Ein Protonenbeschleuniger im Ebersberger Forst*, 1965.

Ebersberg forest had been zoned for landscape preservation by the Ebersberg State Bureau Council on June 16, 1962, in order to secure the “substance” of the park and recreation area. In 1963, the Regional Government of Upper Bavaria endorsed the landscape preservation decision. It further determined that any additional exploitation of the forests, brought on by the settlement encouraged with the facility, could affect the climate or the drinking water supply of Munich. The Bavarian and Federal ministers were informed in the summer of 1963.¹⁰

Planning on the project continued and other sites were further examined for another two years, but, because CERN insisted the project remain under the rubric of “strict confidentiality,” only government and state circles were informed. In a meeting on May 20, 1964, the state ministers met with Heisenberg and Knießl and, taking into consideration the position of the regional offices, continued to promote Ebersberg Forest, keeping Hofolding Forest and Upper Palatinate as last resorts. As the Minister of Foodstuff, Agriculture, and Forestry, Alois Hundhammer assured the members that the area could be reforested following construction. Furthermore, Goppel was convinced that Bavaria would lose all credibility with the Federal Government if it declined the project, because of its broad ‘European’ ramifications. After this meeting, the project remained strongly classified.¹¹

¹⁰ BayHSA: MWi, 21938, Regierungsvizepräsident von Oberbayern Dr. Panz to Mwi, 028328, June 14, 1963; BayHSA: StK 14005, MWi. Dr. Otto Schedl to the Bundesministerium für Wohnungswesen, Städtebau und Raumordnung, July 9, 1963. StadtAMü: RA 93467, Regierung von Oberbayern, “Schutz der Landschaft im Umkreis der Landeshauptstadt München,” II/ 2b – 1037/37 (62), May 27, 1963; BayHSA: MWi 21938, “Schedl to the Bundesministerium für Wohnungswesen, Städtebau und Raumordnung, 5910 At- L/ 2a—28328, 1963.

¹¹ BayHSA: Stk 14005, “Goppel to Hundhammer,” December 1, 1964.

Only in December, 1964, did any information begin to be acknowledged. December 1, 1964, rumors surfaced that something was planned for the forest, but the true nature of the project was, as of yet, not revealed. In the Landtag that day, SPD representative Dr. Haselmayer questioned State Secretary Vilgertshofer of the State Ministry for Food, Agriculture, and Forestry about whether (and ought) the Bundeswehr planned to construct a field exercise facility on 20 square kilometers of Ebersberg Forest. When Vilgertshofer denied adopting any such plan, Haselmayer further queried whether the Bundeswehr would build a research facility. Because the accelerator remained classified, Vilgertshofer was unable to respond to this sort of inquiry at this time. A rather irate Hoegner then yelled “state secret” (*Staatsgeheimnis*), uttering what would become a rallying call as the affair went forward.¹² In the Ebersberg region, Hans Sponholz, editor for the *Ebersberger Zeitung* began to cultivate a local oppositional front, which started in an Eberberg county meeting on December 4, 1964, when he and members of the local SPD categorically denounced all facilities constructed in the forest. Already, in his January 9/10 edition of the newspaper, he pled for the gathering of an Alliance to Protect the Ebersberg Forest.¹³

With the speculation already in public discourse, Minister of Economics Otto Schedl revealed the plans to a Finance and Budget Committee of the Bavarian Senate on January 12, 1965. The following day, Goppel openly released the information both to the chairs of the Landtag and the press, then appeared on a January 14 *Münchener Abendshau* TV panel with Heisenberg, Mayor Vogel, and Landrat representative of Ebersberg, Dr. Streibl. Even though the Land Planning Authority had previously warned the

¹² BayHSA: StK, 14005, *Verhandlungen des Bayerische Landtags*, 59 Sitzung, December 1, 1964, 2090.

¹³ Wolfgang Webersinke, “Die Schutzgemeinschaft zur Erhaltung des Ebersberger Forstes,” 96.

government in 1964 that this information would lead to considerable turbulence in the public, the ministers appear to be quite surprised with what followed.¹⁴ Spanholz called for a letter-to-the-editor and letter to the government campaign, which met broad resonance. After the Ebersberg newspaper found immediate success establishing its oppositional crusade, other regional news agencies followed suite with weekly collections, including the three most prominent and less polemic Munich papers: *Süddeutsche Zeitung*, *Münchner Merkur*, and the *Abendzeitung*. Most of the criticism did not categorically reject the accelerator or nuclear research, but did object to the location. Following the strong early showing by the opposition, proponents both within the ministries and in the public, began also to speak out. Goppel's February 3 speech before the Landtag highlighted the emergence of the accelerator's advocates. Thereafter, the debate began to escalate, resulting in an opposition parade by hunters, nature preservationists, and farmers on tractors at Kirchseon's *Fasching* (Carnival) and a Bavarian Party sponsored people's petition (*Volksbegehren*), led Ludwig Max Lallinger. While the letters campaign died down after CERN's announcement in March that it would consider other locations for the project, the affair continued to have traction in the press for the next year. At the same time, Lallinger, who previously had spoken cautiously of the Munich Research Reactor before the Munich City Council, collected 30,000 signatures protesting the project and filed civil action in the Bavarian courts, where the appeal was denied on July 26. In the end, the sizeable protest and new revelations on the unfavorable soil composition near Munich ended CERN's flirtation with Ebersberg Forest. With a conclusion to this general narrative of events, I will now turn to a thematic analysis organized from older to newer forms of discourse: *Heimat*,

¹⁴ Stephan Deutinger, "Europa in Bayern?" 314-315.

military use, democracy, landscape and urban sprawl, nature, leisure activities, ecology and local climate, economic and other benefits, and the *Jein* outcome.

3.1 Is it a *Heimat*?

Throughout, the discussion was contextualized within the framework of *Heimat* preservation. The *Heimat* theme in German history has a number of representations, but in general, it expresses the relationship between a home town, its history and culture, and a larger political community, such as region, nation, or even Europe.¹⁵ Began as a means for the middle class to spread nationalism in the late nineteenth century, it was promoted through memorialization of historical and natural landscape. In the case of Ebersberg Forest, one witnesses strong ties to federalism—that is Bavarian identity—or localism and regionalism—that is Munich or Southern Bavarian identity. As is the case with all manifestations of identity, the self-descriptions were often ambiguous and self-congratulatory. This sentiment went along with an ambivalent attitude about Europeanization, and a warning against imitating other German regions such as the heavily industrialized Rhineland-Westphalia.

As an example of this uncertainty towards the centralization of Europe, Ed Luthy of Pöcking, in his letter to the *Münchner Merkur* expressed his reservations about Munich becoming ‘international’ in personality ; rather, he wanted it to retain its “Bavarian

¹⁵ For more on nation and *Heimat* see: Alon Confino, *The Nation as a Local Metaphor: Württemberg, Imperial Germany, and National Memory, 1871—1918* (Chapel Hill: University of North Carolina Press 1990); Celia Applegate, *A Nation of Provincials: The German Idea of Heimat* (Berkeley: University of California Press, 1990).

character.”¹⁶ In this specific case, Luthy is extremely vague in his definition of Bavarian character, but is clear that internationalism represents a notion of ‘other’. Specifically, he is referring to losing local identity to the European Community, and the manifestation of this identity in the very trees of Ebersberg Forest. While it can be overstated, historian Joachim Radkau has said that Germans have long had a strong affinity towards forests—dating to at least the Romantic Movement’s worship of trees.¹⁷ Perhaps this attitude had been reinforced by memories of excessive Allied exploitation of timber in the years under occupation. The appeal to *Heimat* saw an upsurge in popularity in the decade following the war, both among conservationists and in a plethora of campy films, as a way to express doubts about joining the international community, without directly invoking the taboo notion of nationalism.¹⁸ My research suggests that the attraction to *Heimat* was actually more pronounced in the Ebersberg affair in the sixties, than had been the case in nineteen-fifties. While making this sentimental connection, regional leaders attempted to appeal to the loyalty of the state officials. As Hans Spanholz discussed in a meeting of the Society for the Preservation of Ebersberger Forest on February 26, Goppel had previously tied the forests and other landscapes to the *Heimat*. In 1962, as Minister of the Interior, Goppel was quoted, “Tree, hedge, and woods, form the face of *Heimat*, they are a piece of the *Heimat* itself. Tree, woods, and *Heimat* are inseparably bound with each

¹⁶ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, “Hier Spricht der Leser.” Jan. 30-31, 1965; for a satirical caricature of this position see: *MM*, Vitus Nadelstichler, “Frisch rasiert—gut gepfäumt,” Jan. 23/24, 1965; another letter referred to the officials at CERN as “property hyenas,” BayHSA: StK 14006, “Offene Worte an die Interessengemeinschaft zum Schutze des Ebersberger Forstes und der übrigen Staatsforste,” 1965.

¹⁷ Joachim Radkau, “The Wordy Worship of Nature and the Tactic Feeling for Nature in the History of German Forestry,” in *Nature and Society in Historical Context*, Mikulas Teich et al. (Cambridge: Cambridge University Press, 1997), 228-239.

¹⁸ Sandra Chaney, *Nature in the Miracle Years*, 47. Jens Ivo Engels, *Naturpolitik in der Bundesrepublik*, 237-238.

other. With every bit of cleared or destroyed forest, a piece of *Heimat* is lost.”¹⁹

Bavarian Party Landtag member, Dr. Panholzer, stated that the Ebersberg Forest is a piece of the *Heimat*, and the *Heimat* is “a present from God, and it is holy to us.”²⁰

Panholzer here highlighted a sense of Christian mission that often accompanied Bavarian appeals to *Heimat*.²¹

Heimat was bound to the conviction that Southern Bavaria offered pleasant living space, both in terms of culture and landscape, but that if disrupted by modernization, technology, or otherwise, it could be damaged beyond repair, resulting in the creation of a wasteland. In this regard, *Heimat* was not necessarily confined to technophobia; but rather was thought to require the proper mixture of nature and technology within landscape planning. Typically, two models were invoked as a standard for poor urban or landscape design, the Ruhr basin or America, of which the latter was often characterized by either the never ending suburban sprawl of Los Angeles, or the imagined ‘wasteland’ or ‘desert’ of Nevada. In a January 21 letter, Liegsalz of Munich admonished supporter of the project Alois Hundhammer, whom she felt as Forestry Minister should hold the most conviction for forest management and preservation. In her opinion, he should have personally stopped the project, because the site would likely become a “stone wasteland.”²² Likewise, university professor in Kirchseeon, Dr. Friedrich von der Leyen, had recently toured the United States and witnessed the deforestation affects on landscape. He wrote to the *Münchener Merkur*: In America, deforestation caused

¹⁹ StadtAMü, ZA, 40 Atom, Ebersberger Forst, 65, EZ, “Wer den Wald preisgibt, zerstört ein Stück Heimat,” Feb. 26, 1965.

²⁰ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2460.

²¹ Graham Ford, “Constructing a Regional Identity,” 293.

²² *Die Abendzeitung*, “Leserzuschriften,” Jan. 21, 1965

“erosion, karstification²³ (*Verkarstung*), and whirlwinds (*Wirbelstürme*). The USA is reforesting this area, while Bavaria wants to cut its forest down”²⁴.

Ironically, others felt the solution to the problem of finding a location could be found in these same wasteland landscapes. Much of Bavarian self-identification was rooted in the imagination or myth that others, outside of Bavaria and West Germany, had vast open spaces, on which to build projects. At the root of this belief was that Bavaria and Germany were much too densely populated to support building projects of this magnitude and design. America or Russia, though, had ample land. As a Munich resident, Asle Biendl asked: “How can we in so densely populated land like Bavaria, consider an accelerator that is ten times larger than those in other nations that have enough space?”²⁵ Similarly, Anna Ernst of Munich suggested that England or France could build it in one of their wasteland colonies, such as the Sahara.²⁶

Much of the recent literature on landscape in Germany has focused on the perceived link between the landscape and the nation. Germans in the nineteenth and twentieth century developed strong notions of what types of natural and cultivated terrain represent German character, as opposed to those that they associated other nationality types.²⁷ One here can easily remember the nineteenth-century German adage that ‘the

²³ Karst is a geological topography consisting of a soluble sedimentary rock, such as limestone, that easily dissolves to form sinkholes and underground caverns—a term which derives from the German name for the limestone plateau in Slovenia and Northern Italy, near Trieste. Karstification is the process of creating this topography.

²⁴ StadtAr Mü, ZA, 40 Atom, Ebersberger Forest 65, *Münchener Merkur*, “Ebersberger Forst im Spiegel der Meinungen unserer Leser,” Jan. 19, 1965; see similarly the letter from Barbara Heller of Munich, who fears that Southern Bavaria will transform into an “American desert”.

²⁵ BayHSA: StK, 14008, Asle Biendl to the Bayerische Staatskanzlei, Feb. 15, 1965.

²⁶ BayHSA: StK, 14008, Anna Ernst to Alfons Goppel, Jan. 14, 1965.

²⁷ For Nature as nation see: Thomas Lekan, *Imagining the Nation in Nature: Landscape Preservation and German Identity, 1885—1945* (Cambridge: Harvard University Press. 2004); Thomas Lekan and Thomas

Rhine is a German river, not a German border'. Romantics considered the Rhine's original meandering water path and steep, vineyard covered banks to be quintessential German landscape. Blackbourn argues that the modern German landscape was developed when the River was straightened and shorted by nearly 100 kilometers, producing a much swifter current. Because of this transformation, Romantics could perpetually imagine the lost Romantic Rhine.²⁸ Another example often cited is the *Siebengeberge* (Seven Mountains), towering above the Rhine, which were recognized as one of the first German national monuments. On one of the hills rested the medieval watchtower ruins steeped in lore, *Drachenfels*, said to have once housed a dragon. This mix of aesthetic beauty and cultural legacy made it a prime candidate for *Heimat* preservation.²⁹

Environmental historians and *Heimat* historians seem to agree that memory, landscape, and memorials are constructed in local culture, in order to develop national identity. My research suggests a different emphasis. Even though Germany had a long established tradition, after World War II the notion of nation was unmentionable in public and thus *Heimat* became the more favorable term. Though the Bavarian government, through the accelerator, was attempting to instill the idea of Europe into the locale—the atomic program was often described nationally as the quintessential technology for Europeanization—many letters opposing the project describe the forest as a Bavarian, not German landscape. One letter to Goppel depicts in poetry the major symbols of Munich

Zeller ed., *Germany's Nature: Cultural Landscapes and Environmental History* (Piscataway, NJ: Rutgers University Press 2005).

²⁸ For information on the transformation of the Rhine River, and its meaning to the German landscape see: David Blackbourn, *The Conquest of Nature*, 77-120; Mark Cioc, *The Rhine: An Eco-Biography*, 69-77.

²⁹ Thomas Lekan, *Imagining the Nation in Nature*, 25.

and Southern Bavaria. The author and rudimentary artist included the Frauenkirche, the Hofbräuhaus, Oktoberfest, and the Ebersberg Forest as the cultural markers of Munich.³⁰ For the artist to compare the forest with these three internationally renowned symbols was quite hyperbolic, but effective nonetheless. Munich in particular was seen as the city which established the Bavarian place within the Federal Republic.³¹ Thus, while many of the documents confirm the notion that landscape was used to identify German culture, many gave a more nuanced impression that the landscape represented both German and federal character, by considering Bavaria to be a cultural body, which, while integrated into Germany and Europe, was wholly distinct. Franz Josef Strauss coined the expression: Bavaria was the *Heimat*, Germany was the *Vaterland*, and Europe was the future. Even though Claire Sutherland claims his quip was an attempt to form a link between Bavaria, Germany, and Europe, establishing the CSU as the crucial centerpiece, it backfired in the case of Ebersberg Forest, because regional residents were skeptical of the ramifications of Europeanization.³²

Since most Southern Bavarians would have identified themselves as Catholics, they debated the role of religion in science and political decision-making. Typically, since Bavarian identity was so closely defined as Catholic, God's name could be invoked when discussing the *Heimat*. This cemented Bavaria's mission on the Eastern Border as a

³⁰The Frauenkirche (Church of our Lady) is the largest structure in Munich and dominates the skyline. Hofbräuhaus is a world-renown brewery and tourist stop, also known as a meeting place for early Nazism. Oktoberfest is the internationally recognized folk festival, which generally takes place at the end of September. BayHSA: StK 14008, Hans Haugg to the Bayerische Staatskanzlei, Feb. 21, 1965.

³¹ Graham Ford, "Constructing a Regional Identity," 293.

³² This fits with the notion that Bavaria is ethno-regionalist in orientation, both seeking to form distinct regional identity, while maintaining a German national identity: Claire Sutherland, "Nation, *Heimat*, *Vaterland*: the Reinvention of Concepts by the Bavarian CSU," *German Politics*, 10, 3 (2003), 21-22, see page 26 for the Strauss quote.

bulwark for Christianity.³³ Lisl Müller stated that a Christian person (and here she meant specifically Goppel), who “should honor and respect the work of God,” should not allow such a large swath of the Munich *Heimat* to be destroyed.³⁴ Likewise, exaltation of science or promotion of the reactor was often taken as example of the obsession, pretentiousness, or even deification of science, at the expense of divinity, nature, or religion.³⁵ This attitude was often connected to the perception that fission was beyond human control, and the scientists that were tampering with it were pompously skirting enormous danger. Even though restricted to subterranean environments, the thermonuclear experiments clearly lay in the public imagination. In many ways this attitude was similar to that expressed during the debate of the Munich Research Reactor, but was comparatively more prominent in the Eberberg letters. Two good examples come from letters-to-editors from Franz Josef von Gilgenheim and Inge Römer of Munich. In his letter, Josef asserted that nature was divinely designed, whereas the research project derived merely from human origin. Thus, he felt the scientists were trying to undo the creation of God.³⁶ Inge suggested that the CSU might as well remove the C from the party’s initials, because it would lose its Christian voters if it continued to promote the project.³⁷

Ebersberg Forest was furthermore a place of imagined and real history of at least a thousand years, beginning with the establishment of the Ebersberg cloister in 934 AD.

Piecing together the historical account as it was told in the sixties requires reference to a

³³ Graham Ford, “Constructing a Regional Identity,” 291.

³⁴ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *EZ*, “Der Leser hat das Wort” Jan. 14, 1965.

³⁵ A good example comes from Annamarie Müller in: StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *EZ Die*, “Nicht im Naturschutzgebiet,” Jan. 30, 1965.

³⁶ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *Münchener Merkur*, “Ebersberger Forst im Spiegel der Meinungen unserer Leser,” Jan. 19, 1965.

³⁷ BayHSA: StK, 14008, Inge Römer to the Minister President, Jan. 15, 1965.

number of officials. While in the Landtag, Bavarian Party member Panholzer went back in geological time, stating that the Ebersberg Forest was a natural memorial of ‘old Bavaria,’ which tectonically shifted through Upper Bavaria and Schwabia “parallel to the Alps.”³⁸ According to Dr. Heinrich Kastner, the District *Heimat* Preservationist, the forest was site to over 200 graves, dating from 900 to 400 BC. He felt that even with some special safeguarding, the streets and signs that followed the accelerator would significantly damage these tombs.³⁹ In the following time, the Romans constructed a road in the Northern forest, still visible in the sixties.⁴⁰ Ferinand Lehnart, mayor of Ebersberg, then pointed out that the city was founded some 1200 years ago. Thus, he believed that the familiarity with the contemporary market and monastery, which every person in the area had at one time or another experienced, gave the people the right to *Heimat* and legal ownership of the forest.⁴¹ In 934 AD, the Benedictines took ownership of the forest and constructed the monastery. The forest remained in their possession until Duke Wilhelm awarded it to the Jesuits, which held it until the local order was disbanded in the late eighteenth century—reverting ownership to the state.⁴² Because of this long history, editorials in the *Ebersberger Zeitung* appealed to Article 158 of the Bavarian Constitution to protect Ebersberg Forest under the guidelines of natural and cultural memorial (*Denkmäler*) preservation. The editorials believed the Forest connected

³⁸ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2460.

³⁹ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *EZ* “Entscheidung unbegreiflich”, Jan. 23, 1965.

⁴⁰ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *EZ*, “Nochmals: Händeweg vom Ebersberger Forst!,” my notes erroneously state that the editorial ran on Jan. 9, 1965, but this would appear to be too early—Feb. 9, 1965 would be a more likely date.

⁴¹ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *Die Ebersberger Zeitung*, “Jeder Möglichkeit prüfen,” Feb. 2, 1965.

⁴² *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2460.

Bavarians with their entire past: prehistory, the Romans, the ancient Bavarians, the Wittelbachs, and the Benedictines.⁴³

According to forest historian Jürgen Huss, the forest does have a long and distinguished history. Beginning with a few examples in the Bronze Age, and then really coming into its own from 700-500 BCE, the forest served as a burial ground. There remain twenty-two distinct groups of tombs, with between 2 and 42 mounds in each, forming a virtual necropolis. One of the larger mounds measures 14 meters in diameter and 1.5 meters high. Along the northern border are the ruins of the Rhine-to-Danube road, built by Emperor Domitian (81-96 AD), and this portion traversed Augsburg to Passau, passing through the forest. While these archeological findings may well be worth preserving, it is important to note that the first people to have the name “*Bajuwaren*” (Bavarian) settled the area after approximately 530 AD and had no relationship to preexisting ruins.⁴⁴

The preamble of the 1946 Bavarian Constitution, though, reflected this foundation myth, that modern Bavaria was a continuation of the stem duchy of Bavaria founded under Garibald I in the Sixth Century AD. This historical inaccuracy provided Bavarians with a claim to predate Germany, offering legitimacy for Bavarian particularism, even predating the accession of the Wittelsbach dynasty within the Holy Roman Empire in 1180. Thus, it was popular in the nineteen-fifties to connect cities, such as Nuremberg, to a 900 year history, in order to not only establish Bavarian federalism, but also to bring

⁴³ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, EZ, “Nochmals: Händeweg vom Ebersberger Forst!,” Feb. 9, 1965.

⁴⁴ Hans Peter Uenze and Syna Uenze, “Archäologische Denkmäler im Ebersberger Forest,” in *Der Landkries Ebersberg. Geschichte und Gegenwart. Nutzungen, Wandlungen und Gefährdungen des Ebersberger Forstes*, Kreissparkasse Ebersberg ed. (Stuttgart: Deutscher Sparkassenverlag GmbH, 1990), 26-29.

the four separate Bavarian regions (Franconia, Swabia, Old Bavaria, Palatinate) into the collective state, developing a common history.⁴⁵ Ebersberg's 1200 year history appears to be part of this trend, while also associating the Forest with Munich's history, founded in 1185, much the way the S-bahn literally had connected the people to the gates of the Forest. The cloister further reinforced the sense of Bavarian Catholic tradition. By incorporating this history, the Forest became a symbol of Old Bavarian culture, mandating its preservation.

As Mayor Lehnart already alluded, it was not only the connection with history, but also the right of ownership—and thus forest administration—that was at the heart of this debate over memory. Lehnart offers a compelling notion, that forest ownership is directly coupled with cultural significance, and that over time, those that make the most use of it, receive the right to decide its fate. Officially, much of Ebersberg Forest was owned by the Bavarian state; this no doubt made it an attractive location, since less land would have to be purchased. According to an oppositional letter from Dr. Dieglmayr, it was additionally alluring because the state could exploit the timber—receiving in effect a second form of revenue.⁴⁶ However, ownership, either in actuality or in form, was very much open to debate. Chairman for the Green Circle of Munich and Upper Bavaria, Walter Kiaulehn delineated between the state, which is permanent institution, and the government, which is reappointed with every election. Kiaulehn was certain that the forest remained the property of the state, not the current government, and therefore the organs of state bureaucracy had the duty to protect it against the government. Likely, his

⁴⁵ Graham Ford, "Constructing a Regional Identity," 288-289.

⁴⁶ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *Die Ebersberger Zeitung*, "Nicht im Naturschutzgebiet," Jan. 30, 1965.

assertion came from the opposition found within the Regional Bureau itself. Hans Sponholz, who also held a position as Natural Preservation Commissioner of Ebersberg County, argued that the forest was owned by the people, ever since it was secularized from the Ebersberg Monastery.⁴⁷ This made for interesting intrigue between the regional and state officials, vying for control over forest administration through the monopolization of *Heimat*. So *Heimat*, in this sense, was not just an identification of Bavarianism, but also manifested itself in a struggle between state and local administration. Ebersberg and Upper Bavaria presumed to be superior conveyors of cultural legacy. Naturally, all of these opinions made the broad assumption that someone could ‘own’ a forest, that there is a method of exchange, and that administration should be dictated by this right of possession.

When Goppel addressed the issue of *Heimat* in his February 3 speech before the Landtag, he framed it within the context of the economic development of Bavaria, as was typical of the liberal branch of the CSU. By doing so, he not only dynamically shifted the discussion, he unwittingly alienated many of his former constituents. While speaking, he recounted his history of natural preservation as Minister of Interior, and assured that he too loved Bavarian culture. However, and here Goppel makes his most controversial statement of the entire affair, he was certain that the soon-to-be 10 million residents of Bavaria “cannot live on renting rooms (*Zimmermieten*) and *Schuheplattern* (the South German dance) alone”.⁴⁸ With this proclamation, Goppel professed a desire

⁴⁷ *MM*, “Die Gesundheit des Volkes wäre gefährdet...” Jan. 15, 1965, in my notes I have the name Kiaulehn, but believe that this may be a typographical error.

⁴⁸ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2455.

for Bavaria to develop its identity beyond merely quaint culture and tourism, and reach its potential as an industrial and scientific power.

Perhaps misunderstood, Goppel's *Schuheplattern* comment drew the ire of numerous confrontational politicians. The fiercest retort came from SPD chairman, Volkmar Gabert, who responded in Landtag later that day. Gabert was certain that if officials in Bonn had made similar stereotypical remarks, the CSU and most of Bavaria would have been incensed. He also thanked God, that the Bavarians and those that *Schuheplattern* on Sunday continued to diligently work during the week.⁴⁹ Apparently feeling that Goppel was degrading his personal lifestyle, Dr. Josef Panholzer of the Bavarian Party announced that these traditional ventures were no doubt honorable, and that he was proud to be a *Trachtler* (one who wears the traditional Bavarian costume).⁵⁰ On April 1, Gabert and Bavarian Party officials vigorously continued their tirade against the Minister President at a rally in the town of Ebersberg. They argued that he was denying the "necessity" of the *Tracht* and the "customs" (*Sitte*).⁵¹

Immediately following his February 3 proclamation, Goppel wrote the head of the *Trachtler* Society, Dr. Conrad Adlmaier, hoping to clarify himself and save face. In his letter, Goppel elaborated on his statement, which was not meant as an attack on *Schuheplattern*, *Heimat* enthusiasts, nor the *Trachtler* Society, all of whom he appreciated and continued to endorse. Rather, Goppel wanted to ensure that Bavaria, on top of its traditions, had "such a good economic foundation" that Bavarians would be

⁴⁹ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2455-2458.

⁵⁰ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2460.

⁵¹ *SZ*, Karl Köbelin, "Protonenbeschleuniger und Schuhplattern," April 2, 1965.

allowed to exist without becoming “some kind of Indian Reservation.”⁵² Even though Toni Gschoßman, a writer in a Stuttgart magazine, believed the apology was merely pandering to the 80,000 organized and upset *Trächtler*, the wife of the head of the association, Maria, accepted what she considered an earnest act of contrition and circulated it among members.⁵³ Still, in early March, members of the *Trachtler* society visited Goppel’s office to further discuss the matter; and it is clear from the records that he had lost much of the Bavarian Party’s support. Even though they hashed out many of their differences, during the meeting Goppel was still not gaining endorsement. As a *Süddeutsche Zeitung* reporter put it, Goppel’s “white-blue vision,” that is his concept for a modernized Bavarian future, had alienated the “white-blue mentality” of the people who previously supported him so strongly.⁵⁴ Put differently, the modernization policy endorsed by much of the CSU tenuously coexisted with older customs.

In response to the *Schuheplattern* debate, Peter Neureiter, an engineering student in Prien, wrote one of the more compelling and entertaining letters maintaining support for Goppel. Neureiter noted that he loved the *Heimat* and was proud of the history and culture of Munich, even though he did not own the traditional Bavarian costume, such as “*Gamsbart*” (chamois hair used as hat decoration) and “*Krachelderne*” (leather pants). In his opinion, declining the accelerator and its boon to science was an act of provincial thinking or political expediency—by politicians pandering to the voters. Neureiter felt that the synchrotron represented a singular opportunity to Europeanize and modernize Bavaria. He added a poem that expressed his full support of Goppel:

⁵² BayHSA: StK, 14006, Goppel to Dr. Conrad Adlmaier, Chairman of the United Bavarian Trachtler Society, Feb. 3, 1965.

⁵³ BayHSA: StK14006, “München in Februar,” Toni Gschoßman, Feb.15, 1965.

⁵⁴ SZ, “Das Streiflicht,” March 3, 1965.

We do not want a Bavaria, where a few hunting ground leasers
Dispose of their districts as though they were kings;
The latter, in any event, don't want to see any city-dwellers
Looking for relaxation in the forests.
We do not want 'Touropa Bavaria', where we so-called
'dumb Bavarians' may at most aspire to be 'fun blokes.'
We want more than just 'Potato Bavaria'.⁵⁵

Neureiter's poem expressed his desire to distance Bavaria from three general stereotypes. The first theme described the jealous administration of the forest by the Bavarian hunting clubs, who as traditionalists held an equal disdain for the urbanites that had recently flocked to the forests.⁵⁶ Second, Neureiter wanted to disassociate Bavaria from tourism. Touropa is not just a clever combination of the words tourism and Europe; it is also a Central European travel agency. Finally, he hoped that Bavaria could one day transcend its image as a quaint potato farming region, filled with jovial and boisterous beer garden patrons. In this regard, Neureiter was looking to blend the Bavarian traditional character with modernization, as the liberal branch of the CSU had done in the mid-fifties.

Goppel had learned that structural transformation of Bavaria was welcomed, unless it was perceived to trample on the image of 'Old Bavaria'. While in 1965, traditional Bavaria was fast fading, leaving behind only the semblance of custom, maintained largely for the purpose of tourism, some vestiges of this society remained. For historians, *Heimat* is a difficult concept to assess because of its high malleability. Since the Nazi era

⁵⁵ BayHSA: StK, 14008, Peter Neureiter to the Bavarian Minister President, Feb.2, 1965.

⁵⁶ A local study of the interaction between traditional outdoor recreation clubs—like the hunters, hikers and bird watchers—and the recreation clubs of the consumer era—such as skiers, mountainbikers, and motorboaters—would likely prove to be fruitful. For some thoughts on the tenuous relationship between hunting and environmentalism see: Joachim Radkau, *Nature and Power: A Global History of the Environment*, translation by Thomas Dunlap (New York: Cambridge University Press, 2008), 52-53.

under the leadership of Alwin Seifert, *Heimat* preservation had developed from parochial technophobia to an element of landscape design, in which nature and technology were blended into the landscape to form associations with cultural memory. Thus, proper landscape planning of artificial structures could improve on the natural surroundings by instilling it with meaning.⁵⁷ It seems that Goppel and his adherent, Neureiter, had this in mind; modernization would contribute to the colorful character of Bavaria. Others, less enthusiastic, openly supported the idea of progress, but appealed to nostalgic symbols of Bavaria's past. Still, even these figures connected the natural landscape with man-made structures, such as the *Frauenkirche*, when the technology was distinctly 'Bavarian' in origin. Once the forest became linked to the imagination of *Heimat*, hunting clubs, *Schuheplattern*, and *Haufbräuhaus*, it had larger meaning than just a stand of trees. Even though the *Frauenkirche* had been recently completely renovated, because of the extensive bombing damage in 1945, the parallel in nature was out of the question. As Georg Guggenberger of Haar put it, Minister of Forestry Alois Hundhammer's plan was to relocate the entire forest elsewhere, so that the original could be settled upon, thus destroying the 'forest character'. Guggenberger facetiously added that Hundhammer might as well build a second English Garden (the largest continuous intercity park in the world and another key symbol of Munich.)⁵⁸

⁵⁷ Thomas Lekan, "'It shall be the Whole Landscape!' The Reich Nature Protection Law and Regional Planning in the Third Reich," in *How Green were the Nazis?* Franz-Josef Brüggemeier et al. (Athens, Ohio: Ohio University Press, 2005), 80-81.

⁵⁸StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, "Wenn er erst angeknabbert ist," Feb. 6, 1965.

3.2 Will it be used for Military Purposes?

Further criticism came from the perception that the facility would not be used for peaceful scientific purposes, as the government claimed, but rather that much more covert and sinister military applications were intended. These fears grew out of the early Cold War, and were often mixed with anxieties developed during the bombing raids of the Second World War. In this regard, the Ebersberg affair shows remarkable consistency with the protest against the Munich Research Reactor, where Cold War anxieties played an extensive role in shaping public opinion. Unlike in the fifties, the thermonuclear experiments themselves were not the focus and there was no associated climate panic. Rather, the facility, sitting on the Eastern border, was to play an active part in the coming hot war. In the 19th century, nature was perceived allegorically as a military adversary that had to be conquered.⁵⁹ In the Cold War era, forests were seen as fellow victims of warfare,⁶⁰ which experienced the dread of thermonuclear annihilation alongside humanity, in part due to the construction of Bundeswehr and NATO military facilities in thick forest reserves.

Of particular worry to a number of local Bavarians was the threat that the facility would produce military-grade nuclear weapons. It is apparent from the records that a considerable amount of this anxiety stemmed from the anti-rearmament movement in the late fifties.⁶¹ Several letters addressed to Goppel came from long established women's

⁵⁹ David Blackbourn, *Conquest of Nature*, 5.

⁶⁰ For a description of this victimization mentality during the Occupation, see Sandra Chaney, *Nature of the Miracle Years*, 66.

⁶¹ The literature on this topic is quite extensive: Mark Cioc, *Pax Atomica: The Nuclear Defense Debate in West Germany during the Adenauer Era* (New York: Columbia University, 1988); Gordon Drummond, *The German Social Democrats in Opposition, 1949-1960: The Case against Rearmament* (Norman: University of Oklahoma Press, 1982); Beatrice Heuser, *Nuclear Mentalities? Strategies and Beliefs in Britain, France,*

peace advocate groups, who continued to conflate the facility with the threat of bomb. In her correspondence with the *Abendzeitung*, Lois Hanfstaengl of Munich argued that the facilities would be used to store or perhaps produce armaments. Just as with the *Heimat* discussion, she argued that the United States had the open, available landscape to house such armaments factories. Germany, on the other hand, had no space for a weapons facility, especially not in the vicinity of a metropolis.⁶²

Walter Schweiger, who later became the Bavarian branch chairman of the World League to Protect Life, founded by Austrian Günther Schwab in 1960,⁶³ cited a brochure, *Klüger Heute Aktiv als Morgen Radioaktive—zu Tode Verseuch!* (Smarter to be active today, than radioactive tomorrow—attempting to kill!), which asserts that the atomic energy program, which was never economically viable, was only initiated for weapons production. Anticipating the nineteen-seventies, the brochure produced evidence of higher rates of leukemia in regions in the vicinity of American reactors. Schweiger claimed that the misuse of science had led to “contamination, sickness, destruction of nature and climate, revolution and war, criminality, inflation, and exploitation of resources.”⁶⁴ Elsewhere, he noted that Krypton 85 remained in the atmosphere even after

and the FRG (New York: St. Martin's Press, 1998); Catherine Kelleher, *Germany and the Politics of Nuclear Weapons* (New York: Columbia University Press, 1975); Matthias Küntzel, *Bonn and the Bomb: German Politics and the Nuclear Option*, Translation by Helke Heino and R. Range Cloyd (London: Pluto Press, 1995); Dorothy Nelkin and Michael Pollak, *The Atom Besieged: Extraparliamentary Dissent in France and Germany* (Cambridge/ London: MIT Press, 1981); Hans Karl Rupp, *Außerparlamentarische Opposition in der Ara Adenauere: Der Kampf gegen die Atombewaffnung in den fünfziger Jahren; Eine Studie zur Innenpolitischen Entwicklung der BRD* (Cologne: Pahl-Rugenstein Verlag, 1984); Karl Otto, *Vom Ostermarsch zur APO. Geschichte der aussenparlamentarischen Opposition in der Bundesrepublik 1960-1970*. (Frankfurt: Campus Verlag, 1977); Rob Burns and Wilfried van der Will, *Protest and Democracy in West Germany: Extra-Parliamentary Opposition and the Democratic Agenda* (London: Macmillan, 1988); Lorenz Knorr, *Geschichte der Friedensbewegung in der Bundesrepublik* (Cologne: Pahl-Rugstein, 1983).

⁶² *Die Abendzeitung*, “Leserzuschriften,” Jan. 21, 1965

⁶³ Joachim Radkau, *Nature and Power*, 53.

⁶⁴ BayHSA: StK 14008, Walter Schweiger to the Deutscher Naturschutzring, May 22, 1965.

the conclusion of the tests—likely the result of nuclear power.⁶⁵ Given that much of his literature comes from presses located in Vienna and his association with World League to Protect Life, it suggests that he was greatly influenced by Schwab. In Schwab's international best-seller, *The Dance with the Devil*, published in English translation in 1958, agents of Satan promoted different types of pollution. One of the devils, the Atomic Devil, conspired to deceive the public about the dangers of thermonuclear fallout and civil nuclear accidents. Schwab, though, had a sordid past during his conservation days in the Nazi era, which was betrayed by the apparent racial prejudice displayed in the Malthusian warnings contained within the text.⁶⁶ While in many ways Schweiger's letters are a continuation of themes presented by Baumgartner ten years earlier—the potential to produce weapons or be a victim of bombs, for instance—Schweiger validates his argument with assembled empirical evidence. While Baumgartner had sophisticated physics notes at his disposal, he did not have the collected numerical data from the biological fields characteristic of the sixties ecologists, such as Rachel Carson.

A variation on this theme was the concern that the accelerator would be a primary bombing target during the outbreak of war. Expressed first by Baumgartner in the fifties, this fear became more prominent in the letters of the Ebersberg affair. Given the current political climate, Dr. Robert Koch-Hesse, A. Mann, and Friedrich Melchner concurred that in a divided Germany, the research facility would be a Soviet target. Harkening back to the arguments of the fifties, they said that in the case of war, no bomb shelters could

⁶⁵ BayHSA: StK, 14006, Walter Schweiger, Eine Atomstadt im Ebersberger Forst?, Jan. 27, 1965.

⁶⁶ Dominick Raymond, *The Environmental Movement in Germany*, 155.

protect Munich.⁶⁷ Ernst Anna described Bavaria as a borderland sitting on a volcano of war, which would erupt if the plan to construct the facility went forward.⁶⁸

If the Soviets did not target Munich with nuclear weapons, then many wondered the outcome of conventional warfare. Inge Waldhier from Munich argued that a conventional bomb could become ‘atomic’ by dropping it on the accelerator, causing some sort of undefined spreading of radiation.⁶⁹ K. F. Finus, Chair of the Bavarian Branch of the Animal Protection Association in Munich, found it unbelievable that such a facility could only be used for peaceful purposes. He thought that Munich would be the first target for rockets from the East, which would contaminate the people and animals surrounding Munich. Finus felt that historically atomic research had been primarily performed in order to harm animals and humans; thus any federal support of atomic research, for a land that wanted to develop peacefully, was “unholy.”⁷⁰

Proponents, though, argued that the research facility represented no threat from military use, accident, or sabotage. Elsa Shipara of Munich challenged the notion that the research facility, which she believed served a worthy purpose, presented a danger to the outside. Instead, security measures maintained strict control over all contingencies.⁷¹ Likewise, Ernst Hund said it was not true that Munich would become a target if the accelerator were built nearby; rather, it was already a target, regardless of any research

⁶⁷ StadtA Mü, ZA 40 Atom, Ebersberger Forest 65, SZ, “Atomzentrum in Ebersberger Forst?” In my notes I have mistakenly not included the date, but believe it to be either the weekend edition of Jan. 23/24 or Jan. 30-31, 1965; BayHSA: StK, 14008, Dr. Robert Koch-Hesse to Alfons Goppel, Jan. 20, 1965.

⁶⁸ BayHSA: StK, 14008, Anna Ernst to Alfons Goppel, Jan. 14, 1965;.

⁶⁹ StadtA Mü, ZA 40 Atom, Ebersberger Forest 65. SZ, “Atomzentrum in Ebersberger Forst?” Jan 23/24 or Jan. 30-31, 1965; see similarly the comment by Siegfried Kriegal.

⁷⁰ BayHSA: StK, 14008, Vorsitzender F.K. Finus, Landesverband Bayersicher Tierschutzvereine e.V. to Alfons Goppel, “Waldgebiet Ebersberger Forst,” Feb. 5, 1965.

⁷¹ *Die Abendzeitung*, “Leserzuschriften,” Jan. 21, 1965

facilities in the vicinity.⁷² Hund made a reasonable point within the context of nuclear war strategy—the principle of mutual destruction ensured complete annihilation despite location. At a November 20 meeting of scientists, Heisenberg and eight of his fellow physicists in the Writer’s League of Scientists tried to make one last, perhaps hopeless, appeal to the people. They argued that almost all of the key phrases of the opposition were based upon false information. There was no danger from explosion, radiation, gas leakage, nor extra threat in war. In fact, as Professor Jentschke, the Leader of the DESY accelerator at Hamburg put it, the amount of radiation represented much less a threat than a reactor, had less strategic importance than a conventional power plant, and originally the Soviets strongly considered cooperation in the project.⁷³

Like the debates surrounding the Munich Research Reactor, Heisenberg had to delineate between the peaceful and military uses of nuclear physics in the Ebersberg Forest affair. Increasingly, Bavarians connected the wartime victimization of mankind with that of the forest trees. While historians will note that most of the anxiety towards the bombs and explosions were remnants of the Second World War and early Cold War, after 1965, the fear of explosion shifted slightly in focus. Because most people by 1970 had accepted that an outbreak of hot war between the Super Powers meant total annihilation for most everyone, the threat of saboteurs and terrorists became the new specters for the anti-nuclear movement.

⁷² *Münchener Merkur*, “Für den Protonen-Beschleuniger,” Feb. 13, 1965.

⁷³ *Die Welt*, “Inzwischen ist es beinahe schon ein Streit um des Kaisers Bart,” Nov. 20, 1965.

3.3 What is a Democracy?

As the debates continued, the discussion turned to the role of the government, parliament, civil society, interest groups, and the bureaucratic state in a modern democracy. Since the nineteen-fifties, Bavarians had relied upon traditional legal forms of protest—particularly letter sending. However, during the Ebersberg Forest controversy, these means did not always produce the desired results. When correspondence did not arrive at the expected outcome, opponents of the accelerator changed the tone and the form of debate, resorting to more innovative means of protest, like parades and petitions, while questioning the overall transparency of the process. Specifically, four aspects of the debates deserve mentioning: the relationship of civil society and the state in decision-making; the place of the locale in the state, national, and European Community; the interplay between the competing interest groups and bureaucracies; and the expanding expectations of the populace upon the legal framework of the federal system.

By the mid-sixties, it had become clear that there were at least three prevailing definitions of what a democracy could or should be—although not all three were equally represented or accepted. The first position was that the government, primarily the ministries, which had been elected through the parliament, represented the people, and had the power to appoint specialists into the bureaucratic state, who would administer daily affairs. This position, for all intents and purposes, had been developed during the very strong chancellorship of Konrad Adenauer, who used his office to initiate a foreign

policy of Westernization and rearmament, and whose opposition often unfairly referred to him as the ‘democratic dictator’.⁷⁴ A second position, primarily developed in the Bonn Federal Republic by the oppositional Social Democrats, was that the elected parliamentary body, in Bavaria principally the Landtag, was the primary institution in which matters of the state should be decided. Since the Second World War, these were the two dominant definitions of democracy in the Federal Republic, but a third position had become more noticeable by the nineteen-sixties. Out of the extra-parliamentary peace movement of the late-fifties developed the notion that, if neither the ministry-state nor the parliament represented the ‘will of the people,’ then the citizens were obligated to organize themselves into ‘grassroots’ associations, and attempt to influence policy directly. This was the birth-place for what could be called ‘direct democracy’, which would become a true third alternative in the seventies, when the citizens’ initiatives became extremely popular.

Much of the uproar was a result of the CERN confidentiality agreement. Even though the project remained in its infant stage of planning, Bavarians complained that they had not been included in the landplanning process. Harkening back to Baumgartner’s claim that the government waited too long to inform the public, the debates surrounding Ebersberg Forest centered more thoroughly on the disconnect between the public and state—perhaps foreshadowing the criticism of the seventies. As Hoegner had done previously in December, when he had declared ‘state secrecy’ in the Landtag, in January Josef Hubert of Ebersberg grumbled about the alleged concealment of the project. He

⁷⁴ For differing views on Adenauer see: Hans-Peter Schwarz. *Konrad Adenauer: A German Politician and Statesman in a Period of War, Revolution and Reconstruction: Volume I: From the German Empire to the Federal Republic, 1876-1952*. Translated by Louise Willmot. (New York: Berghahn Books. 1995); Charles Wighton, *Adenauer, Democratic Dictator: a Critical Biography* (London: F.Muller, 1963).

felt 62,000 people of County of Ebersberg had the right to knowledge of the project; and presumably, a right to be a part of the decision-making process. A long time member of the CSU, Theresa Ballers was also convinced that the cabinet had not discussed many important issues with the public; open public deliberations were for the “good” of Bavaria and the people.⁷⁵

Others suggest that the state, or the ministry, was operating in a more devious manner, perhaps erecting some sort of police state—a dictatorship. As example, the letter of W. Freistetter of Markt Schwaben accused the president of using the democracy for “dictatorial affairs” (*diktatorische Sachen*).⁷⁶ Similarly, Walther Chimelewski of Munich complained that the government secretly was attempting to sell off park space to business special interest groups—a move that should persuade Germans to “take to the barricades.”⁷⁷ A policeman of Grafing, Max Deml argued that the problem was that the politicians, on both sides of the political spectrum, were laymen in the field and did not understand the problem. The specialists in the field (although he is not clear which specialists he is referring to) all rejected the plan.⁷⁸

If the CSU was going to initiate policy, without appealing to its constituency, then members suggested that they would just have to switch their loyalty. By the mid-sixties, the Bavarian Party was waning and the CSU was now in a dominant position. Perhaps

⁷⁵ BayHSA: StK 14008, Theresa Ballers to Ministerpräsident Goppel, Jan. 26, 1965.

⁷⁶ StadtA Mü, ZA 40 Atom, Ebersberger Forest 65, EZ, “Ein Schrei der Entrüstung geht durch den Landkreis“, Jan. 19, 1965. See similarly the opinion by Anton Büching and Alfred Steinberger in: StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, MM, “Ebersberger Forst im Spiegel der Meinungen unserer Leser,” Jan. 19, 1965.

⁷⁷ “Take to the barricades,” a reference to barricade building in the 1848 Revolution, is colloquial German for protesting in the streets. See: StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, EZ, “Nicht im Naturschutzgebiet,” Jan. 30, 1965.

⁷⁸ EZ, “Nicht im Naturschutzgebiet,” Jan. 30, 1965, found in StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65

some of the discontents were from Bavarian Party backgrounds, and this provided an occasion to offer criticism. More likely, the forest and its anthropocentric uses appealed to a wider-ranging political spectrum than the Munich Research Reactor. As example, local resident of Ebersberg, Lisl Müller, in letter to the newspapers, expressed misgivings about the democratic process. For her there was a disconnect between the elected officials and the ‘will of the people’. She then asked rhetorically if ministers were supposed to vote arbitrarily as the desired, or if they should follow the demands of the constituency.⁷⁹ Numerous letters expressed a desire to vote for someone who would uphold the constituency’s policy; an example was Alfons Müller of Markt Scwabben, who stated unequivocally that construction of the unpopular facility would guarantee that he would switch allegiance.⁸⁰

The discussion of democracy was perpetuated by the belief by some (particularly in Ebersberg County) that almost the entire population opposed project, and it only went forward under the auspices of the government. Bavarian Party member Lallinger began a people’s petition to stop the project, and then proceeded to collect the necessary 30,000 signatures required by the constitution, many from the surrounding counties. When the Bavarian Court (*Verfassungsgerichtshof*) on July 26 denied Lallinger’s appeal to validate the petition, media interviews indicate that the people involved believed everyone favored the petition. When interviewed by the Bavarian National News, Felix Sommer and Johannes Leisner claimed that they had combined collected over 1000 signatures, and found between 85% and 99% of the population opposed the project. Only 1% polled

⁷⁹ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *EZ*, “Der Leser hat das Wort” Jan. 14, 1965.

⁸⁰ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, “Ebersberger Forst im Spiegel der Meinungen unserer Leser,” Jan. 19, 1965; See similar comments from: Rudolf Biner, Armen Weber, Julius Theile and Mr. Von Vegesach; also see comments from Getrud Stahl, Theresa Petz, and Frau von Schwartz in: StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *EZ*, “Nicht im Naturschutzgebiet,” Jan. 30, 1965.

avored the facility; Sommer and Leisner agreed that government officials had derailed the petition.⁸¹

These protesters suggested that democracy is defined by a government that always appeals to the populace, and reaches an amenable agreement. One version of this was the idea that the party had to represent the will of the constituents. There has been a long standing debate as to whether elected representatives are elected, then they can govern as they see fit in the name of the people, because they are presumably more informed; or whether they must, as representatives, always vote as the constituents would conceivably vote. Most of the letters from members of the CSU contained reference to the later approach to parliamentarianism. Other protesters belonged to the estranged Bavarian Party. The federalists of the Bavarian Party, no longer directly represented by numerous parliamentarians, sought extra-parliamentary avenues, by marching, protesting, sending letters, and filing formal grievances, when the government did not govern in a manner agreeable to the constituents' wishes.

Not only could the state exert undue authority, but also others were apprehensive that the democratic process was being perverted by influential special interests—including the state. The newspapers abounded with examples of Bavarians accusing the state of privileging industry and science—by allowing these interests to circumvent land preservation laws. A couple examples come from the *Abendzeitung* on January 21. In it, Nelly Friedl ridiculed the “laughable” token appearance of prominent politicians at the Day of the Trees, who then promoted these kinds of massive building projects. The Day of the Trees was a recent Bavarian custom, much like the later international Earth Day, in

⁸¹ BR FS Archiv 7401/10009293, Werner Widmann, “Entscheidung im Ebersberger Forst, July 27, 1965.

which the local forests were honored, and citizens were encouraged to spend the day in landscape beautification and sanitization. An anonymous letter argued that the “little man” would be punished if he only picked flowers in a state-protected Nature preserve. The suggestion was that interest groups—or the state—did not have to adhere to such laws.⁸² In a separate series of letters, an anonymous author accused the government of exactly this crime—placing the industry, oil, and economic interests before the people’s needs.⁸³ Werner Meyer provided a colorful anecdote to make his point: There once was a family that went into the woods to collect apples. Normally, they just took a bag; however, one day they pulled an entire cart and the state officials turned the family away. Following the anecdote, he used the logic to condemn the state; if the government tried to take a ‘cart’ into the forest, it too should be denied.⁸⁴ This reasoning could also be applied to agriculture and the landscape. Simon Weinhuber, Bavarian Party Landrat member from Erding, suggested that the project set a dangerous precedence for landscape preservation. He argued that it had been difficult enough to stop illegal construction (*Schwarzbauen*) on various landscapes before this project. Now, with the state making similar encroachments on nature reserves, the farmers would be even more difficult to convince of the need for landscape preservation.⁸⁵

⁸² *Die Abendzeitung*, “Leserzuschriften,” Jan. 21, 1965; see similarly Lisl Müller, who felt that the wealthy and industry could build in the middle of a pristine Alpine landscape: StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *EZ*, “Der Leser hat das Wort” Jan. 14, 1965; see also Werner Meyer, who argued that promoting big science was a thinly veiled pretense to providing large subsidies to business interests: StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, “Hier Spricht der Leser.” Jan. 30-31, 1965.

⁸³ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, “Wenn er erst angeknabbert ist,” Feb. 6, 1965.

⁸⁴ BayHSA: StK, 14008, Werner Meyer to the Minister President, Jan. 15, 1965.

⁸⁵ *MM*, “Die Gesundheit des Volkes wäre gefährdet,” Jan. 15, 1965; see also Will Schwarz in: StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *Die Ebersberger Zeitung*, “Nicht im Naturschutzgebiet,” Jan. 30, 1965.

Some Bavarians—including numerous members of the regional bureaucracy—questioned the constitutionality of the endeavor. Of particular interest was Article 141 of the Constitution of the Free State of Bavaria, which is named today the article for Memorial Preservation, Nature Preservation, and Free Access to Scenic Attractions.⁸⁶ This article had three provisions in the original 1946 Constitution. In the original version, the first provision established state priority in protection of “memorials of art, history, and nature, as well as the landscape” of Bavaria. The second provision allowed the state to preserve forests, the landscape aesthetic, and plants and animals. Finally, the third provision guaranteed the citizens’ “right to access and relax (*Erholung*) in free nature,” especially in forests, mountains, and lakes, in which the state is obligated to maintain parks and trails.⁸⁷ While this article of course dated to 1946, it garnered little mention in the debates of the fifties. However, with the increased expectations of landscape preservation in the sixties, bureaucrats increasingly provided the provisions with more authority in matters of landscape care.

Particularly, Ebersberg Forest could conceivably fall under the rubric of the final two paragraphs—and officials in charge of conservation proceeded to make this interpretation. The Nature Protection Commission of the Upper Bavarian Regional Government argued that the accelerator violated Article 141 of the Bavarian Constitution, along with the Nature Protection Law, because it would affect climate, air, and water.

⁸⁶ Bayerischer Landtag, *Verfassung des Freistaates Bayern*, page 29, found on the Bayerischer Landtag website: http://www.bayern.landtag.de/cps/rde/xbcr/SID-0A033D45D41D837/www/dateien/Bayerische_Verfassung.pdf accessed March 14, 2009.

⁸⁷ Bayerischer Landtag, *Repertorium zur Verfassung des Freistaates Bayern vom 2. Dezember 1946*, page 22, found on the Bayerische Staatsbibliothek website: http://mdz.bib-bvb.de/digbib/bayern/byl/bv1946/repertorium/@Generic_BookView:cs=default;ts=default, accessed March 14, 2009.

With some leeway in interpretation, the criteria fell under the second provision.⁸⁸ Horst Danköehler, Bavarian chairman of the German Employees Union (DAG), argued that the Bavarian Constitution guarantees the right of every resident to visit areas of natural beauty (*Naturschönheiten*), like forests and lakes. Naturally, he was appealing to the third provision.⁸⁹ In a Bavarian Party resolution of the Greater Munich metropolis on January 23, city council member Ludwig Lallinger proclaimed that paragraphs two and three demanded that the Bavarian government protect the purity of air and water in a landscape. He also questioned whether the project jeopardized a recreational area, covered under paragraph three.⁹⁰ *Hands off Ebersberger Forest* appealed to the first provision, protection of memorials, which defined lakes, mountains, rivers, and general “landscape beauty,” as memorials of “art, history, and nature, as well as the landscape.”⁹¹

As the controversy over Ebersberg Forest demonstrates, in the sixties Bavarians attempted to expand the powers of the constitution to cover a wider definition of landscape protection. Within the context of the sixties, this was a further legal method of challenging state authority. This tactic was especially prevalent among regional preservationists, who needed a legal framework in which to criticize ministerial policy. Over time, as terminology like sustainability, energy saving, and ecology supplanted more traditional language like landscape care, the constitution accommodated, and eventually was amended to reflect these social changes. The current constitution has broadened the powers of the state over ecological matters. The provisions of memorial

⁸⁸ BayHSA: StK 14006, Naturschutzbeauftragten des Regierungbezirks Oberbayern, “Entschließung,” May 4, 1965; See similarly Friedrich Tanneberg in: *MM*, “Atomforschung Ja, Ebersberger Forst Nein,” Jan. 23/24, 1965.

⁸⁹ *MM*, “Ismaning bewirbt sich um Atom-Zentrum,” Jan 16/17, 1965.

⁹⁰ BayHSA: StK, 14008, Ludwig Lallinger, “Resolution der Bayernpartei des Bezirkverbandes München-Stadt und -Land vom 23.1.1956“,

⁹¹ BayHSA: StK 14008, *Hände weg von Ebersberger Forest*. Deutsche Naturschutz Ring, 1965.

preservation and recreation have remained largely intact since 1946. However, the second provision—preservation of forests and the landscape—has been not only broadened, but also moved up in prominence, to the first provision. It now provides the state with authority to maintain and promote efficient use of the natural resources (*natürlichen Lebensgrundlagen*), which includes the earth, water, and air, and to preserve the sustainability of the ecology (*Leistungsfähigkeit des Naturhaushaltes*). Particular emphasis is given to the preservation of the forests, because of their role in sustaining the “ecological balance of an area (*Naturhaushalt*).”⁹²

If, though, the citizens’ suggested that the state had overstepped its legal authority, they had to have a reference point for dialogue. In this respect, challenging the legitimacy of the government was problematic, because it required Bavarians to discuss the project within the context of the Nazi past—something most Germans were not prepared to do at this time. Letters that discussed the project within this framework compared it to the overreaching policies of the Third Reich. Typically, the letters did not directly reconcile with the Nazis, but rather, judged the Bavarian government against dictatorial powers of the Reich State, as though in both cases people and the forests were victims. Asta Biendl suggested that pursuing “grand delusions” (*Größenwahn*) was what had brought the Germans so much trouble in the past. She believed it better to not have an accelerator located anywhere in Germany, rather than go down that route again. Kellner of Ebersberg compared the current project unfavorably even with Herman

⁹² Bayerischer Landtag, *Verfassung des Freistaates Bayern*, page 29, found on the Bayerischer Landtag website: http://www.bayern.landtag.de/cps/rde/xbcr/SID-0A033D45-5D41D837/www/dateien/Bayerische_Verfassung.pdf, accessed March 14, 2009.

Goering, whom Kellner alleged would not have dared to remove the forests beyond the periphery, even in the most expansive stages of the Four Year Plan.⁹³

Placing the accelerator within the context of the ambivalent Nazi forest policy was as tenuous for people like Kellner, as it is for historians to make assessments of Nazi ‘greenness’ today. While Goering was charged with organizing the Four Year Plan, which necessarily required a host of construction projects, he was also the Reich Master of Forestry. As such, he helped usher in sweeping changes for forest policy, codified in the Reich Nature Protection Law of 1935, which encouraged forest sustainability and reforestation. To be sure, Nazi organic forest principles were often compromised by the military mobilization, headed by Goering’s Four Year Plan, which of course required sizable quantities of lumber. Historians have also well established that Nazis connected forestry to chauvinist racial arguments in the Blood and Soil program, believing, at the simplest level, that a healthy forest produced a healthy national community. Even with these qualifications, Michael Imort argues that Nazi forest reform was much of the basis for laws passed during the Federal Republic (under the auspices of democratic government).⁹⁴ This Nazi forest reform complicated denunciations of the Bavarian

⁹³ *Die Abendzeitung*, “Leserzuschriften,” Jan. 21, 1965; StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *EZ*, “Der Leser hat das Wort” Jan. 14, 1965; see similar comments by Lisl Müller; or see Diegelmayr in: StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *EZ*, “Nicht im Naturschutzgebiet,” Jan. 30, 1965.

⁹⁴ Michel Imort, “‘Eternal Forest—Eternal Volk’ The Rhetoric and Reality of National Socialist Forest Policy,” in *How Green were the Nazis?: Nature Environment, and Nation in the Third Reich*, Ed. Franz-Josef Brüeggemeier, Mark Cioc, and Thomas Zeller (Athens: Ohio University Press, 2005), 43-72. Ecology during the Nazi era has been a source of controversy in the last twenty-five years. It began with Anna Bramwell’s *Blood and Soil: Richard Walther Darré and Hitler’s Green Party* (Bourne End, Buckinghamshire: Kensal Press, 1985), which claimed an extremely close relationship between ecological policy under the National Socialist and the modern Green Party. Janet Biehl and Peter Staudenmaier, *Ecofascism: Lessons from the German Experience* (Edinburgh: AK Press, 1995), makes similar connections. Ramachandra Guha, *Environmentalism: A Global History* (New York: Longman, 2000), however, argues that there is no Nazi legacy within the Greens. More recent studies, Raymond H. Dominick III, *The Environmental Movement in Germany: Prophets and Pioneers, 1871-1971* (Bloomington and Indianapolis: Indiana University Press, 1992), Joachim Radkau and Frank Uekötter, ed.

Government, because if it were indeed acting like the Nazi Regime, then it would be dictatorial, but also promoting at least the semblance of ecology.

While the ministry denied any overt attempts to hide the project, outside of the requirements laid out by CERN, which are discussed further below, the government did practice caution, even after the affair was made public. Otto Schedl was quite upset when he read that members of the Bavarian state bureaucracy had voiced opposition against the project in the press on January 19. In a *Süddeutsche Zeitung* article of that day, several members of the state bureaucracy, particularly those like Micheler who were in the Upper Bavarian Regional Planning Council, had discussed their reservations about the project in the article “Secrets of Ebersberger Forest.” As in seemingly every nuclear project of the era, regional officials offered criticisms on the practical matters of administration. While the government developed grand proposals for modernization, it was the Land and Regional Planning Authorities that had to fit the concepts into actual existing landscape planning. This meant that they had to consider all of the climatic, topographical, hydrological, and spatial ramifications of policy. In Gundremmingen policy had focused on the hydrosphere; with the *Atomei* it was atmospheric contaminants and water effluents. In this case, the regional bureaucracy offered a host of complaints, further elaborated in the appropriate subheadings below, but dealing with the various climatic, recreational, and ecological functions of a forest. Unlike at the other nuclear debates, in which the regional agencies quietly offered advice in closed meetings, this time the officials provided quotes in the newspapers and participated in local protest

Naturschutz und Nationalsozialismus (Frankfurt: Campus, 2003), and the aforementioned *How Green were the Nazis?*, take a more nuanced approach, arguing that while conservationists often did welcome the Nazi Regime with hopes of a more wide ranging environmental policy, conservationism existed both before and after the Nazis era, and conservationists were often disappointed when the Nazi military objectives contradicted preservation policy.

meetings. This met the ire of Schedl. Believing government solidarity was necessary, he issued a bureaucracy-wide press ban, in which only the Press and Information Bureau of the chancellor's office would release further information.⁹⁵

The article also offended the president of Upper Bavaria, Anton Deinlein, because he was sure it misrepresented his bureaucracy. He claimed that the article made it appear that he and his regional district government were in open revolt. Instead, they had rejected the plan through the official channels in the Land Planning Authority on June 14, 1963. Recently, individual members of the bureaucracy had joined the protest movement, meeting with the Natural Preservation League and the German Nature Preservation Ring at the House of Sport on January 18, but they operated without official capacity. Deinlein discouraged his people, like Micheler, from speaking openly in public about their misgivings, and issued instructions that the government would not take any official position in the affair.⁹⁶

Many supporters of the project felt that the media was to blame for the recent crisis. Spanholz's campaign in Ebersberg highlighted this role of journalists as muckrakers, siding against the government. In the view of the ministries, the journalists were operating without prudence and expertise, but rather as they had done since the mid-fifties, printing sensationalism. Unlike a decade earlier, newspapers could quote numerous officials who opposed the projects, offering legitimacy to the complaints. Still, both Albert Halbinger and Karl Velinger of Munich accused the *Münchener Merkur* of causing "mass hysteria" through biased reporting, in which the paper unabashedly chose

⁹⁵ BayHSA: StK 14005, "Auszug aus der Niederschrift des Ministerrats vom Dienstag, den 19 Jan. 1965."

⁹⁶ BayHSA: StK 14005, Regierungpräsident von Oberbayern Deinlein to Goppel, Jan. 19, 1965.

to publish only those who would, because of occupation or office, oppose the project.⁹⁷ Dr. Bachmann of Munich claimed the *Ebersberger Zeitung* was not being objective, but instead incited emotionally irresponsible reactions. Even though he opposed the airport in Hofolding Forst, because that particular stand of woods could not be replanted, the atomic research facility would eventually be reforested, mitigating any effect on climate or the water table.⁹⁸ While in the sixties reportage increasingly took the side of the public, presenting itself as an integral part of civil society and a thorn in the side of the government, not all Bavarians accepted journalist in this role. Still, as the creation in the early sixties of the public relations department within the Atomic Commission demonstrates, the government recognized the need to cultivate good relations with the media—something that Goppel attempted with his media broadcasts. Unfortunately for Goppel, TV broadcasts also appealed to the sentimentality of the forest, by for example, showing kids playing and laughing in the woods.⁹⁹

In his February 3 speech to the Landtag, Goppel also made a number of relevant points about the site chosen, which reveal his conceptualization of the relationship between the government, the bureaucracy, and civil society. First, he stressed the necessity for this particular location, and the overall complexity of the process, which encompassed a significant number of agencies, administrative organs, and interconnected levels of government. The requirements for a site were quite exact and a stabile location—partially or fully underground—was the decisive element in the decision

⁹⁷ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, “Ebersberger Forst im Spiegel der Meinungen unserer Leser,” Jan. 19, 1965.

⁹⁸ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *EZ*, “Nicht im Naturschutzgebiet,” Jan. 30, 1965; see also: StadtA Mü: “Nachrichten und Notizen, Feb. 8, 1965, ZA 40; and Max Bauer: *MM*, “Hier Spricht der Leser.” Jan. 30-31, 1965.

⁹⁹ BR FS Archiv 7401/ 1007202, Wiedmann, Ebersberger Forst, Broadcast on February 4, 1965.

process. As had been described by Heisenberg earlier in the press, the accelerator required precisely calibrated magnets to propel the particles around the track—slight topographical deviations could disrupt the procedure.¹⁰⁰

He continued by describing the rigorous decision-making process. CERN, DESY in Hamburg, and Professor Kneiβl of the German Geological Research Institute recommended Ebersberg Forest. The State Ministries for Economics and Atomic Energy and Water Control were informed, and the Bavarian Geological Bureau was then apprised of the situation, agreeing in principle that the site would be suitable. The Bavarian Geological Bureau then began to examine the viability of other locations, first near Happurg in the Hersbruck County, at the site of a former V-1 project. Simultaneously, the bureau examined land near Feucht, Ornbau, Heideck, Langenzenn, Roth near Nuremberg, Adenberg, as well additional sites near Munich: Hofolding and Höhenkirche Forests, Schwabmünchen, and Neustadt on the Waldnaab. Feucht, Ornbau, Heideck were rejected because of lack of sufficient water, Hofolding and Höhenkirche Forest because they were water protection zones, and Schwabmünchen was too small. The Bavarian Geological Bureau noted that Ebersberg Forest was not the ideal location, due to the stand of forest, the recreational appeal, the danger to the ground water, and the possibility of residential expansion being coupled with the facility.¹⁰¹

However, in May of 1964, CERN alerted the Federal Government that a decision must be made by June, and CERN demanded that the facility be near Munich, because of its proximity to the Technical University, the MPI, the Institute for Plasma Physics, the

¹⁰⁰ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2448-2450.

¹⁰¹ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2448-2450.

Bavarian State Library, and the German Patent Office. In May of 1964, Heisenberg and Kneißl met with Goppel, State Ministers Hundhammer, Junker, and Heubel, and State Secretary Wachter, and the group came to the conclusion that Ebersberg Forest was the only location, but that further examinations of Hofolding Forest and an area between Schwandorf and Nabburg were necessary. CERN rejected the latter because of its relative distance and lack of homogenous geomorphic sub-surface, and Hofolding was considered by numerous agencies within the State Ministry for Economics, including the Bavarian Bureau for Water Supply and Water Protection and the Chief Forest Management Munich, too close to a water protection zone.¹⁰² It appears that Goppel's strategy was to recount the government's rather strenuous and multifaceted administrative procedure—thus *ipso facto* proving the integrity of the entire project.

Prior to February 3, Goppel addressed the theme of secrecy a number of times. In an earlier speech, to a budget committee within the Senate on January 1, he defended the lack of information given to the public, by arguing that the “responsible agencies” within the bureaucracy had been duly informed.¹⁰³ However, in his February 3 speech, Goppel needed further clarification. Before the Landtag he explained that the project had been negotiated between 13 nations, with considerable collaboration and bargaining. Because of this competition, CERN requested secrecy. Furthermore, CERN had been developing the plan for several years, with original designs calling for a smaller accelerator. Finally, the possibility of fluctuations in the price of building materials and the land plot required

¹⁰² *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2448-2450.

¹⁰³ SZ “Alle wurden informiert, sagt Goppel,” Jan. 20, 1965.

that the already very expensive project remain unknown.¹⁰⁴ Goppel then went on to explain how a representative democracy functions:

“Who, despite this, suggests that all questions, which in their solutions and effects pertain to the public, must from the start be placed before the populace, disrupts the governing capabilities of a representative democracy. Also, it cannot be renounced that in the constitutional, legislative, control, or administrative structure a minimum of procedural law was followed. A certain trust must be, and can be, placed also in a democracy.”¹⁰⁵

Goppel’s long discussion suggests a multifaceted assessment of democracy. First, the complex relationship between local, federal, national, and international governments had made democracy more intricate, and negotiating at every level made it additionally demanding. Second, a democracy has a number of checks and balances—and appointed administrative specialists within the ministry serve this function. Bureaucratic and procedural laws were integral aspects of democracy. Finally, Goppel established the principle that representatives of democracy—that is his elected government—must in the end make some decisions; representatives cannot appeal to the public for every decision. Goppel’s interpretation set precedence; throughout the seventies, Bavarian officials would resort to this last bit of reasoning to construct controversial nuclear plants.

¹⁰⁴ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2452.

¹⁰⁵ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2453.

3.4 Where would the City Sprawl?

As demonstrated in chapter two, the increasing demand for space near Munich and in Southern Bavarian was creating anxiety about the diminishing available landscape. The recent Jensen plan to expand the Munich suburban transportation system, especially the commuter rail and the international airport, further exacerbated this problem. Even before the announcement of the Ebersberg project, officials had filed complaints about development of the Garching Research Institution, as it blocked necessary urban sanitation and recreation projects. Within this context, preservationists tried to conceptualize a technological monument of an even grander scale. Even in comparison with the international airport, the design for the synchrotron rings seemed enormous. In a region suddenly so cramped as Southern Bavaria, it was unimaginable that there could be enough space to house another massive scientific project.

In particular, there was a general fear that the ‘forest belt’ surrounding Munich’s eastern, southern, and western borders was all but disappearing under the pressure of urban development. Letters-to-the-editors abounded with examples of the fear that the city would soon encompass the entire area between Freising and Starnberg Lake, destroying the forest belt.¹⁰⁶ Ruldolf Hausmann of Munich pointed to the continual attack on the forests near Munich, a result of the demands of industrialization and urban sprawl. He had heard that Hofolding Forest was destined to be the home of the airport, while Perlach Forest would house a chemical plant.¹⁰⁷ The airport was currently at Riem, practically downtown on the right bank of the Isar. Because of its location, Munich

¹⁰⁶ See for instance comments by Karl Wilchek in: StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, “Hier Spricht der Leser.” Jan. 30-31, 1965.

¹⁰⁷ *Die Abendzeitung*, “Leserzuschriften,” Jan. 21, 1965; see similar comments by Franz Lebender in: *MM*, “Atomforschung Ja, Ebersberger Forst Nein,” Jan. 23/24, 1965.

residents continually complained about noise pollution. Besides Hofolding Forest, the Erding Moorland, under landscape preservation, north of the city was also a likely candidate for the airport relocation. On top of that, the Bundeswehr was using the Kreuzling forest.¹⁰⁸ Several letters quantified this destruction. For instance, Christian Reinrichs from Munich read that every year 240 square kilometers of natural landscape were transformed into housing, streets, or industry. At that rate, in twenty years an area the size of Upper Franconia would be deforested and urbanized.¹⁰⁹ The construction of roads and highways had led to the felling of 100,000 trees in the Spessart, Steigerwald, and Rhoen.¹¹⁰ With the accelerator, many preservation committees originally intended to protest megacity construction projects were galvanized to form regional associations. For example, the Preservation Union for Kreuzling Forest was founded principally on a single issue—stopping the construction of a military hospital (*Lazarett*) within the boundaries of Kreuzling forest. Union chairman Dr. Dieglmayer turned the associations' energy towards preservation of Ebersberg Forst, because as the projects from CERN, the airport, and the Bundeswehr mounted, it threatened the entire livelihood of nature.¹¹¹

On Feb 1, 1965, the Ministerial Forest Department notified the Chancellor's office that the Munich forests were not nearly as endangered as the public alleged. While the Hofolding Forest was the proposed sight of the new large airport, the "substance" of the Forstenried Park and the Kreuzling Forest were not endangered. In spite of the

¹⁰⁸ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, "Ebersberger Forst im Spiegel der Meinungen unserer Leser," Jan. 19, 1965.

¹⁰⁹ Comment by Kurty Schmitt in: StadtA Mü, ZA 40 Atom, Ebersberger Forest 65, *SZ*, "Atomzentrum in Ebersberger Forst?" Jan. 23/24 or Jan. 30-31, 1965.

¹¹⁰ BayHSA: StK 14008, Kurty Schmitt to Ministerpräsident Goppels, Jan. 25, 1965; See similarly: BayHSA: StK 14008, Theresa Ballers to Ministerpräsident Goppel, Jan. 26, 1965.

¹¹¹ *MM*, "Hier Spricht der Leser," Jan. 30-31, 1965, found in StadtA Mü, ZA, 40 Atom, Ebersberger Forst 65.

numerous city projects, like water pipes, power lines, and transportation, these were considered not enough to endanger Forstenried Park, as long as housing remained strictly zoned. In Kreuzling, the proposed military hospital would reside in Pentenrieder Schlag, which was technically outside of the forest proper. The Forest Department remained uncertain on the status of Perlach Forest.¹¹²

Whereas the ministry was confident in their assessment, the opposition felt they had foolproof evidence that criticism was justified. One only need look at Garching, where it was obvious that a small facility would expand into something wholly unforeseen. Aton Micheler pointed out that in the early fifties, Heisenberg told Munich that only 7-8 scientists would move to Garching, but by 1965 it had become a large suburb. According to Micheler, Professor Lorenz, who represented the government on matters of nature preservation, said that only a few apartments would be needed for the Max Plank Institute for Animal Research. Instead, Micheler accused the professors of purchasing villas, establishing a model that should be taken into account by all parties, when discussing Ebersberg Forest.¹¹³ The threat was that a small ‘underground’ facility would lead to a large above ground “city”.¹¹⁴ On February 6, 1965, the Munich Hiking Club sent Goppel its grievances about the forests; the Ebersberg Forest facility would attract 10,000 residents. The Hiking Club pointed out that the Research Center in Garching expanded in a relatively open space, just outside of the riparian woods, but in the case of the Ebersberg there was no available territory. If the state reforested the area, it would take years for it to grow to its current height. Whereas Goppel was certain that the accelerator

¹¹² BayHSA: StK 14005, Ministerialforstabteilung, “Aktenvormerkung zur Anfrage der StK vom 1.2.1965, Feb. 1, 1965.

¹¹³ See similarly Manfred Thome in StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, “Hier Spricht der Leser.” Jan. 30-31, 1965.

¹¹⁴ *Die Abendzeitung*, “Leserzuschriften,” Jan. 21, 1965

was for the material and moral good of the people, the Hikers Club challenged that the forest more adequately fulfilled this undertaking.¹¹⁵ Once the scientists moved in, the result would be chaotic traffic, rising costs for basic foodstuff, and a shortage of hospital space (*Krankenbettnot*).¹¹⁶ As in Garching, where the Research Center divided “up the English Garden,” the project would likely be “followed by a failed revitalization (*wiedergutzumachen*) plan.”¹¹⁷ On top of what he referred to as an “Atomic City,” Walter Schweiger pointed out that the press reported a radiation leak in the Research Reactor in 1962; he thought in retrospect the campaign against it had not been unfounded.¹¹⁸

To a lesser extent, opponents denounced the Geneva accelerator. In a Bavarian State News program, airborne videos of Geneva were shown, which highlighted the expansion of the research facilities. These clips included bulldozers opening up new space on the perimeters of the original facility, which was surrounded by posted signs and fences, obviously intended to graphically represent the relentless growth of ‘science’ into ‘nature’.¹¹⁹ The Natural Protection Commission of the Upper Bavaria endorsed the German Nature Perseveration Ring’s pamphlet, *Hands away from Ebersberger Forest*, an answer to the government’s pro-facility brochure, which displayed photos of construction, bulldozers, and deforestation surrounding the Geneva synchrotron. This brochure made the point that, once the workers of the facility discovered how expensive

¹¹⁵ BayHSA: StK 14006, Anton Hunsicker to Alfons Goppel, March 1, 1965.

¹¹⁶ See A. Mann in: StadtA Mü, ZA 40 Atom, Ebersberger Forest 65. SZ, “Atomzentrum in Ebersberger Forst?“, Jan. 23/24 or Jan. 30-31, 1965; see similarly Amalie Meister in: EZ, “Nicht im Naturschutzgebiet,” Jan. 30, 1965.

¹¹⁷ See comments by Rudolf Lederer in: *MM*, “Berge, Seen und doch kein Urwald,” Feb. 13, 1965, found in StadtArchiv Muenchen, ZA, 40 Atom, Ebersberger Forest 65.

¹¹⁸ BayHSA: StK, 14006, Walter Schweiger, Eine Atomstadt im Ebersberger Forst? Jan. 27, 1965

¹¹⁹ BR FS Archiv 7401/ 1009293, Werner Widmann, “Entscheidung Ebersberger Forst,” July 27, 1965.

housing was in Geneva, CERN agreed to build cheap accommodations near the site. Shopping centers soon followed, so that a city was eventually constructed.¹²⁰

The evidence demonstrates that the skepticism towards the Ebersberg project was in large part a product of the quick growth of the Munich metropolis. Expansion of the nuclear physics research centers in Garching compounded the problem, so that in the public, the two separate projects were consciously intertwined. Thus, three principle building projects collided: the Bundeswehr and NATO militarization of formerly forested space; the new transportation systems, such as the airport planned in a landscape preserve just outside of Munich; and the atomic research facilities at Garching and Ebersberg Forest. Combine these recent sources of resentment with the latest industrial and residential zoning, and citizens of the Greater Munich Metropolis felt they were running out of living space and nature.

3.5 What is Nature?

Nature is not only contested space but also an ambiguous, yet fluid ideal. Most German conservationists did not imagine nature to be a pristine wilderness as American Romantics had done, lying untouched from the machinations of mankind, but as Thomas Zeller puts it, rather more akin to a garden, where conservationists desired to properly

¹²⁰ BayHSA: StK 14008, *Hände weg von Ebersberger Forest*. Deutsche Naturschutz Ring, 1965; For the Natural Protection Commission of Upper Bavaria's thoughts see: BayHSA: StK 14006, "Entschließung" Naturschutzbeauftragten des Regierungsbezirkes Oberbayern, May 4, 1965; For an example of CERN's presence in Geneva and local sentiments see: Robert Jungk, *Die große Maschine: Auf dem Weg in eine andere Welt* (Bern: Scherz Verlag, 1966).

tend it, blending the landscape. Alwin Seifert described himself as a gardener of Germany.¹²¹ If German landscape had been manipulated for hundreds of years, it begged the question: what was this nature that Bavarians were so adamantly defending from industry? The very notion of nature was being contested, because, quite logically, shaped landscape could readily be adapted to acclimate to the new technology.

Many Bavarians could just be considered nature lovers, those people that desired to protect nature, not because of a stated belief in *Heimat*, nor because of complex ecological arguments, but for its own sake. In a letter to the *Abendzeitung*, Max Lechner makes this point when he argued that many Bavarians were not part of financial interest groups, like farmers. Rather, he objected to the accelerator simply “out of love for nature.”¹²² Others expounded the virtues of nature over technology. A number of local clubs fit under this rubric—bird watchers and hikers, for example. Often these Bavarians were considered quaint romantics, or hopeless technophobes. Even some preservationists regarded this Romanticism as old fashioned. Nonetheless, appeals to the image of pristine nature being heartlessly sacrificed to science were still powerful and inspiring. As an example, member of the Freising Study Council, Heinrich Landgrebe, following Goppel’s January 14 television appearance, offered his opinion on the sacrifice of nature to science in a clever play on words. He believed that Goppel had misspoken, when the minister president stated that the opportunity to construct the accelerator could not be pardoned (*begnadigt*). Landgrebe, in his letter titled “from the technology straightened

¹²¹Seifert, though, also implied that he should pluck out the racially unfit ‘weeds’ of Germany. Thomas Zeller, “Molding the Landscape of Nazi Environmentalism: Alwin Seifert and the Third Reich,” in *How Green were the Nazis? Nature, Environment, and Nation in the Third Reich*, Franz-Josef Brüggemeier et al. (Athens: Ohio University Press, 2005), 145.

¹²²*Die Abendzeitung*, “Leserzuschriften,” Jan. 21, 1965; see similar comments by K. Resch in: StadtA Mii, ZA, 40 Atom, Ebersberger Forest 65. *EZ*, “Nicht im Naturschutzgebiet,” Jan. 30, 1965; or Werner Meyer in: *MM*, “Hier Spricht der Leser.” Jan. 30-31, 1965.

(*begradigt*),” argued the phrase that Goppel was seeking was that technology was a blessing (*begnadet*). Instead, Landgrebe felt it was merciless (*Gnadenlos*) that nature was being destroyed, in order to save the blessing (*begnadet*) of technology.¹²³ Offering an anecdote to describe how Europeans were jealous of Bavaria’s nature, Frau Ellen Seitz of Munich said that she invited some Spaniards to visit the area. They were all impressed by the near-by forests and wanted to have some afforested in Spain. At the same time, the Spaniards displayed no interest what-so-ever in research facilities. Seitz’ implication was clear; forests, not synchrotrons, would bring international recognition to Munich.¹²⁴

While nature lovers appealed to wilderness, others recognized that Bavaria had consciously shaped its nature, all the while assuring that the accelerator design went beyond the subtle cultural changes of the past. Historically, the Bavarian state had planned vigorously to maintain equilibrium between nature, culture, and technology, according to Georg Peter Glomb from Wiesbaden. Because he is an outsider, from Baden, he brought a different perspective to this discussion. Humanity, in addition to culture and nature, could not live without technology; but because Bavaria had not senselessly sacrificed its nature to the “misleading” belief in progress, many non-Bavarian Germans longed to live there. He felt that Ebersberg Forst was a large, “untouched (*Unberührtheit*) and primitive (*Urwüchsigkeit*) [forest]”, which disturbing would change the “character” of the forest. In praxis, continued Glomb, society weighs the disturbance of this equilibrium of the actual stand of nature on the one hand, against the sake of “unavoidable demands of the indispensable civilizing progress.” Glomb did

¹²³ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65. EZ, “Nicht im Naturschutzgebiet,” Jan. 30, 1965.

¹²⁴ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65. EZ, “Nicht im Naturschutzgebiet,” Jan. 30, 1965.

not believe the proposed location met this criteria.¹²⁵ Glomb, then, while congratulating landscape planning in Bavaria, considered the accelerator project an unharmonious venture into the last vestige of wilderness—Ebersberg Forest.

Dr. Oswald Baumeister, though, countered that nature and technology did not have to be mutually exclusive; but rather, technology could be, with proper planning, synthesized with ‘nature.’ He presented a view of nature similar to Seifert’s—that technology could enhance the landscape. Unlike Seifert, Baumeister thought the autobahn had been recklessly constructed, but he appreciated that the state would plan the landscape from the beginning with the accelerator. In this project, the destruction would last only for a short time, as everything would be replanted, unlike an airport, which would remain covered with asphalt. At the same time, the transportation system could be designed, so that parking remained outside of the forest, and workers and visitors must arrive via public transportation. Finally he postulated that the only potential disaster would be settlement, but this was not related to the actual facility, and thus could be limited by strict planning.¹²⁶ Dr. Hans English agreed that the scientist would live conceivably outside of the Forest and reach it by public transportation, causing very little harm to the Forest.¹²⁷

If the opponents proclaimed that ‘nature’ was in danger, then proponents pondered the extent the forest actually represented genuine nature. Like a number of others, Eugen Haunreiter of Munich questioned whether Ebersberg was an actual forest, or some sort of anthropogenic machine. He said that Ebersberg had been built artificially for the last

¹²⁵ BayHSA: StK 14006, George Peter Glomb to Alfons Goppel, March 29, 1965.

¹²⁶ BayHSA: StK 14005, Dr. Oswald Baumeister, “Landschaftschutz and Technik,” Jan. 1965.

¹²⁷ BayHSA: Stk 14008, Dr. Hans English to the Bavarian Minister President (Date not given) 1965.

hundred years, thus it lost its ability to store water and should not be considered nature at all. The Forest, he stated emphatically, was a “scaffolding supplier with barbed wire!” (*Gerüstangenleifenrant mit Stacheldraht*).¹²⁸ At the same time, the forest did not have any sort of natural undergrowth, as some letters pointed out. One author lamented that the forest did not have humus, or other small plants, so it was not a ‘real’ forest.¹²⁹ Some writers noted that the forest was artificially grown, with the trees planted in straight rows, divided on a grid system by paths. Alfred Kastl argued that the forest was already dying from monoculture sickness, and needed to be allowed to grow to a mixed (*Mischwalfpflanzungen*), healthy forest.¹³⁰

Much of this precision was due to forestry planning, beginning during the French Revolutionary era after the secularization of the forest, which divided the forest into sixty districts, and then again into 400 smaller units, known as departments. Over-cutting of the forest and the transfer of ownership from the monastery to the Bavarian crown encouraged the Enlightenment era plan, devised by forest experts Moosmiller and Neebauer. Given that the plan rationalized the forest features, it was also allocated so that each district had its own distinct function. Throughout the nineteenth century, forest planners continued to practice so-called scientific forestry, developed in the Prussian bureaucracy, in which they cut the forests the most efficient way possible for the highest timber volume; that is a straight-cut, repopulated with fast growing, evenly spaced coniferous trees. The forest was further influenced by a devastating hailstorm in 1829 and tree blight in 1890, both of which nearly cleared the entire forest. In both cases, the

¹²⁸ *MM*, “Atomforschung Ja, Ebersberger Forst Nein,” Jan. 23/24, 1965.

¹²⁹ *MM*, “Für den Protonen-Beschleuniger,” Feb. 13, 1965.

¹³⁰ *Münchener Merkur*, “Ebersberger Forst im Spiegel der Meinungen unserer Leser,” Jan. 19, 1965, found in StadtArchiv Muenchen, ZA, 40 Atom, Ebersberger Forest 65;

government continued to reforest in this very systematic and organized manner.¹³¹ These forest divisions are today visible by satellite. In the terminology of David Blackbourn, the forest had been “conquered.”¹³²

Recognizing the character of an artificial geometric forest, these proponents suggested a solution to the dilemma—plant a similar forest elsewhere. An anonymous author from Munich offered such a novel proposal. Why not just purchase land surrounding Ebersberg Forest, and plant new trees immediately. These will serve to replace that stand that was lost during the construction. After completion, the facilities would be reforested, resulting in an increase in forest size, rather than an overall diminishment. Letters like this illustrate the extent that the borders and the character of the forest were at debate. After all, if a forest is just characterized by trees, why can it not be moved around, perhaps expanded or contracted, or simple relocated?¹³³

SPD Chairman of Hartsmanof and reporter for the Sulzbach-Rosenberg newspaper, Hans Ehras, offered Goppel some advice upon this situation, as he had some experience with a similar situation. Starting in 1950, the Bavarian Street Construction Bureau in Amberg wanted to construct an autobahn from Sulzbach-Rosenberg to Lauterhofen, because the military often used the route, and the long, curvy road was too narrow for the traffic. The Bureau planned to build the Nuremberg-Amberg autobahn to fix the problem. In 1964, Ehras wrote a pamphlet, *Bäume Weg vom Straßenrand* (Keep the

¹³¹ Jürgen Huss, “Zur Waldeinteilung im Ebersberger Forest,” in *Der Landkreis Ebersberg: Geschichte und Gegenwart. Nutzungen, Waldungen und Gefährdungen des Ebersberger Forstes*, Kreissparkasse Ebersberg ed. (Stuttgart: Deutscher Sparkassenverlag GmbH., 1990), 48-59; for more on Prussian forestry see: James Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition have Failed* (New Haven: Yale University Press, 1999), 11-22.

¹³² David Blackbourn, *Conquest of Nature*. 5

¹³³ *MM*, “Für den Protonen-Beschleuniger,” Feb. 13, 1965.

Trees away from the Highway), in which he argued that the state should not replant the trees so close to the autobahn, especially near dangerous turns, to avoid accidents. The local people, much like in Goppel's situation, misunderstood Ehras' intentions, and the local *Heimat* protection group, aided by the press, labeled him a tree murder. Ehras considered himself a friend of nature, who made exceptions to necessary projects, like the autobahn and the accelerator. He concluded that the accelerator had the potential to push Bavaria away from its "backwoods, thick-headed (*stockvernagelt*), and simply considerably naïve" cry, and turn it into the limelight of Europe. Instead, the masses were easily persuaded and they would yell democracy, but at the same time would say, "crucify, crucify him". He admonished the "mass psychoses of Bavaria," from which Hitler arose, and suggested a location in Franconia, near Erlangen.¹³⁴

Perhaps key then would be to delineate that which was distinct and fundamental to the forest, and that which was superfluous and could be shaped. In a letter to the *Münchner Merkur*, Ernst Hund agreed that the cutting of a stand of forest represented a legitimate concern; however, because Germany had a significant number of forests remaining, the 'substance' of the forest would not be endangered. In fact, as he viewed it, every major project produced protest. It was the same with the railroad, which many thought destroyed the landscape. He contended that conservationists had worried that the damming and diversion of the Isar would dry the river up, leading to a power plant monopolization of water. It was obvious to him that none of these large projects scarred the landscape. Instead, he felt it would be better, if people shrieked every time a

¹³⁴ BayHSA: StK 140008, SPD Ortsvorsitzender in Hartsmanhof, Hans Ehras to Alfons Goppel, Feb. 4, 1965.

local county deforested a land, “hectare by hectare,’ so that large construction projects (*Großbauprojekten*) would have land plots at their disposal.¹³⁵

On February 3, Goppel also found himself compelled to deal with this topic. He argued that there was a significant misunderstanding of the amount of land to be used in the project. The forest covered 77 square kilometers, and the media wrongly reported that twenty square kilometers would be used. In fact, most designs proposed tunneling in a circumference of 7.6 kilometers, with a small above-ground building, requiring about 40 square meters. Professor Kneißl estimated that only 1 to 2 square kilometers above ground was necessary. According to the Ministry Forest Department, the area could be reforested. Goppel stressed that in 1890 blight decimated the forest, requiring nearly all of it to be reforested. This process continued even since World War II. However, he was concerned about a third of the wild forest (*Wildforst*), which would be sacrificed during the construction, and he was not certain how well this delicate stand would adapt. In the worst case scenario, the Red or Black Wild Trimmings (*Rot- und Schwarzwildbesatz*) would have to be pruned a third or fourth. On the other hand, there were no endangered indigenous species in the wild forest that would be harmed or made extinct. He then emphasized that the forest was quite expansive and the landscape “character” of the entire forest would not be vanish. Unfortunately, a small part of the forest, near the facility, would be irretrievably transformed, but this small disadvantage weighed favorably against the entire gains for Bavaria.¹³⁶

¹³⁵ *MM*, “Für den Protonen-Beschleuniger,” Feb. 13, 1965.

¹³⁶ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2451-2452.

Next on the role of the government in natural preservation, Goppel reminded that he had been a strong supporter of natural preservation since his days in the Ministry of the Interior. Since then, he had protected the lakes, rivers, flora, and fauna against the encroachment of private and economic interests. For example, he stood up for Puppling Riparian Woods and Litzau River Loop. He was adamant that nature should be preserved against the constant expansion of civilization. However, Goppel stated emphatically that natural and landscape preservation “serves man, now and in the future.”¹³⁷

In spite of his pronouncement, the ministry was concerned about the diminution of the so-called “wild park.” Those trees that were on average 50-70 years old, could in time be replaced. However, a small part of the forest was considered ‘wild’, meaning something like natural wilderness. This part of the forest would, according to Government Director Brand, be reduced, and could not be restored in its original form. This could mean, if one were to extrapolate, that it would change the ‘character’ of this section of forest.¹³⁸ However, *A Proton Accelerator in Ebersberger Forest* attempted to minimize the fallout from this acknowledgement, stating that only one square kilometer of the forest would not be reforested, since only one building would be above ground, with the streets and remaining above ground buildings standing outside the forest proper. This represents only a small portion of the entire 622.8 square kilometer forest belt, and less than a third of the forest that the City of Munich had enveloped with urban sprawl since 1945. Furthermore, the project planning and construction would last several years,

¹³⁷ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2455.

¹³⁸ BayHSA: Stk 14005, “Aufzeichnung über die Besprecherung am 25.1.1965.”

perhaps not being finished until 1980, allowing ample time to design around the Wild Park.¹³⁹

In many ways, though, Goppel had underscored the opposition, when he suggested that the forest had been anthropogenically shaped. Nature was best preserved—that is, conservation attracted the most wide-ranging attention—when it served human interest. In the particular case of Ebersberg Forest, the geometric, utilitarian design of the forest offered straight paths and easy access to the historical memorials, for instance. In fact, one district within the contemporaneous park map was designated specifically for tomb preservation, allowing *Heimat* enthusiasts a means of enjoying the forest. For these people, who took pleasure in wandering in the forest, relocation or reforestation was not an option, because of the tenure required for a tall stand to reach suitable standards. Particularly captivated by this notion of the tailored forest was the growing body of recreation-seeking urbanites who enjoyed local excursions into nature.

3.6 Where will the People Recreate?

The utilitarian forest, with its straight pathways and open forest floor, was perfectly suited for hiking, relaxation, and biking. With the growth of consumer society, and the emphasis placed upon health and stress relief, it is also no coincidence that recreation (*Erholung*: sometimes also translated as relaxation or rejuvenation¹⁴⁰) was the most often cited reason for preserving the forest. Increasingly, West Germans were convinced that the social pressure and hectic schedule of urban life and bureaucratic work environments

¹³⁹ BayHSA: StK 14008, StK, *Ein Protonenbeschleuniger im Ebersberger Forest*, 1965.

¹⁴⁰ See Sandra Chaney, *Nature in the Miracle Years*, 114-126.

overly stressed the bodies and taxed the spirits of the middle class. Doctors and psychologists, like the noted Catholic conservative Joachim Bodamer, prescribed rejuvenation in public parks to cure these symptoms.¹⁴¹ Article 141, paragraph three of the Bavarian constitution protected the right of public access into recreational parks.¹⁴² With this reasoning, conservationists and ordinary Bavarians lobbied for parks within or near the city, to serve for relaxing weekend excursions.

Through the popular metaphor of the ‘Green Lung,’ doctors, politicians, conservationists, and ordinary citizens made the analogy that a forest was a healthy, fresh breath of air for a dirty urban environment. SPD member Volkmar Gabert popularized the use of phrase for Munich’s Green Belt that signified the forest’s function to filter out dirty particles. This fresh air allowed urbanites to relax and rejuvenate away from the city’s bustle.¹⁴³ The notion that recreation and a clean climate were healthy for urban residents was reinforced when the Union of Doctors in Hartmannbund denounced the project, on the grounds that the deforestation could potentially pose health problems for the residents.¹⁴⁴ The forest offered a location for Munich residents to healthily enjoy a short break from employment. In his letter, Edgar Hug of Munich expressed the desire to have a Sunday destination, where he could walk for an hour, so that he was no longer a “slave” to production.¹⁴⁵

It was also important for these parks to be within the vicinity of Munich, so that residents could make short day excursions by suburban rail or car. The state encouraged

¹⁴¹ Sandra Chaney, *Nature in the Miracle Years*, 118.

¹⁴² See above in chapter.

¹⁴³ AZ, ‘Vogel hat Angst um Mühchens Klima,’ Jan 15, 1965.

¹⁴⁴ MM, “Ismaning bewirbt sich um Atom-Zentrum“, Jan. 16/17, 1965.

¹⁴⁵ SZ, “Atomzentrum im Ebersberger Forst?” Jan. 1965.

this behavior, by constructing nearby parking spaces, encouraging “thousands to drive out” on summer weekends.¹⁴⁶ According to the protest brochure, *Hands off Ebersberg Forest*, forty percent of Munich’s residents vacationed in 1963, with sixty percent of those traveling to Ebersberg Forest. As Munich swelled to a forecast 2.4 million residents by 1985, the brochure prognosticated that the forest would become an intercity park, like the English Garden. At the same time the brochure complained that the vacation traffic passing through the Alps jammed up the road, which would encourage people to recreate in closer proximity to the city.¹⁴⁷ In her letter, Doris Ohmseider of Munich reminisced that for 35 years her parents had been traveling on early summer weekends to hike through Ebersberg Forst. Her father, who was 92 in 1965, could access this destination, but could not travel further to another forest. Doris reckoned the elderly would be left out, if the recreational zone were destroyed.¹⁴⁸ Likewise Günther Heinrich of Percha thanked God she only had to travel just outside of Munich, instead of all the way to Kenya, in order to enjoy a nature park.¹⁴⁹

The problem noted by several letters, was that the accelerator would obstruct the innocent pursuit of recreation—because even if buried it would jut out of the ground constricting access. One editorial in the *Ebersberger Zeitung* argued that the accelerator would not bring more roads, but rather, would block off those highways that head to the north. The author enjoyed buzzing through the forest at 80 to 90 kilometers per hour, but he would now have to circumnavigate this “Chinese Wall,” making it impossible to drive

¹⁴⁶ StadtA Mü, ZA 40 Atom, Ebersberger Forest 65.EZ, “Entscheidung unbegreiflich,” Jan 23, 1965.

¹⁴⁷ BayHSA: StK 14008, Deutsche Naturschutz Ring, *Hände weg von Ebersberger Forest*. 1965.

¹⁴⁸ StadtA Mü, ZA 40 Atom, Ebersberger Forest 65, EZ, “Ein Schrei der Entrüstung geht durch den Landkreis“, Jan. 19, 1965.

¹⁴⁹ StadtA Mü, ZA 40 Atom, Ebersberger Forest 65, SZ, “Technik auf Kosten der Natur?” Feb. 3, 1965. See also comments by Alfons Hollerith: SZ, “Atomzentrum in Ebersberger Forst?” Jan. 23/24 or Jan. 30-31, 1965.

directly through.¹⁵⁰ In his editorial letter to the administrative district Munich, Chairman of the Preservation Community for Kreuzling Forst, Hans Wolf, asserted that given the plan to build a military hospital in Kreuzling Forst, it was “laughable” that the government would reforest Ebersberg Forst after construction. First off, if the area could be replanted, he recommended building the accelerator outside of the forest, then afforesting that region—to increase forest volume. Second, the facilities would create a two meter artificial hump in the forest, which will render the area undesirable for recreation.¹⁵¹

At the same time, proponents of the facility countered that it was a myth to think of Ebersberg Forest as a recreational area. An anonymous letter to the *Abendzeitung* stated that often the author wandered in the Forest and did not encounter others, except on the most beautiful of summer days. Furthermore, if only a third of the forest were ‘sacrificed’, it was not as if the area could not be reforested, if for a short time the visitors did not trample it.¹⁵² Dr. Hans English of Wilhelm condemned what he called the “grotesque” “recent discovery” of Ebersberg Forest. He claimed that before this affair, the Alps, Austria, and Italy, or anywhere else in the world, had all been chosen over Ebersberg Forest as a recreational destination.¹⁵³ In a letter to the government, Herman Land, a chemist and physicist of Munich, argued that he and his wife often went to Ebersberg Forst and rarely saw visitors, even with good weather. Ebersberg forest was simply not used as a recreational area, and public opinion polls, if taken, would have

¹⁵⁰ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65.EZ, Die Chinesische Mauer,” Feb. 10, 1965.

¹⁵¹ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, MM, “Wenn er erst angeknabbert ist,” Feb. 6, 1965.

¹⁵² *Die Abendzeitung*, “Leserzuschriften,” Jan. 21, 1965

¹⁵³ BayHSA: Stk 14008, Dr. Hans English to the Bavarian Minister President (Date not given) 1965; see also comments by Helmuth Penzel in: *MM*, “Atomforschung Ja, Ebersberger Forst Nein,” Jan. 23/24, 1965.

proven this fact.¹⁵⁴ Of course there was some irony in these letters, considering that they were in fact regular forest visitors.

Others argued that Munich residents could just relax elsewhere. Josef Seil said that plenty of recreational forests existed near Munich, and the Bavarian Woods were not too far away.¹⁵⁵ An engineer from Munich suggested that if Munich required a recreational zone, that the forest bureaus just afforest a park elsewhere. It would be cheaper and more practical to afforest 10 smaller recreational areas near Munich, each of about 2 square kilometers, and give the inexpensive and topographically favorable land in Ebersberg Forest to CERN. Once the facility were built, the Federal Republic would pay Munich to build the so-called V-bahn express rail, which would allow easy access to the parks for all residents of Munich.¹⁵⁶ The government added that, while a small portion of a recreational zone might be lost, Munich had some 555 square kilometers of recreation parks within the vicinity.¹⁵⁷

Finally, some proponents contended that similar projects of this kind did not historically disrupt leisure activities. If the facilities were well planned and deep in the forest, Professor George Madelung of Uffing argued that hikers would not even notice it. As an example, he related the story of the Graf Zeppelin research institute in the Zinholz near Stuttgart, constructed in 1936, and the aerospace research facility built in Völkenrod Woods near Braunschweig. In both cases, neither used much of the forest and both were

¹⁵⁴ BayHSA: StK, 14008, Herman Land, "Ebersberger Forst als Erholungsgebiet der Münchner Bevölkerung," Feb. 5, 1965.

¹⁵⁵ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, "Ebersberger Forst im Spiegel der Meinungen unserer Leser," Jan. 19, 1965.

¹⁵⁶ SZ, "Technik auf Kosten der Natur?" Feb. 3, 1965.

¹⁵⁷ BayHSA: StK 14008, StK, *Ein Protonenbeschleuniger im Ebersberger Forst*, 1965.

considered acceptable places to recreate.¹⁵⁸ In a final example, Meinhardt Großer of Weilheim retold the story of the construction of the Raisting Station for satellites, which completely transformed the area surrounding Raisting, bringing with it new streets, a fire station, and a new face. Simply put, the hikers in the area hardly noticed.¹⁵⁹

No one, though, simply suggested that Bavarians be restricted in their use of the forests. Rather, the sense of leisure entitlement was so ingrained in the mindset of this consumer generation—backed by the constitution and the experts—that those who supported the accelerator had to suggest alternatives, if they wanted to make a legitimate argument. This reinforced the yearning for natural spaces in which to play, unwind, and exercise—a trend that contributed to a dynamic national park movement. Since the fifties, land planning authorities shifted zoning emphasis from international tourism to local recreation.

3.7 What about Air, Water, Climate, and Radiation?

In comparison to the fifties, more experts and ordinary Bavarians were interested in the interdependency of the biological landscape in the mid-sixties. While environment (*Umwelt*) was not yet a term in the 1965 German lexicon, some letters noticed the ecological ramifications of the forest, and deforestation. At this time, most people preferred the word ‘landscape’ (*Landschaft*) to denote a local ecological system, instead

¹⁵⁸ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *Münchener Merkur*, “Ebersberger Forst im Spiegel der Meinungen unserer Leser,” Jan. 19, 1965.

¹⁵⁹ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, “Hier Spricht der Leser.” Jan. 30-31, 1965.

of *Ökologie*, a term coined by the German biologist Ernst Haeckel in 1866.¹⁶⁰ Historians debate the time-period for the emergence in landscape cultivation (*Landschaftspflege*), with some historians pointing to the nineteen-fifties, and other focusing on the nineteenth century. Nonetheless, by the sixties, this terminology was of common usage among preservationists, and becoming more popular with nonprofessionals. It is clear though, that since the controversy surrounding the Munich Research Reactor, the biological fields had gained professionally in relative importance as a science, in comparison to the field that had dominated the postwar environment—nuclear physics.

As the analogy of the Green Lung suggests, Bavarians conceived of the forest as an enormous ventilator, which maintained a relative balance between the urban dust nuisance and the clean natural ecology. Dr. Friedrich von der Leyen regarded this filtering process, which he also argued filtered out ‘pests,’ the most important role of the forest.¹⁶¹ Werner Meyer of Munich asserted that progress through science, but without nature, was indeed no progress at all. He felt that Bavaria was following the dangerous example set for by Ruhr valley, by felling its trees. In the Ruhr’s case, such a policy led to “water deficits, sullied water, air pollution, noise pollution, and overly dense populations.”¹⁶²

Accelerator advocates pointed to the study done by Professor Möller, the Ordinarius of Meteorology at the University of Munich, which declared that if an accelerator were

¹⁶⁰ Although no one has ever explicitly made the connection, perhaps the reluctance to use the term stemmed from Haeckel’s association with the *Völkish* movement. See: Mark Bassin, “Blood or Soil? The Völkish Movement, the Nazis, and the Legacy of Geopolitik,” in *How Green were the Nazis? Nature, Environment, and Nation in the Third Reich*, Franz-Josef Brüggemeier et al. (Athens: Ohio University Press, 2005), 211.

¹⁶¹ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, MM, “Ebersberger Forst im Spiegel der Meinungen unserer Leser,” Jan. 19, 1965; see also Karl Hanselbauer and Peter Landgrebe.

¹⁶² BayHSA: StK, 14008, Werner Meyer to the Ministerpräsident, Jan. 17, 1965.

built in Ebersberg Forest, it would not have a major affect on the forest's ability to clean the air. Möller maintain that while every forest served the purpose of filtering dust out of the air, Ebersberg Forest, unlike the Forest of the Berlin Zoo, did not reside in the middle of the city. In comparison, the Munich Forest Belt was less endangered by new housing, and the forest filtered the dust before it entered the city. At any rate, the Forest Belt of Munich was 622 square kilometers in size, and Ebersberg Forest was not directly in the vicinity of Munich.¹⁶³

Many people had begun to consider the local climatological connection of the forest; in particular, the forest was regarded as protector of Munich against adverse metrological conditions. As Chapter One already demonstrated, Bavarians were already concerned with the landscape and micro and macroclimate. While exploring deforested tropical islands in the seventeenth century, such as the Cape Verdes or St. Helena, the Dutch travelers and merchants of the Dutch East India Company already commented on the connection with deforestation and decreasing precipitation.¹⁶⁴ This was passed on in the preservationist traditions. Nuclear power seemed to make ordinary Bavarians more aware of meteorology, as evidenced in nearly every chapter in this dissertation. This was also the case with Ebersberg, where the citizens of Munich, backed by the professionals, spoke more commonly about such matters. Particularly, they feared that removal of the forest would expose the city to whirl winds, sand storms, late frosts, fires, or other calamities. As example, Adalbert Wortmann of Ebersberg wrote into the *Ebersberger Zeitung* about two other case studies off deforestation, namely the Balkans and America.

¹⁶³ BayHSA: StK, 14005, "Beschleuniger-Anlage im Ebersberger Forest," Vormerkung by Dr. Euler, 2.2.1965.

¹⁶⁴ Richard Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1860, Studies in Environment and History* (Cambridge: Cambridge University Press, 1995), 42.

He callously argued that Bavarians should be cautious of the idea of progress, because such lofty ideals led to deforestation and reforestation in the Balkans. Further evidence of these problems comes from American, where pioneers thoughtlessly sacrificed forests for progressive agriculture, and now must budget for the cost of reforestation, or face desertification (*Versteppung*), as well as high winds and large storms.¹⁶⁵

Connected with this sentiment was the image of the forest as a humidifier and water storage tower, which could actually save the city financially. As Wortmann had already implied, without this hydrological function, the city would turn into an arid desert. According to Dr. Wolfgang Engelhardt, vice president of the German Nature Ring, the forest naturally regenerated the landscape, air, water, climate, and health. It circulated 27 cubic meters annually of transpiration water into the atmosphere, representing a cost-free water treatment plant. Furthermore, one hectare of woods filtered 32 tons of dust annually. After the forest were destroyed, there would be climate problems, including threats from storms and late frosts, as well as dangers of grass burning. He concluded that the Bavarian government should develop a State Land Plan, so that the accelerator could be built near to the Alps.¹⁶⁶ Franz Betzenhauser of Munich recognized the function of the forest as circulator and storehouse of water. If the forest were removed, he claimed, the city would have to pay to pump water from “dirty” rivers and lakes.¹⁶⁷ Additionally, some worried that the underground facility would ruin the table water or

¹⁶⁵ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, EZ, “Jeder Möglichkeit prüfen,” Feb. 2, 1965; see also Aton Müller in: *MM*, “Hier Spricht der Leser.” Jan. 30-31, 1965; see also the German Youth League and the Kreuzling Preservation Union in: *EZ*, “Nicht im Naturschutzgebiet,” Jan. 30, 1965.

¹⁶⁶ BayHSA: StK, 14005, Dr. Wolfgang Engelhardt to Alfons Goppel, Jan. 28, 1965.

¹⁶⁷ StadtAMü, ZA 40 Atom, Ebersberger Forest 65, SZ, “Atomzentrum in Ebersberger Forst?” Jan. 23/24 or Jan. 30-31, 1965.

subterranean hydrologic balance.¹⁶⁸ Goppel, though, in his mid-January speech, *First Hand Policy*, countered that because the facility would be twelve meters below ground, and the water table was thirty meters below ground, the water released from the facility may actually improve the ground water current.¹⁶⁹

Radiation emitted from the synchrotron, whether real or imagined, was another source of contention. Continuing his prolific authorship of letters, Walter Schweiger felt radioactive emissions, when mixed with auto, industrial, and domestic emissions, along with the dust buildup from the autobahn, would push the local ecology beyond all human tolerance levels. The situation was compounded because Munich had a low amount of incoming wind and 285 days of the so-called meteorological inversion process.

Schweiger was adamant that building the accelerator would lead to disruption of the climate, water supply, and would sully the air, along with endangering the personnel and surrounding area with radiation. He reminded that recently the press reported a radiation leak in the Munich Research Reactor—a smaller facility. He also had seen media reports that amounts of detectable Krypton 85 continue to rise in various probes, even though weapons' tests had concluded—he attributed this increase to atomic energy production.¹⁷⁰

After Heisenberg and Goppel countered that there was no threat from radiation, because the facility would be underground, *Hands off Ebersberg Forest*, a pamphlet published by the German Nature Preservation Ring, continued to emphasize the threat of nuclear wastes and a number of studies from the biological fields suggesting otherwise. Recent revelations from these specialists reinforced the Preservation Ring, such as that by

¹⁶⁸ *MM*, "Atomforschung Ja, Ebersberger Forst Nein," Jan. 23/24, 1965.

¹⁶⁹ *Bayerische Staatszeitung*, "Cern-Projekt im Ebersberger Forst" Jan. 22, 1965.

¹⁷⁰ BayHSA: StK, 14006, Walter Schweiger, "Eine Atomstadt im Ebersberger Forst?" Jan. 27, 1965.

biologist, Dr. Glass, who stated at the recent Atomic Conference in Brookhaven that wastes were more of a danger than weapons. Furthermore, Dr. Bobo Manstein, in his recent report on the Munich Research Reactor titled “In the Chokehold (*Würgegriff*) of Progress,” acknowledged 133 leaks in the hull’s concrete protection. Finally, a February 3, 1965 story in *Naturwissenschaft Technik und Industrie* suggested that long-term operation of the synchrotron would lead to irradiation of the buildings.¹⁷¹

If humans were not endangered, then the opposition felt animals certainly were. The Regional Beekeeper Association said they are against the plan because an apiary would be removed, jeopardizing the fruit and seminal cultivation that required the bees.¹⁷² The adopted mascot of the anti-accelerator movement was the wild sow. One reporter referred to the protesters as the “wild sow Stasi,” and quipped that the so-called ‘wild’ pigs were actually fed by the hardcore hikers.¹⁷³ An editorial and cartoon by Seth Eibl, in which a wild sow singing quintet lament the loss of Ebersberg Forest, provided satirical commentary on the situation. The first five stanzas were performed by the individual pigs, with the final stanza, which progressively employed more of the Bavarian dialect, a collaboration of the entire cast.¹⁷⁴

¹⁷¹ BayHSA: StK 14008, *Hände weg von Ebersberger Forest*. Deutsche Naturschutz Ring, 1965; see also comments by Kurt Gradek in: StadtA Mü, ZA 40 Atom, Ebersberger Forest 65, EZ, “Ein Schrei der Entrüstung geht durch den Landkreis“, Jan. 19, 1965.

¹⁷² StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65.EZ, “Jeder Möglichkeit prüfen,” Feb. 2, 1965.

¹⁷³ SZ, “Das Streitflicht“, March 3, 1965.

¹⁷⁴ BayHSA: StK14005, Sepp Eibl, 1965.

1. Wild Sow:

You should not have
the Ebersberg Forest,
It should, as before, refresh
our coat and bristle.
Since Karl the Great
it stood there
in beauty and purity,
Ach what does he want,
Ach what does he want,
Alois the Small?

2. Wild Sow:

Why would the particles
be accelerated,
instead of the air
from dust and filth be filtered?
Every sow thinks more human
than the ministerial planners.
Oh you men,
think of your duty,
because the beautiful forest
does not belong to you!
And now I ask
once more the question:
Why do the protons
accelerate?

3. Wild Sow:

Who has built on you
beautiful woods, so tall?
Who that also had been:
he can no longer praise
A. Goppel!
Alfons, send us on account of our
teats
in the research facility
but not in the desert!
What does a proton mean?
No longer a radiation-secure
Southern prize!

4. Wild Sow

Alois, look at me one more time,
already with the last state hunt
you struck me with your ban.
Your shooting has sent me
deep in the back part,
and now you come
immediately with the choppers!
You are yourself
a kid from this region,
with that we all
like you from the heart,
come back here
with your cheeky beard,
then we are all all all
simply gone!

5. Wild Sow

Heisenberg, can no longer
be considered by me a Noble Prize
winner,
you want to take
the green woods from us.
Are you not satisfied
with a barren landscape,
a deep bog for your
highbrow team?
By days campaigning in woods,
by nights in the theater,
so thinks the good Land Father.
I think of you,
so in the midst of it in the night
then I am
then I am
then I am deprived of sleep!

6. All together (in the family key)

We greatly beg of you
Let us stay in the woods
and ask not, what is understood
by such a bearded creature?
Our hearts beat so fresh,
the rabbits and the deer,
I am home in the wild,
the forest is lovely!

Despite sentimental appeals to the forest and the swine, some residents of Munich considered it hypocrisy to blame the state for the people's transgressions against nature. For Albert Halbinger of Munich, this attack on the state was completely unwarranted. He was adamant that the people, not the state, destroyed the forest of Southern Bavaria. If it were not for the Bavarian state trash service, collecting wastes and recycling, the forest would be littered with such refuse that no wild sow could possibly live there.¹ Ernst Milkutat of Munich likewise noted the irony of these nature lovers; those very people protesting the facility polluted the forest with their cars, buses, trams, and factory emissions. As he boldly put it, the "Lung of Munich" was contaminated with cigarette smoke.² Both of these people were pointing out a problem that some in the tourist industry had already begun to discuss, but would become more prevalent in a few years. Bavarian tourism and recreation were largely built on the attractiveness of the landscape. However, there had been a longtime ambivalence by nature preservationists, and more recently by some pessimistic residents of Munich, because the tourists and recreation seekers had a tendency to pollute or destroy the very things that they came to observe. This happened, not only because they would trample or litter in nature, but because the tourism industry would construct hotels, restaurants, and shop services nearby to accommodate. On top of that, the people would demand methods of transportation to arrive at the location.

¹ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, "Ebersberger Forst im Spiegel der Meinungen unserer Leser," Jan. 19, 1965.

² StadtA Mü, ZA 40 Atom, Ebersberger Forest 65, *SZ*, "Atomzentrum in Ebersberger Forst?" Jan. 23/24 or Jan. 30-31, 1965.

In this discourse of landscape, Goppel felt that there were a number of inaccuracies perpetuated in the public sphere. In terms of radiation exposure, the facility would, according to scientists, present practically no discernible danger. The amount of radiation released would be comparable to that of an x-ray device, and the strong shielding around the experiment hall, as well as the earth wall over the track, would prevent any emissions. He reiterated that the project would produce less nuclear wastes than a hospital. In regards to climate change, Goppel reminded of the Highest Construction Bureau's declaration that none would accompany the construction. Ebersberg had a water table below the required twelve meters, so Goppel reiterated that the underground water would not be affected in anyway. He recognized the legitimate concern of the industrial and urban sprawl that could accompany the facility. Three to five thousand people would work at the complex, about half from abroad, and the area would need to handle up to 10,000. He assured, though, that CERN wanted these people to settle near the facility, but outside of the forest.³

CERN was having a particularly difficult time convincing the public, in large part due to shifting scholarly emphases in the decade. Since World War II, when German politicians and military leaders had been thoroughly discredited and Germans were seeking new heroes, Noble Prize winning scientists achieved celebrity status. A bona fide celebrity, Einstein has been the most noted example, but Heisenberg enjoyed similar fame after the war. Physicists, in particular Heisenberg, but also Maier-Leibnitz and others, were given considerable public admiration, and wielded significant power to

³ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2450.

inform public policy.⁴ One need only look at the public respect awarded to the signatories of the Gottingen Peace Resolution of 1957, which renounced nuclear warfare. This respect towards specialists was not limited to internationally renowned physicists; but rather also was afforded to other experts, such as urban planners and forestry engineers. Even though German biologists, like Alexander von Humboldt, had made notable careers, it was the reputation of chemists and physicist that had made Germany's name in science. In the fifties, few specialists would challenge someone with Heisenberg's gravitas; but increasingly professionals from the biological, zoological, and meteorological fields expressed contrary opinions about the effects deforestation, radiation, and industrial expansion. As an example, editor of the *Ebersberger Zeitung*, Hans Sponholz noted, before an audience of forestry experts in the Interest Society for Preserving the Ebersberg Forest on February 25, that even the most esteemed physicist like Heisenberg, should not be trusted in his knowledge of biology, forestry, or landscape ecology.⁵

Providing a coherent and coordinated picture of atomic physics had become more problematic than other fields, because there were so many countervailing points of view among specialists. In the case of Ebersberg Forest, Knießl and Heisenberg were among the chief proponents of the location. However, forestry, climate, and other specialists within the Bavarian Forest Ministry were overwhelmingly against building the facility at the location. Made more difficult for the physicists, was that the formulas used to ensure the security of such a facility, were too complex to discuss successfully with laymen; so

⁴ See Catheryn Carsen. "New Models for Science in Politics: Heisenberg in West Germany," in *Historical studies in the physical and Biological Sciences*, 30:1 (1999), 115-171.

⁵ StadtA Mü, ZA, 40 Atom, Ebersberger Forst, 65 EZ, "Wer den Wald preisgibt, zerstört ein Stück Heimat," Feb. 26, 1965..

whereas the forestry department could make quite visual models, the validity of physics ultimately rested on the reputation of the scientist. As long as Heisenberg remained one of the most popular men in Germany, then he could continue to persuade the public. But he was aging, and his successors, such as Noble Prize winner Rudolf Mössbauer, who famously discovered in 1957 as a graduate student at the Munich Research Reactor the gamma ray effect that would bear his name, did not command the immense popularity of Heisenberg, Hahn, or Einstein.

At the same time, the results of theoretical physics were hardly tangible. A ministry bureaucrat, in charge of cataloging the newspaper articles on the accelerator, left a note, in which he or she believed the government should emphasize in its campaign the results of a story published in the *SZ* on June 16 about anti-matter. Recently, a group of scientists at Columbia University used a synchrotron to discover an anti-deuteron, which is the combination of an anti-proton and an anti-neutron, and used these results to suggest that there was anti-matter, and possibility an entire anti-universe. The Americans wanted to expand their research in a larger particle accelerator. The cataloguer considered this the kind of revelation that could possibly sway public opinion in favor of a facility. Because the article was published in June, we will never know if it would have had any ramification; however, I speculate these theoretical idiosyncrasies would have held very little significance, in comparison to perceptibly useful stand of forest.⁶

Interestingly though, we can see that increasingly in the sixties, laymen and amateurs became more skeptical of the professional expertise. While Kneiβl had proclaimed that Ebersberger Forest perfectly fit within in the geologic criteria—that

⁶ *SZ*, “Gibt es eine Anti-Welt?” June 16, 1965. See also: BayHSA: StK 14005, “Aufzeichnung über die Besprecherung am 25.1.1965.“

seismographic activity had to be an absolute minute amount—part-time seismologist Robert Schneltzler countered that this area was not entirely ‘quiet’. He lived on Amersee and recorded seismic activity recently.⁷ In 1965, the erosion of faith in atomic physicists and the state, though, did not lead to outright rebellion, but rather, the migration to other like-minded professionals in these biological fields. This resulted in interdepartmental haggling typical of the sixties, witnessed often in landscape planning. Particularly, the interests of officials in charge of forestry and parks were at odds with those of the Ministry of Economic, which stressed the economic benefits of industrial and scientific expansion.

3.6 What are the Benefits?

Clearly, making a case for theoretical physics was going to be difficult, and many people questioned whether there were any benefits from the accelerator. Weighing future hypothetical breakthroughs in anti-matter against the many eminently reasonable and apparent functions of the forest was a mounting task that Goppel was unable to overcome. He stressed the economic, scientific, and political ramifications of the project, but not only was the public more interested in enjoying leisure activities and fresh air, a number of people questioned whether the accelerator could actually live up to Goppel’s lofty promises.

Ulrich Doering, a physicist from Munich, offered a view unique among the scientists—that the disadvantages of the facility far outweighed the positive benefits.

⁷ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *MM*, “Hier Spricht der Leser.” Jan. 30-31, 1965.

Once completed, he estimated that expenses would rise to 3 billion DM for construction, and 7-800 million DM for annual operation. To make matters worse, he believed the English were unlikely to pay their share, due to foreign currency technicalities, and the Gaullists would hinder French involvement. Not only would Germany fund the facility in its entirety, but the Germans would also pay for the municipal costs and cultural amenities of the 10,000 related residents—in other words, roads, hospitals and schools. Doering pointed out that after a number of years the accelerator would finally make scientific advances, charting the nucleus of an atom, examining the composition of elements, and evaluating the so-called micro-cosmos. For practical or economic applications, the accelerator would demonstrate almost no appreciable results, for a minimum of decades. This was not to be compared with experiments in nuclear power, which had direct tangible applications and possibilities of further advancement in breeder technology. Rather, the synchrotron could only deal with philosophic or mathematical questions, about the nature of the atom. One could compare researching the composition of the atom with studying extraterrestrial space—the makeup and mathematics of planetary bodies only achieves tangible benefits after the technology is developed, which is a process undertaken in a separate institution. Doering felt his generation already paid high taxes for road construction; constructing the facility would require Bavarians to also compensate for the future.⁸ Paul Tremmel of Geiselbach inquired if it could be guaranteed that this test facility would not be surpassed by an even larger and grander

⁸ BayHSA: StK 14006, Ulrich W. Doering, “Zur Frage des Atomzentrums im Ebersberger Forst,” Jan. 27, 1965.

accelerator, elsewhere in the world. He asked, “What would be the point of building the world’s largest facility, if it were soon outmoded?”⁹

Like Goppel before them, many local residents expounded the theory that technological innovation equaled economic development—a self-congratulatory justification for the synchrotron. Alfred Keller of Munich expressed one of the more common themes; the belief that this was an opportunity that “could not be passed up.” He argued that the facility would encourage the investment of a billion DM, and Bavaria could ill afford to lose the possibility of this financial boon.¹⁰ Bonn engineer Heinz von Dessauer pled for the people of Munich to build the facility, because he considered it the last chance for the entire Federal Republic. Not only would it provide advanced training for physicists, it would also encourage young physicists to stay in Germany, who had trained in Germany at the taxpayer’s expense. Two dozen locations had been rejected due to seismic or geographic criteria, and the accelerator at Geneva, which was 10 times smaller, was affected by the movement of the North Sea. He exclaimed emphatically that there were no other possibilities. Axel Scholz of Munich callously added that the location was irrelevant and the opportunity should not be sacrificed to the “middle class Sunday hunter and mushroom pickers” (*speissbürgerliche Sonntagsjäger and Schwammerlsucher*).¹¹

Besides economic investment, Goppel emphasized the advantages of Europeanization. Bavaria, according to Goppel, had already taken significant steps towards the forefront of nuclear and high-energy physics, and now had an opportunity to

⁹ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, MM, “Hier Spricht der Leser.” Jan. 30-31, 1965.

¹⁰ *Die Abendzeitung*, “Leserzuschriften,” Jan. 21, 1965; see similar thoughts by Edmund Renner.

¹¹ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, MM “Ebersberger Forst im Spiegel der Meinungen unserer Leser,” Jan. 19, 1965.

attract an European research facility that would develop cutting-edge physics. Internationally renowned scientists would be drawn to Munich, would exchange knowledge at the Universities, and train future scientists, who could use the facilities, leading to further discoveries.¹² The success at the Munich Research Reactor reinforced this mindset. Similarly according to Eberhard von Conta, the forest only offered localized advantage; but the accelerator would situate all of Germany in the center of European atomic research.¹³

The opportunity for investment and technical knowledge was attractive to most residents of Munich, who professed a belief in scientific progress. When matched against the forest, though, the prospects did not look so promising. Still, most everyone wanted the Federal Republic to receive CERN's project. What then was the solution to this dilemma—that Bavarians wanted both nature and technology?

3.7 The Answer: Jein

In a letter to the *Abendzeitung*, Walt Falkenstein represented the most common position taken by the public-at-large: 'Jein' (German colloquial for both yes and no). That is, he argued that scientific 'progress' is necessary and inherently positive and the accelerator would contribute to forwarding that research; however, another location would be preferable to Ebersberg Forst. Falkenstein asserted that atomic research was

¹² *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2450.

¹³ *MM*, "Atomforschung Ja, Ebersberger Forst Nein," Jan. 23/24, 1965; see also Ernst Hung in: *MM*, "Für den Protonen-Beschleuniger," Feb. 13, 1965; or see Philip Mathes in: BayHSA: StK, 14008, Phillip Mathes to the StK, March 5, 1965; or see G.M. Rötzer in: StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65*MM*, "Ebersberger Forst im Spiegel der Meinungen unserer Leser," Jan. 19, 1965.

necessary because coal and oil reserves were diminishing—an argument made more often in the fifties, before cheap petroleum became widely available in Bavaria, and then rekindled in the seventies after the oil crisis.¹⁴ By far and away, *Jein* was the signature response to large scale building projects in the sixties. Even conservatives, who were apprehensive of the lack of available space, typically welcomed the general notion of technological progress, all the while defending nearly every available natural landscape. As has been demonstrated throughout this chapter, this presented a fundamental difficulty for landscape planners; every interest lobbied for their amenity to be constructed, but the criteria for the projects were so strenuous that implicitly no appropriate space in densely populated Bavaria could be arranged.

Most Bavarians were certain that the accelerator should be constructed, but not in the densely populated Greater Munich Region. Irmgard Hagen of Egelharting summed it up well when she expressed that the choice was not progress versus backwardness (*rückständig*); rather, it was merely a decision of “where it should be constructed.” The “prettiest forest in central Europe” should not have to be sacrificed, in order to bring research to Bavaria.¹⁵ The Munich region was too populated, but many thought that modern transportation allowed the facility to be farther away. No matter where it were placed in Europe, the scientists could travel to the facility, according to Traudl Voith of Ebersberg. The quiet forest of Munich, not the facility, would make the city an attractive place for culture and visitors.¹⁶

¹⁴ *Die Abendzeitung*, “Leserzuschriften,” Jan. 21, 1965.

¹⁵ StadtA Mü, ZA 40 Atom, Ebersberger Forest 65, *SZ*, “Technik auf Kosten der Natur?” Feb. 3, 1965; see also Karl Hanslbauer and A. Renz in *SZ*, “Atomzentrum in Ebersberger Forst?” Jan. 23/24 or Jan. 30-31, 1965.

¹⁶ StadtA Mü, ZA, 40 Atom, Ebersberger Forest 65, *EZ*, “Nicht im Naturschutzgebiet,” Jan. 30, 1965.

Some Bavarians provided recommendations as to where the facility could be built; quite typical was suggesting Northern Bavaria.¹⁷ An energetic citizen of Nuremberg, Elsbeth Steinke suggested that the government could “kill two birds with one stone” by placing the facility in a depressed region (*Notstandgebiet*) of Franconia, the Northern region of Bavaria, or near Passau, on the Eastern border. Suggested previously by FDP member Klaus Dehler, Franconia not only had numerous open spaces, building the facility there would stop the protest in Southern Bavaria and provide “work and bread” for Franconians.¹⁸ At the same time, land speculators and realtors had a number of options available, particularly in Franconia, near Würzburg, Bamberg, or north of Nuremberg.¹⁹ Ismaning mayor, Erich Zeitler, offered an area of 1300 hectares owned by the villages of Karlshof, Petershof, and Zengermoos, north of Ismaning, which sits on the right bank of the Isar, across from Garching. This location, minutes away from the Garching research institute, would be ideal, he hoped.²⁰

On February 3, FDP chairman Klaus Dehler also suggested an alternative. He argued that the two sides should not be represented as those supporting progress and those who are allowing backwardness. Rather, there are those people that wanted the accelerator in Ebersberg Forest, and those who chose another location. Dehler encouraged the government to consider placing it near Erlangen-Nuremberg, within range of the University of Erlangen, to help develop Franconia. Because of its cultural, scientific, and economic importance, he understood why scientists want the facility near

¹⁷ See Josef Vitzthum, Sebastian Meixner, and Herr Mottel in: StadtA Mü, ZA 40 Atom, Ebersberger Forest 65, SZ, “Atomzentrum in Ebersberger Forst?” Jan. 23/24 or Jan. 30-31, 1965.

¹⁸ BayHSA: StK 14008, Elsbeth Steinke to President Alfons Goppel (Exact date not legible.), 1965.

¹⁹ See: BayHSA: MWi, 21938, Friedrich Staub to Alfons Goppel 14628, Jan. 20, 1965, P.N Lukaschek to SM Dr. Heubel, Jan. 20, 1965, and MWi 21937, Robert Bley to Werner Heisenberg, Jan. 20, 1965.

²⁰ *MM*, “Ismaning bewirbt sich um Atom-Zentrum,” Jan. 16/17, 1965.

Munich, because practically “all Bavarian roads lead to Munich.” However, with the development of modern transportation systems it was no longer necessary to overgrow Munich, and instead it was wise to spread the development more evenly in Bavaria. Pointing to America, Dehler asserted that atomic research could be constructed in a wasteland, far from cities. Obviously, in his campaigning for Franconia, Dehler was appealing to his own constituents.²¹

Perhaps the most elaborate proposal was sent by a former resident of Munich, current resident of Berlin, Wilhelm Horsel, who suggested that the Bavarian government build an atomic city south of Starnberg Lake, some forty kilometers south of Munich. Horsel argued that if the area fit necessary geologic specifications, the approximately 500 square hectares of space would be ideal, as it was relatively close to Munich, had ample water supply, and was thinly inhabited. However, he believed to make full use of the location, a massive project should be undertaken. First the small lakes south of Starnberg Lake should be drained and reduced in size, providing an attractive polder location for industrial development. Next, a rail line would have to be extended from Munich to the new area, which he would designate as Research Center Main Lake. Finally, the most ambitious aspect of the project, he would build a canal from the Loisach River, a tributary of the Isar River, the Oster River, and the Kochelsee, to the Starnberg and Nebensee. This would allow the lakes to regulate the Loisach and the Oster, saving water in periods of flood, and adding water in low periods, would allow transportation, especially for tourist and vacationers, from Starnberg to the Loisach, and would generate energy on the Kochelsee. To top it off, this new water source could be used for the

²¹ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2458-2459, Quote on 2459.

accelerator, as well as for the construction of a series of nuclear power plants. Before long, a new city would develop, which he hoped to name New Lake City. It would be a suburb for Munich, comparable in type and scale to Versailles near Paris or Potsdam outside of Berlin.²² Had it been made public, Horsel's plan would have probably met with even more protest than the Ebersberg plan, since Starnberg Lake was an international destination for vacationers and sun bathers.

February 22, CERN announced that it would accept further applications for sites until May 1; the Upper Bavarian Nature Preservation Referent, Aton Micheler, recommended Mühldorfer Hart, thirty kilometers further east of Ebersberg. This site would meet relatively similar geologic criteria in terms of seismic activity and soil type, and Micheler estimated twenty-one square miles of open land were available. Unlike the forests surrounding Munich, this area was not used for recreation, because most of the people preferred Flossing Forest. At the same time, the area was used partially for agriculture, so fewer acres of forest would be disturbed. Another incentive, according to Micheler, was that the facility attractively would lay almost half way between Munich and Salzburg, allowing the scientists to partake in the culture of both cities. If the Munich-Passau rail line were extended from Rosenheim, then the Munich airport could be reached in about an hour. As a bonus, Chiem Lake, a tourist center due to a Versailles replica palace overlooking the lake, would be a short half-hour trip away. Finally, the area resided near Pürten Canal, so it would have an abundant water source.

Problematic though was Kneißl's recent declaration that he was finished performing extensive and intensive ground examinations, something he had been doing for three

²² BayHSA: MWi, 21938, Wilhelm Horsel to Alfons Goppel, Feb. 10, 1965.

years now. The Federal government supported his decision. In spite of Micheler's claims, the Upper Bavarian Regional Government felt the area did not meet the necessary geologic criteria. To further complicate matters, the Mühldorf County Bavarian Farmers League, led by chairman Gründl, announced their intentions to protest placing the facility there, due to the potential for the project to confiscate arable farmland. The league claimed that only 8.4 square kilometers of unbroken public land was available and the rest would have to be purchased from private lands, which they unequivocally would not make available. At the same time, the open area near Ampfing had been recently reserved for fossil fuel production. However the representatives of Mühldorf, Sebastian Huber in the Landtag and Wilbert Weggartner of the Mühldorf Landrat, assured that if the private lands were returned after construction, the local residents would not protest the project.²³

When all of these suggestions are taken into account, it becomes clear that most every Bavarian favored 'progress' and technology, but that there was very little consensus as to where to locate said technology. Historians have long used the American phrase 'Not in My Back Yard' (NIMBY) to describe this phenomenon; that is, most people in the fifties and sixties wanted to construct those technologies and services that were said to be required in a modern consumer society, such as power plants and power lines, but that no one wanted them build in his or her back yard. While the examples above, especially concerning Franconia, where most Bavarians seem to think there was abundant open space, do suggest that there is some truth to this statement, they also hint that once there was an actual proposal, as in the case of Mühldorf Hart, that someone

²³ SZ, "Ebersberger Forst oder Mühldorfer Hart" Feb. 24, 1965; *MM*, Köder, Feb. 23, 1965. *MM*, Erich Seydel, "Vieles spricht für den Mühldorfer Hart" Feb. 23, 1965; *MM*, "Jetzt protestieren die Bauern," Feb. 24, 1965; BayHSA: StK14006, Aton Micheler to the Regierung von Oberbayern, Feb. 15, 1965.

would protest the site. Put differently: in a densely populated country like Germany, where even relatively uninhabited locations like forests were contested space, just about every location was considered someone's 'backyard.'

3.8 Some Conclusions:

In part because of the protests, but also because of new geologic information, CERN decided to move on from Ebersberg Forest, and sought new German locations. The CERN representative on the project, C. J. Zilverschoon, told the Federal Government in Bonn and the State Ministry in Bavaria that the soil was too loose in the region around Munich, and this would double the costs of construction. With the budget already in the billions, it just did not seem justifiable to double expenditures. Thus, CERN reopened the bidding process with North Rhineland-Westphalia becoming the most likely German alternative.²⁴ CERN continued to examine sites for years, but the enormous expenses and intricate international negotiations continually delayed construction, until it was finally built in Geneva in 1976—with a capacity of 400 GeV. This synchrotron helped discover the so-called *W* and *Z* bosons—the carrier particles that mediate the weak atomic force. Germany had to turn a different direction; domestic corporations built smaller accelerators of under 12 GeV in Berlin (*Berlin Elektronenspeicherring-Gesellschaft für Synchrotronstrahlung* or BESSY) in 1981 and 1998 and DESY in 1980 and 1995. The amateur letter-to-the-editors in 1965 were correct when they assumed the Americans

²⁴ BayHSA: StK 14006, C. J. Zilverschoon of CERN to Bundesministerium W. Schulte-Meermen, Dec. 9, 1965.

would outdo CERN, and Fermi Lab temporarily beat CERN in the race to construct the grandest accelerator, when it built the Tevatron (1000 GeV) synchrotron in 1983. It was not until 2008 that CERN finally outdid the colossal scale of the Americans, with the unbelievably huge, subterranean Large Hadron Collider (7000 GeV) in Geneva, which is 27 kilometers in circumference and makes use of the 1976 accelerator as a pre-injector. Due to the enormous power requirements, this accelerator has met numerous technical difficulties.

Kai Hünemörder argues that what differentiated the nature/ landscape preservationist era of the fifties and sixties, which was largely concerned with local or regional problems, with the environmentalists of the seventies is the awareness and pronouncement of global ramifications of environmental policy that only arrives in West Germany after about 1972-1973. Prior to 1969, the term environmental protection (*Umweltschutz*) did not really appear in the German lexicon; rather it was a phrase imported from the United States and officials in the Federal government began incorporating it thereafter, without yet having developed a meaning.²⁵ The Ebersberg affair remained mostly a regional phenomenon. Within Upper Bavaria, a number of media outlets, in particular the *Ebersberger Zeitung*, the *Abendzeitung*, and the *Münchner Merkur*, published numerous stories indicating sentimental support for the forest preservationist cause. When the story received considerable traction throughout Germany and in particular in Baden-Württemberg, ordinary Germans sympathized with Bavarians, but media outlets often caricatured the Bavarians as colorful and quaint or reactionary and technophobic. An amusing example comes from the satire published in

²⁵ Kai F. Hünemörder, *Die Frühgeschichte der globalen Umweltkrise*, 155.

Württembergischen Zeitung, which lampooned the apprehension towards Europeanization, as well as the general miscomprehension of the capabilities of a proton accelerator. The author, tongue-fully-in-cheek, asserted that Germans could not grasp how an accelerator operated, why anyone would want to accelerate particles, nor to what destination the protons would be propelled. As evidence, the author cited his mother, who was convinced that the proton accelerator was some sort of gigantic pastry oven, which 13 countries collaborated to construct. At the same time, the author satirically asked the question, why accelerate the particles? The answer: well because the Americans and Russians did it, of course. Once upon a time, televisions were quite exclusive. He joked that in the future, everyone will own a proton accelerator allowing them to accelerate particles in their own home. Quite another problem for Germans—resulting in the general Bavarian distrust of the international community—was their fear of English speakers attempting to enunciate the German word for proton accelerator (*Teilchenbeschleuniger*). To solve this problem, he suggested the Germans use the Greek form, *Protonen Synchrotronen*, which would be easier for English speakers to pronounce. It would also ensure the Germans would never write compound words like: *Teilchenbeschleunigerschnellverkehrsscheinenomnibus* (loosely translated as a transportation ticket for the route to the particle accelerator).²⁶

Regardless of its reception, the affair over Ebersberg Forest marked a transition in the attitudes towards large scale nuclear projects. While the debate witnessed the continuation of skepticism by traditional associations, like the Bavarian Party, the hunters, and the farmers, over themes similar to those in the nineteen-fifties, like *Heimat*

²⁶BayHSA: StK,14008, Letter from Erich Greiner to Alfons Goppel, Jan. 25, 1965, article from *Württembergischen Zeitung* “Teilchenbeschleuniger—Blödsinn” Jan. 25, 1965.

preservation, Cold War anxiety, and Bavarian culture, the pressures of urban expansion generated new definitions of nature and landscape. In particular, the forest was defined as a place for anthropocentric benefit, not to be preserved from technocracy for the sake of nature or Heimat, but rather, for the purpose of leisure time consumption, protection of the city, and filtration of the atmosphere and hydrosphere. In this way, middle-class urban dwellers were given a stake in the preservation of a forest, reflected not only in their letters, but also in the increased attention by the FDP and SPD. These new conditions presented additional difficulties for landscape planners, who increasingly also lobbied in the name of the biological fields and on behalf of outdoor activities. When searching for a site for a huge project, particularly a nuclear facility, landscape administrators saw available prospects quickly disappearing under the commercial needs of the growing population. The solution seemed obvious, though. Typical of other officials in the sixties, SPD representative Gabert suggested that more intensive land planning, with a larger nature preservation bureaucracy that was filled with specialists, was the only solution to avoid further confrontations among all of the competing landscape interests.²⁷

²⁷ *Stenographische Berichte der Verhandlungen des Bayerische Landtags*, 5 Wahlperiode, 67 Sitzung, Feb. 3, 1965, 2455-2458.

Chapter 4: Landscape Planning, Nuclear Power, and National Protest in the Age of the Oil Crisis

If the nineteen-sixties witnessed the transformation of Bavarian life, as Bavaria constructed a modern high-tech industrial society based upon petroleum and natural gas consumption, the economic downturn of the nineteen-seventies represented a major challenge to the state. Even before the OPEC induced oil crisis of 1973, the Bavarian government and electrical utilities were aware of diminishing fossil fuel reserves and planned to overhaul the energy production system, switching to nuclear power until new technology in the far future could provide alternatives. This ambitious plan, designed largely in the late nineteen-sixties, featured numerous nuclear plants on the Main and Danube River Systems. Naturally, the Oil Crisis gave further impetus to this comprehensive reallocation of energy production. In many ways, the reaction towards the rash buildup of nuclear power in Bavaria during the seventies was an outgrowth of trends apparent since the early nineteen-fifties. Since that time, large-scale power production had increasingly come under regional scrutiny as it competed for landscape and resources with agriculture, outdoor recreation, housing, industry, and nature preservation. Once nuclear power was first realized on a massive scale, the nineteen-seventies appeared to be the breaking point when Bavaria lacked sufficient room for further expansion, without over-burdening the hydrosphere, atmosphere, or biosphere. This required the Bavarian Government to devise a comprehensive landscape program, which accounted for the broad spatial and hydrologic requirements of the nuclear plants.

While location disputes over nuclear power were certainly not new to this decade, the Bavarian Government's implementation of the nuclear program was increasingly faced with a very different political climate. Following the Oil Crisis, a broad West German-wide debate over nuclear power and an anti-nuclear campaign developed, featuring new signature political action groups—the youth, the citizens' initiatives, and the clergy. Following the exemplary confrontations outside of Bavaria at nuclear plants in Wyhl and Brokdorf, localized concerns of the nineteen-fifties and nineteen-sixties, which had remained largely confined to Bavaria, took on broader resonance within the Federal Republic. After 1976, this movement sought a universal criticism of nuclear power, and found it in the debate over plutonium production and reprocessing. This chapter will first explore the construction of the Bavarian nuclear program through the early seventies, then will examine the German-wide challenge that it faced.

4.1 Landscape Planning and Nuclear Power

The Bavarian nuclear power program developed within state landscape planning in the late nineteen-sixties and into the nineteen-seventies. In many ways, landscape planning continued to deal with many of the signature ecological problems already discussed in the fifties and sixties—hydrologic systems, agriculture, and recreation for instance—but at a more intensified level, as Bavarians felt increasingly cramped within their densely populated region. Particularly, plans had to take into account government reports that recognized the diminishing quality of the Main and Danube watersheds. The sheer scale of a viable nuclear plant presented numerous difficulties for planners,

problems they hoped to overcome with even grander technocratic solutions. These ambitious plans predated the Oil Crisis, although certainly the artificial fuel bottleneck gave new meaning to the program.

The age of nuclear power in the Federal Republic began around 1970. In the Federal Republic, construction on large scale plants was limited to a 670 megawatt light-water reactor (LWR) at Würgassen and a 662 megawatt LWR at Stade, began in 1967. The two reactors went critical in 1971 and 1972, respectively. Construction began on the high temperature reactor at Hamm-Üntrop in 1972 and the experimental fast breeder at Kalkar in 1973. In 1973, the first 1200 megawatt light water reactor was commissioned at Biblis (A). Chairman of Bayernwerk, Theodor Schmeller, declared in 1969 that Bavaria should soon follow course, by constructing at least four new reactors, on top of those already in planning, operation, or under construction (Kahl, Gundremmingen, Niederaichbach). He reasoned that Bavaria currently consumed 4300 megawatts of electricity at peak consumption; this was an impressive doubling in the last ten years. Assuming an incremental rate of increase, Bayernwerk would need to construct 3700 MW to keep up with consumption, and Schmeller assured that 2800 MW of that amount should be produced by nuclear energy.¹

Because this view of energy fit well with the Bavarian Government's outlook that "energy and economy had been bound together in Bavaria since World War II,"² it adopted a similar policy between 1969 and 1971. While quite proud of the economic

¹ Manfred Pohl, *Das Bayernwerk, 1921-1996* (Munich: R. Piper GmbH, 1996), 388-389.

² Staatsministerium für Landesentwicklung und Umweltfragen, *Raumordnungsbericht 1971* (Augsburg: Schroff-Druck Papierverarbeitung und Verlagsgesellschaft m.b.H., 1971), opening page on section on energy (exact page misplaced).

progress of the past twenty years, the government was aware that certain regions, particularly along the Eastern and Southern borders in the Alps, remained relatively depressed. April 22, 1969 Bavaria released its so-called Bavarian Program I, designed to develop these particular border regions. This was followed by the Bavarian Program II, July 29, 1970, to promote further industrialization in the wealthier urban districts, and then the Program for Leisure and Recreation on April 28, 1970. As the names of the programs imply, the key points were energy, transportation, tourism, and recreation. In the field of energy, nuclear power, oil refineries, and high tension power lines were given priority. In order to improve transportation, an integrated system that included the Rhine-Main-Danube Canal, autobahn expansion, and Munich Airport II would be emphasized. Recreation and Tourism probably received more attention in this time period than any field beside energy, particularly in the Alps, and perhaps more than they had ever garnered. In this field, the government planned nature parks in Upper Franconia, the first so-called National Park in the Bavarian Forest, ski lifts in Swabia, and a large recreation zone in the Upper Palatinate. Still, key to all of this expansion was energy production.³

While the public considered the ‘rash’ development of nuclear energy a kneejerk reaction to the oil crisis, it was simply not the case. When the Federal Government’s Atomic Program III was announced in 1968, it recommended an increase of nuclear capacity to 25- 30,000 megawatts by 1980, or about 40% of all electrical production.⁴ In the 1971 Bavarian *Land Planning Report*, the German Institute for Economic Research suggested the construction of 6800 MW on Bavarian soil by 1985, increasing nuclear power from 4.5% to about 50% of the entire energy grid, or 5-7 nuclear plants of 900-

³ Staatsministerium für Landesentwicklung und Umweltfragen, *Raumordnungsbericht 1971* (Augsburg: Schöff-Druck Papierverarbeitung und Verlagsgesellschaft m.b.H., 1971), introduction.

⁴ *Stenographischer Bericht des Bayerische Landtags*, 7. Wahlperiode, 73 Sitzung, Oct. 24, 1973.

1300 MW each.⁵ On September 26, 1973, the Federal government extended its projections, announcing its Atomic Program IV, which it had been developing for at least a year, to further expand to 40-50,000 megawatts of nuclear electricity, or about 40% of expected electrical output. Because the announcement came out a scant weeks before the beginning of the oil crisis in October, the public conflated the two. When Jaumann announced on October 18, 1973 that six more nuclear plants had to be constructed by 1985, naturally the public assumed this was an overreaction to the crisis.⁶ Speaking again, the day before the oil price shock, Jaumann explained that while rising prices in oil would bring significant increases in energy production—a doubling of the cost of a barrel of oil directly leads to a doubling of the cost of energy production—increased costs in uranium did not significantly raise production costs. Furthermore, he reiterated that Uranium was mined in stable and friendly nations.⁷

Based on previous experience, the Federal government was also already aware that finding suitable sites for nuclear plants would be difficult, and would require cooperation between the states. In a report from 1971, the Federal government declared that the population, the wind direction, availability of water, and environment, as well as military, airport, and other hypersecure facilities, would all be taken into account when choosing locations. Ironically, the report argued that nuclear plants had a spatial advantage, because they did not require frequent transportation of resources—such as

⁵ Staatsministerium für Landesentwicklung und Umweltfragen, *Raumordnungsbericht 1971* (Augsburg: Schroff-Druck Papierverarbeitung und Verlagsgesellschaft m.b.H., 1971).

⁶ Bavaria, Landestag. *Verhandlungen des bayerischen Landtags. Stenographische Berichte. 7. Wahlperiode, 73 Sitzung, Oct. 24, 1973.*

⁷ NL Jaumann 163, Rede des MWi. Anton Jaumann anlaessig des Richtfestes fuer das Kernkraftwerk Isar (KKI) in Ohu (Lkr. Landeshut) am 15.10.73.

fossil fuels—and could be constructed in the vicinity of the consumer. This benefit would cheapen electrical transportation costs (since less would be lost in the grid), and encourage further residential and industrial settlement near the nuclear plant, by attracting labor.⁸ In retrospect, one of the ultimate misconceptions of specialists of the sixties—who had already apparently forgotten some of the lessons of the fifties—was the assumption that people would readily reside in the vicinity of a reactor.

While nuclear plant design was developed independently from the requirements of the specific location, landscape planning was intended to incorporate the power plants into the landscape, placing it among a host of other interests. In addition to the hydrological, metrological, and recreational needs already discussed in previous chapters, additional measures had to be taken in order to continue production on an already burdened landscape. With the onset of the Social-Liberal government under Willy Brandt in 1969, the Federal Republic began with a flurry of state environmental protection measures. In that year, the Environmental Protection Department (a term adopted directly from the Americans) was established within the Ministry of the Interior. Since the coinage ‘environmental protection’ (*Umweltschutz*) had little resonance in German parlance, where most preferred the phrase ‘landscape cultivation’ (*Landschaftspflege*), the government had to establish a linguistic association. Of chief initial concern were smog, noise pollution, and the watershed.⁹ The Immediate Program for Environmental Protection of 1970 and the Environmental Program of the Federal Government in 1971 set aside approximately 240 million DM in 1971—up from 117

⁸ BayHSA: StK 14666, Zustimmungende Kenntnisnahme der Ministerkonferenz für Raumordnung von der Stellungnahme des Hauptausschusses der Ministerkonferenz für Raumordnung zur Standortbestimmung von Kernkraftwerken, June 16, 1971.

⁹ Kai Hünemörder, *Die Frühgeschichte der globalen Umweltkrise*, 155.

million in 1969—towards programs and research to improve air and water quality.¹⁰

Likewise, the Bavarian government established its Ministry for Land Development and Environmental Affairs in 1970, designed to integrate land planning and environmental regulation. The first environmental minister in Bavaria was Christian Social Unionist, Max Streibl.

Quite quickly the environmental ministry had to define its priorities. One of the challenges to nuclear power had come from American ecological literature. Of course, Rachel Carson's work, *Silent Spring*, an indictment of the use of agricultural chemicals like DDT, had already found resonance within Bavarian nature preservation circles. In the field of nuclear power, the findings of Mary Weik's *Story Nobody Prints* and a separate work, *Progress for Everyone*, based upon her study, made its way onto the floor of the Bavarian Landtag in 1971. In Weik's 1962 research, she discovered that death, leukemia, still births, and birth defects occurred at higher rates than the national average in regions near American reactors. These findings were significant to Bavaria, as scientists since Maier-Leibnitz had assured that reactors emitted no dangerous radiation under normal operating conditions. Having become aware of these findings, SPD member Kahler inquired whether Bavaria would undertake a similar study near its reactors. A few weeks later, Streibl came before the Landtag to reply. After receiving the initial inquiry, Streibl approached Professor Wachsmann of the Society for Radiation and Environmental Research Munich on this very topic; Wachsmann found Weik's research faulty on several accounts. Chiefly, he criticized her unscientific procedure, as she chose to research nuclear power plants that were particularly favorable to her desired

¹⁰ Kai Hünemörder, *Die Frühgeschichte der globalen Umweltkrise*, 192.

outcome, while ignoring others with fewer cases of illness. Furthermore, she only gathered one year's work of data, not nearly enough time to provide a statistically significant sample. Based on Wachsmann's recommendations, Streibl chose not to form a Bavarian research commission.¹¹

As the Bavarian Programs demonstrate, tourism and recreation were prioritized under the new ministry. In 1970, Bavaria opened its first so-called national park in the Bavarian Forest along the Eastern Alpine border, modeled on the American idea. The park would serve three purposes: research, nature preservation, and recreation and tourism. To do so, zoologists collected numerous animal specimens, and habituated them in the park. Later that decade, Berchtesgaden, a gorgeous Alpine region in the southeast corner of Bavaria well-known also for Hitler's Eagle Nest, became the second national park. Bavaria was also the German leader in constructing nature parks, with 10 in 1970, and several more to come. As in much of the sixties, information on these parks emphasized the ease in which urbanites could seek recreation, with the convenient 700 parking spots designated for this purpose, 8000 kilometers of hiking trails, and numerous sports fields throughout Bavaria. Plans also called for making city-ring forests more accessible to the public, or even afforesting further into a city's center, to expand urban recreation.¹² When large projects, such as the Munich Airport II, threatened recreation

¹¹ Bayerische Landtag, *Drucksacke* 7/818, 7. Wahlperiod, May 20, 1971.

¹² BayHSA: ND/P 1167, Hans Eisenmann, "Erholung im Staatsforst Bayerns," in *Blätter für Naturschutz*, 2 (April 15), 1970, 14-15; a good source on the Bavarian Parks is: Sandra Chaney, *Nature in the Miracle Years*, 213-236.

regions, like the Erding Moor, the Natural Preservation League would object strongly to it.¹³

Outdoor recreation received such priority because the Bavarian Environmental Ministry initially functioned under the same premises of landscape planning that had been developed in the sixties. The ministry was less concerned with sustaining the ecology than with coordinating the various institutions competing for the landscape, while providing a place for natural and landscape preservation. As Streibl described it, the goal of the State Development Program was to establish the “overall purpose for optimal use of a single subspace” within a regionally comprehensive economic and environmental plan.¹⁴ Since the largest impetus for green spatial use in the sixties had been recreation and tourism, it left little doubt that the ministry should privilege this interest. In 1973, Streibl projected a further increase of leisure time for 1985, up an additional 25% on holidays, 45% on weekends, and 60% on vacations. Whereas in 1970, adults averaged about the equivalent amount of work and leisure time, he forecasted that by 2000 the average adult would enjoy over three times as many hours of leisure compared to employment.¹⁵

Tourism though, was increasingly gripped in a sustainability dilemma. In Bavaria, tourism relied heavily on scenic landscape, especially in the Alpine region, as well as in the lakes south of Munich. While the now extensive tourist industry

¹³ IfZ-Archive: ED 120 Hoeger 35, Forstwirt H Weinzierl chair of Bund Naturschutz in Bavaria to Alfons Goppel, March 3, 1971.

¹⁴ BayHSA: Abteilung V NL Streibel, XIII.6.1-XIII.6.9. *Rede des Herrn Staatsministers anlässlich der Jahresmitgliederversammlung des Fremdenverkehrsverbandes Nordbayern am 1.7.1973*, p.10.

¹⁵ BayHSA: Abteilung V NL Streibel, XIII.6.1-XIII.6.9. *Rede des Herrn Staatsministers anlässlich der Jahresmitgliederversammlung des Fremdenverkehrsverbandes Nordbayern am 17.5.1973*, p. 1-2.

encouraged visitors and expanded its services to hotels, restaurants, ski lifts, and the like, it threatened to collapse upon itself. For if the increasing numbers continued to file in, they threatened to destroy the very aesthetic they had intended to witness. Streibl complained that weekend excursions—now up to 30 – 40% of residents of large cities drove outside of the city—brought noise, emissions, left trash, and encouraged the construction of hotels. Motor boats also threatened the lakes. Realizing that recreation, relaxation, and tourism were vital to the Bavarian economy, he prescribed not environmental measures to overcome this concern, but rather, more extensive spatial planning.¹⁶ As had been the case in Eberberg Forest, these recreational and tourist attractions also presented enormous difficulties for planning the nuclear landscape, as officials would have to consider public reception of technology that displaced these popular parks.

While there were many definitions of the phrase environmental protection, the West German branch of the World League to Protect Life met on July 12, 1971, and defined environmental protection—in the field of radiation—as the professional consultation from the biological and medical fields. In a letter to the Chancellor, the League argued that nuclear plant permits were implemented during the fifties, when only physicists were consulted, and needed to be updated, to represent new findings from American biologists on the effects of radiation. Until the process of updating security was completed, so that it reflected the current biological research, the League called for a temporary suspension of construction of nuclear reactors. Particularly, biologists had discovered that the tolerance dosage of the fifties—which was debated even then—was

¹⁶ BayHSA: Abteilung V NL Streibel, XIII.6.1-XIII.6.9. *Rede des Herrn Staatsministers anlässlich der Jahresmitgliederversammlung des Fremdenverkehrsverbandes Nordbayern am 17.5.1973*, p 3-9.

much too high.¹⁷ Citing a report from Dr. John Gofmann of the University of California, the tolerance dose was a factor of 10 times too extreme.¹⁸ As the representative of the Bavarian chapter of the World League, Walter Schweiger also argued that there was no distinction between military and civilian nuclear power, because civilian plutonium was used in warhead production.¹⁹ What was at stake in these debates was the type of expert that would be conferred within the landscape and permit allocation processes. In the fifties, nuclear physicists like Heisenberg and Maier-Leibnitz overwhelmingly presided on the Atomic Commission. But the public perception of the relative importance of biological sciences was growing. Naturally, these botanists, foresters, zoologists, and physiologists had differing expertise and priorities. When the public began to question the experts' ability, it was most often not about replacing specialists with laymen (although often they did disregard professional findings, if they did not fit conveniently with political ideology); rather, it was a debate about which consultant to trust, because they were often in contention—especially when they were trained in different fields.

Within this framework of landscape planning, but developing increasingly towards more holistic views of ecology, German specialists were becoming concerned with industrial and transportation emissions.²⁰ At this time, the most relevant concern was sulfur dioxide (SO²), but even in 1971, some specialists were already studying the effects

¹⁷ BayHSA: StK 14666, Vizepräsident Leiter des Arbeitskreises Atomgefahren Bruker, Weltbund zum Schutzes des Lebens, Sektion Bundesrepublik, July 20, 1971.

¹⁸ BayHSA: StK 14666, Walter Schweiger of Weltbund zum Schutze des Lebens, Wichtige Kurzinformationen vom Atomaren Sektor, Feb. 24, 1977.

¹⁹ BayHSA: StK 14666, Walter Schweiger of Weltbund zum Schutze des Lebens, Vorschlag für den Presse-Informationsdienst vom Weltbund zum Schutze des Lebens, Landverband Bayern, Aug. 1971.

²⁰ Wilfried Goerke, "Immissionswirkungen auf die belebte Umwelt," Gerhard Olschowy, "Bilanz der Luftverunreinigung," Gerhard Rönicke, "Messung der Luftverunreinigung im Rahmen eines Netzes von Backgroundstationen," and Gerhard Olschowy, "Auswirkung der Luftverunreinigung auf den Menschen," in *Belastete Landschaft—Gefährdete Umwelt*, Gerhard Olschowy ed., Part of the *Das Wissenschaftliche Taschenbuch* series, (München: Wilhelm Goldmann Verlag, 1971), 98-127.

of carbon dioxide (CO²). Gerhard Rönicke, the head of the aerosol measurement station in Freiburg, noted that when CO² was emitted, 36% of it was accepted into the biosphere, through assimilation process, 14% was saved in the ocean, and 50% remained in the atmosphere. In 1971, Rönicke estimated that the levels of CO² had risen about 16% in the twentieth century. Between 1950 and 1963, the amount of CO² production had risen from 700 billion tons to 1100 billion tons. At this rate, he remarked that by 2000 there would be a 25% increase—enough to raise the mean global temperature.²¹ There is little evidence from 1971, though, to suggest that androgenic (fossil fuel) global warming was used by contemporaries to promote nuclear power.

Of much greater concern in 1971, was sulfur dioxide. From the burning of fossil fuels, SO² is released, and it, when dispersed in the atmosphere, leaves colloidal particles. Emissions were most concentrated in metropolises, where they mixed with dust particles and nitrogen oxide (NO²) to form smog. In the Rhine-Ruhr region, facilities had been built to lower the amount of industrial dust (*Entstaubungsanlagen*). According to Gerhard Olschowy, these and other measures had some effect in lowering atmospheric sulfur, as those facilities tested had been 6% over the allowable amount of SO² released in 1963, but lowered to 1% in 1968.²² The concern over SO² gave additional impetus to develop nuclear technology, which did not emit sulfur.

Experts were naturally concerned with the consequences of pollution for humans, plants, animals and the earth. Atmospheric dust and oxides could contribute to various animal and human sicknesses and maladies, even death. Olschowy pointed to a study from the Deutschen-Angestellten-Krassenkasse from 1961-1966, in which posture

²¹ Gerhard Rönicke, "Messung der Luftverunreinigung," 109-115.

²² Gerhard Olschowy, "Bilanz der Luftverunreinigung," 101.

anomalies increased from 4.8 to 17% by young men and 3,5 to 14.1 % for young women. While no direct link could be ascertained, Olschowy thought that there was a correlation with increased environmental pollution. More compelling was the connection between air pollution and rising incidents of lung cancer and chronic bronchitis.²³ For plants, the most notable consequence of sulfuric air pollution was forest death, one of the most lasting images of the nineteen-eighties. Olschowy estimated that 50,000 hectares of forests in the Federal Republic had been damaged in 1971 by emissions. Dust clouds (*Dunstglocken*), which are common near cities with high traffic, also block necessary sunlight for plants.²⁴ This appeal for Federal regulation of emissions was answered only a few years later, under the Federal Emission Prevention Law of 1974.²⁵

Of noted significance is that Olschowy believed that the move towards nuclear power would undoubtedly have a positive affect towards air quality. However, this came at a price. Here, above all, he meant the “burdening of the river system through warming of cooling water.”²⁶ Likewise, Jaumann, in a speech in front of the Isar I reactor, argued that the nuclear plant had less affect on the environment than other forms of energy production. It did not require fossil fuels, and did “not emit harmful burning products, like smoke, soot, carbon monoxide, sulfur dioxide, or similar dangerous chemicals.”²⁷ Thus, the Bavarian Government was developing the nuclear power network in part to improve existing air quality issues, such as those produced at the refinery center in Ingolstadt.

²³ Gerhard Olschowy, “Auswirkung der Luftrverunreinigung,” 127-128.

²⁴ Gerhard Olschowy, “Bilanz der Luftverunreinigung,” 105.

²⁵ Monika Bergmeier, *Umweltgeschichte der Boomjahre*, 79.

²⁶ Gerhard Olschowy, “Bilanz der Luftverunreinigung,” 105.

²⁷ NL Jaumann 163, Rede des MWi. Anton Jaumann anlaessig des Richtfestes fuer das Kernkraftwerk Isar (KKI) in Ohu (Lkr. Landhut) am 15.10.73.

Under such thinking the Natural Protection League preferred nuclear power in 1972 to fossil fuels, if certain guidelines were clearly established. Its chair, Hubert Weinzierl, whom Jens Ivo Engels and Sandra Chaney credit with reorienting the association by offering a more dynamic ecological framework,²⁸ explained that the league was not fundamentally opposed to nuclear power, but did support protest against its construction on specific locations. He also was concerned with current reactors, because the tolerance dosage was under debate, the long-term effects of radiation exposure were unknown, the cumulative effects of emissions from nearby chemical industries would confound the problem, the possibility of ultimate catastrophe was not ruled out, and the watershed was dangerously close to being overheated. Weinzierl demanded the reduction of planned nuclear plants, by instead improving energy efficiency. He furthermore requested enhanced retrofitted security, through external control systems, more precise filtering—to 1% of natural radiation levels—and use of what he called ‘bio indicators’ during inspection. Finally, he demanded that choice of location take into account landscape needs, water budgets, meteorological relationships, and residential patterns.²⁹

As was already becoming the case with at Gundremmingen and Kahl, the primary landscape concern raised about reactors was no longer radiation, but water consumption. Hans-Werner Koenig, business chair of the Ruhr League and the Ruhr Basin Barrier Association in Essen, wrote a lengthy paper in the *Wissenschaftliche Taschenbuch* series, a collection of specialist’ articles designed for laymen, on the effects of power plants on

²⁸ Jen Ivo Engels, *Naturpolitik in der Bundesrepublik*, 295; Sandra Chaney, *Nature in the Miracle Years*, 145.

²⁹ BayHSA: StK 14666, Bund Naturschutz in Bayern, *Wie gefährlich sind Atomkraftwerke?* Aug. 1972.

water temperature.³⁰ He argued that at that point, little attention had been paid to the effects of water heating, because sullied waters were more visible, but with the planned construction power plants in excess of 1100 MW, the time had come to visit the topic. Writing in 1971, he based his analysis on the standard that every 10 years the Federal Republic doubled energy consumption, and by 1980 about 40 percent of electricity would have to come from nuclear power. The most economically viable means of cooling the system was a direct water source, making a nuclear power site dependent on water availability.

A 300 megawatt nuclear plant required approximately 10-13 cubic meters per second of cooling water, which would raise water temperature about 8 degrees Celsius. A conventional fossil fuel plant would release approximately 53% of its thermal energy into the cooling water—a nuclear plant about 63%. At this ratio, a nuclear plant must generate 2460 kilo-calories of heat to produce one kilowatt hour (or 860 kilo-calories) of electricity, and release 1500 kilo-calories into the cooling water (or about 1.75 times the amount of electricity). Based upon this relationship, Koenig suggested that a 1000 megawatt reactor would require 200 cubic meters per second of water flow, to prohibit water temperatures from rising more than 2.5 degrees Celsius in temperature.³¹

Based on a number of American studies, Koenig concluded that overheating of water produced a number of inherent negative consequences. First, the increased temperature resulted in decreasing the concentration of dissolved oxygen in the water. At the same time, oxygen would be slower to collect in the water from the atmosphere at

³⁰ Koenig Hans-Werner, "Thermische Belastung der Fließgewässer," in *Belastete Landschaft—Gefährdete Umwelt*, Gerhard Olschowy, ed. Part of the *Das Wissenschaftliche Taschenbuch* series, (München: Wilhelm Goldmann Verlag, 1971) 51-64.

³¹ Hans-Werner Koenig, "Thermische Belastung der Fließgewässer," 51-64.

higher temperatures. Additionally, the carbon dioxide assimilation of plants increases, raising the oxygen production of plants, but not at the rate of the increase of oxygen consumption. This all leads to an oxygen deficit. Koenig continued, pointing out broader consequences; these natural chemical and biological processes were delicate, and if tampered with, would transform the Biozone. Over a long course of time, the Biozone would compensate, but not at such a quick rate. Most plants and animals require fairly specific temperature environments. Perhaps, for example, the insects of the area are affected, with the local change of climate. The artificial temperature of the river does not correspond to the cooler air, and the insect could become extinct. Fish, which often depend on seasonal change in water temperature, no longer having that natural regulation, perhaps do not lay eggs properly, or cannot find their normal vegetation.³²

There would be other problems for humans as well. Corrosion would increase with higher temperatures at a rate that would double every 10 degrees Celsius. Furthermore, shipping would be hindered by increased fog. Drinking water is considered optimum between 7 and 12 degrees Celsius, and potable to 15 degrees. According to the author, above 15 degrees, “its taste fades and it loses its ability to refresh and cool.”³³ Koenig argued, though, that rising water temperatures can have two positive anthropocentric effects. First, shipping would gain a boost, because of longer seasonal shipping, due to thawing in winter. Second, water heated to 25 degrees Celsius is ideal for the purpose of irrigation in agriculture.

The Bavarian Environmental Ministry was already aware of these dangers to the Bavarian watershed by 1973 and proposed numerous technocratic solutions. Its *Land*

³² Hans-Werner Koenig, “Thermische Belastung der Fließgewässer,” 51-64.

³³ Hans-Werner Koenig, “Thermische Belastung der Fließgewässer,” 59.

Planning Report 1971, which had the goal to improve the Bavarian watershed in order to “protect the interests of those that made use of nature,”³⁴ focused on the Main and Isar River systems. The report suggested constructing water treatment plants in metropolises to improve drinking water quality, near heavy industrial regions to clean seriously polluted rivers, and in the vicinity of lakes to encourage public recreation.³⁵ The 1973 report was more comprehensive, providing a detailed, color-coded watershed report. Sections of the major rivers were categorized into five subgroups based progressively on deteriorating conditions. Level one was thus “unburdened;” designation three was “critically burdened;” and category five was “excessively polluted;” Some of the rivers in the most deplorable conditions—category three or worse—included the Inns downstream from Rosenheim, the Isar near Munich, the Danube near Regensburg, the Main past Aschaffenburg, and perhaps the absolute most polluted, the Regnitz near Nuremberg.³⁶ As a part of its conceptualization, the report anticipated the integration of nuclear power production within the Main-Danube watershed capacity, which would improve attempts to find suitable construction sites.³⁷ The scale of the water report inspired immense water diversion and canalization projects, designed to improve energy production capacity, all the while providing a sustainable water supply. With time, it was hoped that the entire Bavarian watershed could be returned to, at worst, Level II.

Namely, water levels of the river systems would soon be modified by the massive European technocratic canalization project, the Rhine-Main-Danube Canal (RMD), anticipated for completion within the Federal Republic in 1981. The Canal had a

³⁴ Monika Bergmeier, *Umweltgeschichte der Boomjahre*, 55.

³⁵ Monika Bergmeier, *Umweltgeschichte der Boomjahre*, 55.

³⁶ *Raumordnungsbericht der Bayerischen Staatsregierung 1973*, 205, found in Monika Bermeier, *Umweltgeschichte der Boomjahre*, 297.

³⁷ Monika Bermeier, *Umweltgeschichte der Boomjahre*, 57.

two-fold purpose: allow for navigable transportation from the Black to the North Sea via Central Europe and to improve the water quality of all three rivers. Off highest priority was enhancing the hydraulic system of the Rhine River. In 1975, the Lower Rhine River was designated at Class III “strongly polluted” or Class IV “excessively polluted,” exceeding the acceptable limits in heavy metals (zinc, mercury, and arsenic), nitrogen fertilizers, and heavy chemicals. Over one hundred years of pollution from the Ruhr Industrial belt finally reached critical point in the seventies.³⁸ While not as damaged, the Upper Rhine had recently become an international hub for nuclear reactors, something akin to a “second Ruhr” of nuclear power, all of which required cooling water. The Swiss and French constructed several on the Left Bank, and Germans built the Philippsburg I and II and the Biblis A and B on the Right Bank.³⁹ The Main River too suffered from low water levels, especially the Regnitz tributary from Nuremburg to Bamberg, where the river was classified Class III-IV “very strongly polluted” or Class V “excessively polluted,” and the connection with the Danube would potentially improve that section considerably. The canal would cut a 171 kilometer swath following the Altmühl River from Bamberg to Kelheim on the Danube, widening the Regnitz River through Nuremburg and Bamberg.⁴⁰

The RMD Canal had a long history, dating from even before the 19th century dreams of land reclamation and Inter-Europe river navigation. Originally it was Charlemagne that developed this idea, constructing the *Fossa Carolina*, a short canal connecting the Regnitz tributary, Swabian Rezat, and the Danube tributary, the Altmühl River. In 1846, King Ludwig I finished the more ambitious Ludwig Canal from

³⁸ Mark Cioc, *The Rhine: An Eco-Biography*, 146-149.

³⁹ Mark Cioc, *The Rhine: an Eco-Biography*, 136.

⁴⁰ ACSP: NL Klein 164, *Welt am Sonntag*, April 22/23, 1973.

Bamberg to Kehlheim, but it was too shallow and narrow to support modern shipping. The Rhine-Main-Danube Corporation was founded in 1921 to construct a modern canal and began improving the navigability of the Main from Aschaffenburg to Bamberg, a section completed in 1962. After 1960, construction began from Bamberg to Kelheim, with the segment to Nuremberg navigable first in 1972.⁴¹

It was the stretch from Nuremberg to Kelheim that was most controversial. The canal had to traverse hilly terrain—the highest canal in Europe—and several areas of landscape preservation, particularly the sensitive riparian topography in the Altmühl Valley. This plan would also divert water from the Altmühl River, West of Regensburg. Both ecologists and citizens of Regensburg worried that this threatened the water supply east of the city, which had been categorized as Class III “strongly polluted.”⁴² The Economic Ministry estimated the completed project’s increased water flow would allow the production of 4000 additional electrical megawatts (designated for nuclear power) in Northern Bavaria along the Main River.⁴³

Similarly, the development of the river system for navigation fit well with Bavaria’s (and Europe’s) recent expansion of its transportation network. The Bavarian government foresaw the river as a way to cheaply transport fossil fuels into Northern Bavaria and planned to integrate it with the autobahn, rail, and other systems. It would allow for water integration between North and South Bavaria. Today, one can witness

⁴¹ See the website for the Rhein-Main-Danube Corporation: www.rmd.de, particularly the history section at: <http://www.rmd-wasserstrassen.de/> accessed on October 5, 2008.

⁴² ACSP: NL Klein, 164, Referat VI 2 MWi Lämmle to An Referat M 3, Abteilung VI MWi: Gegendarstellung der Bürgeraktion Umwelt- und Lebenschutz Schweinfurt e.V. *Der Welt am Sonntag*, May 4, 1973.

⁴³ BayHSA: StK 18799, Bayernwerk Aktiengesellschaft, Die Verzögerung der Genehmigung des Kernkraftwerks Grafenrheinfeld bei Schweinfurt gefährdet die Stromversorgung Bayerns, Feb. 2, 1973.

large amounts of international traffic traveling through the completed canal. Canals had an added bonus as they attracted tourists, both because of their aesthetic quality of their perpetually even waters, but also because sight-seeing riverboats could easily travel up and down stream.⁴⁴

While at the time the RMD was considered a technocratic ecological experiment, one that would sustain water levels to halt pollution and save fish species, it had more similarities to river taming of the nineteenth century than to recent environmental policies of the Rhine, designed to “re-nature” the river. Much like measures performed on the Rhine in the nineteenth century, in which engineers straightened the previously meandering river to the point that it was shortened by 160 kilometers, the canal would have a vertical, deep cut river bed, with high walls to prevent flooding and winding. Above all, the designers defined water by its anthropocentric use as an industrial resource, particularly for cooling water.⁴⁵

Aside from water diversion projects, individual nuclear plants were also to be installed with improved thermal discharge systems. Cooling towers were becoming the most popular fix for thermal discharge. By releasing the heat far into the atmosphere, after mixing it with cooled air and condensation, most of the cooling water could be returned to the river at more acceptable temperatures—about ten degrees Celsius. In the future, it was hoped that so-called dry cooling towers would replace the condensation towers. In the early seventies, this process was only technically feasible for power plants of under 200-300 MW—not nearly large enough to be economically viable in nuclear

⁴⁴ Alexander Gall, “‘Gute Straßen bis ins kleinste Dorf!’ Verkehrspolitik und Landesplanung 1945 bis 1976,” in *Bayern im Bund, Band I: Erschließung des Landes 1949 bis 1973*, Thomas Schlemmer and Hans Woller ed. (Munich: R. Oldenbourg Verlag, 2001), 119-124.

⁴⁵ David Blackburn, *The Conquest of Nature*. 110.

power. Even though cooling systems were more expensive and reduced overall electrical output, the environmental ministry placed considerable faith in these towers to reduce substantially cooling water used per megawatt.⁴⁶ These towers had numerous other problems to overcome, further explored in the next chapter. Among other noted effects, including allegedly ruining a picturesque landscape, the towers released considerable moisture into the atmosphere, potentially manipulating the microclimate. Ecologists worried that this artificial humidification could increase local cloudiness, fog, cause storms, or affect plants and agriculture.

Another possible solution was to transfer the unused heat to an urban center, to be circulated in the city's heating grid. Known in Germany as distance heating (*Fernwärme*), the idea was to funnel the wasted steam through a pipe, into a central heating facility, then disperse it to individual buildings. While this idea displayed considerable promise, it also faced substantial difficulties. The system lost heat when sent in the pipes over long distances, and no one wanted to construct a nuclear plant near residents. This problem was enhanced during winter, due naturally to increased cooling in the cold weather, when the heating was most needed. In 1972, Jaumann explained other logistic difficulties of this procedure. First, the water from a conventional power plant operated at a scalding 150 degrees Celsius, and the water would need to be cooled to about 30 degrees. Equally difficult to overcome was the loss of electrical output from diverting steam to public heating—the loss of about half of electrical production. Constructing a second reactor to make up for this deficiency would incur enormous

⁴⁶ BayHSA: StK 18799, Ministerdirigent Wochinger of SM für Landesentwicklung und Umwelt to Horst Danköhler, representative of the Deutschen Angestellten-Gewerkschaft, Landesverband Bayern, 6311 - VI/2b - 9381, April 5, 1974.

costs—Jaumann estimated 3-4 times the price of the entire 1970 Munich central heating system. Finally, Jaumann pointed out the most obvious problem—that the steam would only be used half of the year, with no way to dispose of it during the summer.⁴⁷

Since Gundremmingen, the Bavarian nuclear power industry had demonstrated only very limited progress. Between 1959 and 1964 Siemens Schuckertwerke experimented with a prototype 100 megawatt pressure reactor, using natural Uranium and heavy water moderator. The research led to the Bayernwerk construction of a 230 million DM prototype heavy water nuclear plant on a lake on the Isar River at Niederaichbach, near Landshut, between 1966 and 1971. Authorities hoped to export the new technology to the underdeveloped world. Unfortunately, the reactor never produced more than thirty percent of expected electricity, rendering it entirely unprofitable.⁴⁸ Because of this major setback, the reactor was only critical for about a month, and then out-of-operation for twenty-five years. Later, at the same site, Bayernwerk construct two large reactors, Isar I and II (also known as Ohu I and II). The Bavarian National News Broadcast concluded in a 1974 report on the public reception of Isar I that the Niederaichbach “nuclear cemetery” stood as a monument for those who were skeptical about the viability of newer power plants.⁴⁹ In 1996, the Nuclear Research Center Karlsruhe Corporation concluded decommission of the derelict reactor, returning it to “grassland”.⁵⁰

⁴⁷ Bavarian Landestag, *Drucksache* 1928, Wahlperiode 7, January 25, 1972.

⁴⁸ Manfred Pohl, *Das Bayernwerk*, 381-382.

⁴⁹ BR FS Archiv 331150/ 19317, Paul Mautner, “Der Koloß von Ohu: Wie ein Kernkraftwerk die Landschaft verändert”, aired Oct. 19, 1974.

⁵⁰ Manfred Pohl, *Das Bayernwerk*, 382.

Given the water report and the desire to supply energy to the depressed regions of Bavaria, Jaumann hoped to construct 4-5 reactors in five different regions of Bavaria. Landtag members of the FDP, Otto Bezold and Franz Penzel underscored Jaumann's point, when they argued that Bavaria had a decentralized energy grid, with numerous regional electricity utilities. While Bayernwerk was a state-wide utility, it joined in partnership with smaller, regional utilities. A couple of examples were the Munich-based Isar-Amper Utility in the South, and the Large Power Plant Franconia Corporation near Nuremberg in the North. Because of this framework, the two FDP members strongly urged that each of the seven districts construct its own nuclear plant, to encourage regional energy security.⁵¹ Jaumann considered nuclear power ideal for this endeavor, because he claimed it was theoretically "independent from the location." In particular, he meant that coal and petroleum power plants had to remain near the fossil fuel source, to limit transportation costs. For oil, this required plants to be in the vicinity of the refining center at Ingolstadt. Nuclear power allowed for infrequent transport of fissionable, so reactors could easily be spread throughout Bavaria. Jaumann recognized the one flaw in this design—that nuclear power required copious amounts of cooling water—but planned for the future, when cooling towers limited water usage, and eventually, so-called dry towers would remove water from the equation altogether.⁵² His plan was to build five to six reactors within the decade, so that by 1980, half of energy derived from nuclear power.⁵³

⁵¹ BayHSA: StK 18779, Landtagsdienst, Auszug Bayerische Landtagsdienst, Berichte und Informationen aus dem Parlament, October 19, 1973.

⁵² ACSP: NL Klein 164, Referat VI 2 MWi Lämmle to Referat M 3, Abteilung VI MWi: Gegendarstellung der Bürgeraktion Umwelt- und Lebenschutz Schweinfurt e.V. der Welt am Sonntag, May 4, 1973.

⁵³ ACSP: NL Klein 164, *Welt am Sonntag*, "Donauwasser für den Main," April 22/23, 1973.

When considering the locations for viable for nuclear plants, the water report presented some difficulties. The ministry went forward by constructing on previous sites, so that Schwabian (East Bavaria) production would be expanded with a reactor built at Gundremmingen on the Danube; in the South Bavaria, two nuclear plants were planned at Niederaichbach on the Isar River. However, the North Franconian option, Großwelzheim, site of the Kahl reactor, was removed from consideration, because this section of the Main River was categorized as Class III-IV, very strongly polluted.⁵⁴ Instead, Grafenrheinfeld, on the Main near Schweifurt, became the only viable choice for a reactor on the Main River—further explored in Chapter 5.

By the 1973, the Bavarian Economic and Environmental ministries seemed well poised for the Oil Crisis with an integrated land planning scheme. Not only had the ministries anticipated the fossil fuel crunch, but they diligently worked to supply their nuclear plants with necessary cooling water, through a massive water diversion undertaking. In spite of this planning, large scale nuclear production was still forecasted for after 1977. Thus, when the Oil Shock hit and the public perception of energy production was altered, the government appeared caught completely by surprise (and because it hit before scheduled plans had come to fruition, this was the case).

⁵⁴ Bergmeier, *Umweltgeschichte der Boomjahre*, 297, original source: *Raumordnungsbericht der Bayerischen Staatsregierung 1973*, 205.

4.2 The New Opposition

After 1973, the nuclear program increasingly faced a new coordinated West German-wide nuclear opposition. This challenge grew out of a number of conditions, but particularly came from the climate produced after the Oil Crisis. It featured three new politically active groups that collectively became known as the New Left—the youth, the citizens' initiatives, and the clergy. Whereas skepticism towards the nuclear program remained largely a regional concern before 1974, focusing on specific locational disputes between interest groups over particular landuse, this broader alliance began to make universal criticisms against nuclear power and use radical tactics. This new campaign reinforced the existing fears about nuclear power put forward by the conservation associations, although the two different perspectives did not always smoothly cooperate.

Even before the Oil Shock, the public was debating the merits of the seemingly unlimited economic growth of the previous decade, after the 1972 Club of Rome publication, *The Limits of Growth*.⁵⁵ Performed by a computer-based lab team at MIT, led by Dennis Meadows, the report claimed that given the rates of economic growth in the last decade, with the projected increase in population, the limits of resources would be reached in the next century, leading to a likely economic and societal collapse. Put differently, it questioned the idea of exponential or infinite growth within a finite system of resources. Even though a number of economists were critical about the foundations of the report, a great number of German journalists and the population accepted its basic Malthusian premises, and began to debate the sustainability of immediate economic growth (*Wachstum*). As the foreword to 1973 State Planning Report by Max Streibl and

⁵⁵ Donella Meadows et al. *The Limits of Growth* (New York: Universe Books, 1972); for analysis on the impact in Germany, see: Kai Hünemörder, *Die Frühgeschichte der globalen Umweltkrise*, 222-227.

Environmental Ministerial Secretary, Alfred Dick, (published just after the onset of the oil crisis) put it, “The complex problem of the limits of growth and consumption has abruptly registered in our consciousness.” Because of this, the report continued, the environmental ministry had to rethink its positions on energy, environment, and industry.⁵⁶

On the one hand, as the new Minister of Economics, Anton Jaumann, expressed in a 1973 speech, proponents of increased energy production viewed the “expansion of production of goods and services, that further improve our living standards and living requirements and that characterize our modern civilization, unthinkable without the increased employment of energy in all sectors.”⁵⁷ This perspective assumed a direct relationship between primary energy consumption and gross national product—the best quantifiable indicator of living standards.⁵⁸ The policy of economic growth dominated the ministry of economics for most of the decade, in part because German industrialists felt that strict German environmental controls hindered international competitiveness and caused the 1974 recession and resulting rise in unemployment.⁵⁹ On the other hand, much of the public and many nature preservationists adopted the counter idea of no expansion (*Nullwachstum*), a term that earned significant cachet during the seventies. Under this concept, the public would transform its consumer habits and industry would employ energy saving techniques to such a degree as to allow for energy sustainability in

⁵⁶ Staatsministerium für Landesentwicklung und Umweltfragen der Bayerische Staatsregierung, 2. *Raumordnungsbericht*, (Munich: Druckhaus Bayreuth, 1973), Forward.

⁵⁷ ACSP: NL Klein 164, Anton Jaumann before the Tagung der Gewerkschaft ÖTV, Landsbezirk Bayern, “Grundsätze der bayerische Energiepolitik,” March 23, 1973.

⁵⁸ BayHSA: StK 18802, Hans Eisel, “Die Nutzung der Bayerischen Gewässer für die Stromerzeugung,” in *Wasser + Abwasser/ Bau Intern* (2) Feb.) 1974.

⁵⁹ BayHSA: StK 18802, Ministerialdirektor Keßler of the Staatskanzlei to Ministerialdirektor Rieff, SM Baden-Württemberg, AI6- 6720- 36, June 30, 1975.

the future. Key to this thinking was the newly coined concept—quality of life.⁶⁰ Proponents of sustainability argued that living standards and annual gross national product were not the true indicators of well being; rather enduring environmental and “social expansion” were equally important.⁶¹ It was the Bavarian Environmental Ministry, in coordination with the Ministry of Economics, that attempted to bridge this gap, but only after some time. In a 1975 letter to the State Chancellery, Engelhardt of the Environmental Ministry argued that “environmental protection and the security of employment are *pari passu* goals of state policy.” Because environmental policy entailed the strict management of resources, he insisted, it was a requirement of economic growth, when operating a world of finite supply. Furthermore, the sector of environmental technology and techniques held considerable potential for economic and employment growth.⁶²

The Federal Government had been aware of the possibility of an oil price crisis for most of 1973. In April 1973, James Akins of the United States State Department of Fuel and Energy published a report warning of the potential for a boycott or embargo of Middle East oil, if political conditions did not improve in the region. On the basis of this report, President Richard Nixon announced measures to help prepare for that eventuality—albeit with little success. At the same time, beginning in January, 1973, the Federal Republic began to implement an energy policy, which attempted to ensure availability of ‘secure’ energy sources, instead of just the cheapest viable ones. The

⁶⁰ Kai Hünemörder, *Die Frühgeschichte der globalen Umweltkrise*, 228.

⁶¹ BayHSA: StK 18794, Kernenergie und Umweltschutz: Stellungnahme des DGB-Bundesvorstandes vom 5. April 1977, 6720-85, April 5, 1977.

⁶² BayHSA: StK18802, Ministerialrat Engelhardt of Landesentwicklung und Umwelt to the StK, 6720- 37, April 24, 1975.

program's goals included: the reduction in "the risks of oil consumption;" better negotiations with oil producing countries; more diversified domestic energy production; increases in energy research. At the same time, German and Austrian oil concerns met a couple of times during that summer, to discuss how to reduce the dependence on Middle East oil.⁶³ Recently, the price of a barrel of oil had already gradually increased since 1970, from \$1.80 per barrel, to \$3.00 per barrel on October 1, 1973. While many politicians in Germany were aware that a Middle Eastern conflict could lead to rising oil prices, and even began preparations for that fateful day, most prognosticated that this eventuality would come to pass in two years at the earliest.⁶⁴ Jaumann, in a March, 1973 speech before the ÖTV Union, recognized that oil consumption would only overtake import levels after 1980, when Bavaria was in danger of incurring an energy deficit, but warned that oil producing countries were unstable. Because of this inherent political risk, expansion of electrical production was necessary, but difficult, due to the rising concerns of the environment and the numerous local grievances. These two factors—increasing instability in the oil market, and delays due to local protest—necessitated long-term planning and coordination in the energy sector.⁶⁵

Still, most observers consider the public reaction to the oil price increase to be "a mixture of angst and hysteria."⁶⁶ With the outbreak of war on October 16, 1973, OPEC agreed both to increase the price of a barrel of oil (although this had little to do with the war itself), and to reduce its production, especially with the embargo of oil to the United

⁶³ Jens Hohensee, *Der Erste Ölpreisschock 1973/74: Die politischen und gesellschaftlichen Auswirkungen der arabischen Erdölpolitik auf die Bundesrepublik Deutschland und Westeuropa* (Stuttgart: Franz Steiner Verlag, 1996), 47-51.

⁶⁴ Jens Hohensee, *Der Erste Ölpreisschock 1973/74*, 55.

⁶⁵ ACSP: NL Klein 164, Anton Jaumann before the Tagung der Gewerkschaft ÖTV, Landsbezirk Bayern, "Grundsätze der bayerische Energiepolitik," March 23, 1973.

⁶⁶ Jens Hohensee, *Der Erste Ölpreisschock 1973/74*, 110.

States. The price of oil increased from \$3.00 per barrel on October 1, 1973 to \$11.65 per barrel by December 23, 1973.⁶⁷ This nearly four-fold increase, after thirty years of price stability and undervalue, generated numerous public and state responses. The newspapers abounded with hyperbole, with doomsday prognostications, such as rolling blackouts and autos coming to a complete stop. With the projection of mass scarcity, Germans, like other nations, hastily filled up at the gas station, in spite of long lines and high prices. Heating oil, the principle form of domestic heating in Bavaria, witnessed an even larger run, with individuals filling their storage tanks as quickly as possible. In terms of electricity production, the German Institute for Economic Research estimated that 64% of Bavarian electrical energy derived from oil-powered plants.⁶⁸

In an attempt to save industrial employment, the Federal Government had to prioritize industrial and shipping petroleum over individual consumption. Gas stations were warned against providing more than twenty liters (circa five gallons) of gasoline to automobiles, and heating oil tanks would only be filled to eighty percent capacity. Individual households were asked to use electric gadgets and appliances sparingly, but utilities were not overly concerned with electricity blackouts. Still, the crisis had the effect of immediately reducing electricity use, so that household “consumption in the last part of 1973 was already reduced from the same period as 1972.”⁶⁹ Further to curb consumption, in a state that was more dependent than others on oil, the Bavarian government took more extreme measures. As example, the Bavarian schools adopted a universal five day week, use of indoor swimming pools was restricted, Christmas

⁶⁷ Jens Hohensee, *Der Erste Ölpreishock 1973/74*, 78.

⁶⁸ Staatsministerium für Landesentwicklung und Umweltfragen, *Raumordnungsbericht 1971* (Augsburg: Schroff-Druck Papierverarbeitung und Verlagsgesellschaft m.b.H., 1971), section on energy.

⁶⁹ Jens Hohensee, *Der Erste Ölpreishock 1973/74*, 117.

vacation was extended by a full week, and bus routes redesigned more efficiently.⁷⁰ As the temperature dropped in the winter, the City of Munich asked its citizens to resist heating homes over twenty degrees Celsius during the day, and to sink room temperature an additional five degrees at night.⁷¹

Perhaps most noticeable, in a nation that had recently put so much stock in the automobile as a symbol of freedom, recreation, and mobility, were measures to curb automobile gasoline consumption. The Energy Security Law on November 19 prohibited vehicular travel, with exception to commercial, working, and emergency vehicles, for the next four Sundays: November 25 and December 2, 9, and 16. Hefty fines were issued to those who chose to break the prohibition; and, given the scarcity of traffic on the autobahns, attempting to fool the police was unlikely. At the same time, speed limits on the autobahns were reduced to 100 kilometers per hour, with the hope that combined with the 'auto-free Sundays,' approximately 12-14 percent of gasoline consumption would be saved per month. At first, the measures were welcomed by the public, perhaps because November is not a high tourist season. However, the travel ban was a more symbolic than actual energy saver, because tourists would either wait until the end of Sunday to return, or people would consume electricity in other ways, such as watching more television. Still, the Federal Government chose to extend the 'auto-free Sundays' until January 9, when the embargo was lifted (excluding the three major holidays.)⁷²

Beginning in November, 1973, the Federal government issued a plan to manage the energy shortage. In terms of production, the government did not fundamentally

⁷⁰ Jens Hohensee, *Der Erste Ölpreishock 1973/74*, 134.

⁷¹ StadtA Mü:Pressamt 87, Stadtwerke empfehlen: Wärme sparen, Dec. 14, 1973.

⁷² Jens Hohensee, *Der Erste Ölpreishock 1973/74*, 143-160.

transform its energy program; but rather, vowed to accelerate development and construction of new technologies—particularly nuclear power—by funding research and reducing the length of state planning and issuance of permits.⁷³ It offered substantial subsidies for mass transportation, so that every city over 10,000 residents would have at minimum a bus system. In order to reduce household consumption, the government offered financial assistance to families to retrofit their homes with improved energy efficiency devices and insulation. During the summer months of 1974, the government shifted to daylight savings time, in order to save electricity. Although the CSU Bavarian government supported the change, the SPD was skeptical, arguing that at least a two hour shift would be necessary to adequately save fuel, and this would cause sleep deprivation among workers.⁷⁴ A study by the Federal Government demonstrated that daylight savings time did not have the desired effect—the energy spared was negligible. However, the Bavarian government lobbied to retain daylight savings time for the future, because the later sunlight hours encouraged recreation and was an “impulse for tourism,” especially in the shortening days of the fall.⁷⁵ Jaumann also felt it encouraged safety on the roadways.⁷⁶ Still, for the first time since 1950, primary energy consumption was reduced in both 1974 and 1975, from the equivalent of 378 million tons of burnt coal in 1973, to 365 and further to 347 million tons of coal, respectively. This was accomplished in part by more efficient indoor climate control and other energy saving measures, but primarily through a major downturn in the world recessional economy.⁷⁷ After annual

⁷³ Jens Hohensee, *Der Erste Ölpreishock 1973/74*, 120.

⁷⁴ *Die Abendzeitung*, “Sommerzeit ist ungesund,” July 5, 1974.

⁷⁵ BayHSA: StK 18779, Staatsekretär Franz Sackmann of SM wirt u. verk. to the Präsident des Bayerischen Landtags Rudolf Hanauer, 6200- VI / 1a – 43437, Nov. 26 ,1975.

⁷⁶ BayHSA: StK 18779, Anton Jaumann to Rudolf Hanauer, 6200 - VI/ 1 – 32529, July 26, 1974.

⁷⁷ Jesn Hohensee, *Der Erste Ölpreishock 1973/74*, 196-197.

energy consumption increases of approximately 6.1 percent between 1960 and 1973, the next twelve years, to 1985, witnessed an average yearly increase of only 3.8 percent.⁷⁸

Because of this unexpected reduction in consumption, the Federal government scaled back its plans for nuclear power at the end of 1974. Now it was to account for only about 40,000 MW of energy production by 1985. The Bavarian Ministry of Economics began to rethink its nuclear program, but was less likely to waver, because oil was so dominant in the state. Instead, while the German Institute for Economic Research had estimated in 1974 that Bavaria would require between 5300 and 7700 MW for the year 1985, the Economic Ministry declared it unwise (based on evidence from the modest economic downturn in 1966-67) to prognosticate using the lower figure. Therefore, as of 1975 it would continue to plan the construction of five nuclear plants, each of about 1300 MW capacity (6500 MW altogether) by 1985 and enter into a CSU-CDU alliance with the state government of Baden-Württemberg to push nuclear power through in the Federal government. Dehner, a member of the Economic Ministerial Council, complained that the federal government was acting indecisively in its policy making and this ambiguity was emboldening the opposition. For example, the state governments had jurisdiction over issuing nuclear permits, but Bavarian officials grumbled that the federal government frustratingly intervened on behalf of local residents in matters of location. Another instance was the federal insistence that nuclear power be based upon democratic control without specifying who and what were to be included in this process. This

⁷⁸ Dieter Rucht, *Von Wyhl nach Gorleben*, 28.

exasperatingly led every organization, down to the smallest of membership, to seek representation in town hall forums and to demand its approval.⁷⁹

Following the Oil Shock, a debate began over which energy source was the most secure from foreign control. Obviously, oil was unquestionably problematic, not only due to OPEC, but because the pipelines flowed through numerous nations, which could presumably also limit supply.⁸⁰ However, uncertainty remained regarding natural gas as well. CSU members of the Munich Municipal Council requested the plans to construct a natural gas power plant in Moosbach near Munich shelved in favor of nuclear power, since natural gas had to be imported from Russia (and what stopped the Soviets from turning off the gas valve?)⁸¹ This position, however, received much criticism from those opposed to nuclear power, because Germany housed only small stores of unrefined uranium—making it necessary to import refined uranium. Particularly, opponents argued nuclear power would create dependence on the United States, which had a distinct technical advantage in uranium processing. Furthermore, they pointed out that the number of reactors planned worldwide would far exceed world Uranium reserves, likely depleting stores by about 2000. Jaumann countered that Uranium derived from “stable” nations all over the world, such as Canada and Australia, but also including those in the European Community, providing a secure energy source for now and the future.⁸² Many agreed with Jaumann, in principle, that nuclear power was the route to German autarky, such as a columnist from Augsburg, Rolf Stibitz. However, he recognized that uranium

⁷⁹ BayHSA: StK 18802, Ministerialrat Dehner of MWi to the Bay. StK, 6720-229, April 8, 1975.

⁸⁰ NL Jaumann 163, Rede des MWi. Aton Jaumann anlaessig des Rictfestes fuer das Kernkraftwerk Isar (KKI) in Ohu (Lkr. Landhut) am 15.10.73

⁸¹ *MM*, “Für neues Kernkraftwerk,” Nov. 28, 1973; *TZ*, “Ruf nach der Atomenergie,” Nov. 28, 1973.

⁸² NL Jaumann 163, Rede des MWi. Aton Jaumann anlaessig des Rictfestes fuer das Kernkraftwerk Isar (KKI) in Ohu (Lkr. Landhut) am 15.10.73

usage was the road to independence, but only if engineers developed fissionable reprocessing and another generation of reactors that could fission plutonium.⁸³ If this procedure were realized, according to a pamphlet published by the chancellery, Germany alone could provide enough Uranium to supply the world until 2000—meaning world supplies would outlast those of fossil fuels.⁸⁴

The Oil Shock polarized the political climate that had been developing in the past few years. This atmosphere had been established by the movements collectively known as the New Left. Three activist groups stood out in the nuclear controversy: young people, the citizens' initiatives, and the clergy. The younger generation of protestors derived mostly from the student movements of the late sixties. Since the reunification of Germany, interpretations of the student movement, also known as the 68er movement, have drawn upon ideological lines. For conservatives, 1968 represents at best a hypocritical epoch, and at worst, the beginning of current social problems, including the “demise of education, unemployment, lack of competitiveness of the German economy, the radical Right, terrorism, and the fall of moral and civil values.” On the other hand, those on the left understand the reform era as a “fundamental liberalization” of society, in which a younger generation of Germans broke from their conservative parents, in favor of a more democratized and socialized society, better able to deal with its Nazi past.⁸⁵ Recent archival based literature has attempted to offer a more balanced approach. Under this interpretation, the 68er movement, in spite of divergent goals, was a turning point in the ascension of the Social-liberal government under Willy Brandt, successful in opening a dialogue over the Nazi era, and produced a generation who participated in the so-called

⁸³ Rolf Stibitz, “Im Kern ist Wohl und Wehe,” *Augsburger Allgemeine*, Oct. 18, 1976.

⁸⁴ BayHSA: StK 15735, StK, *Kernenergie: Bayern informiert seine Bürger*, 1975

⁸⁵ Wolfgang Kraushaar, *Acht und Sechzig: Eine Bilanz* (Berlin: Propyläen, 2008), 43.

new social movements of the seventies. Many of these persons ascended to key institutional positions in the red-green governments of the nineteen-nineties.⁸⁶

The student movements, which actively questioned the consumer oriented Economic Miracle, were above all, as in other Western nations, a product of Post-War affluence. Unlike the older generation, that had lived through the Nazi era and the age of Total War, the 68ers were born either during or after World War II, growing up with considerable access to consumer products, university education, and leisure activities. These experiences led to increasing expectations and a greater willingness to confront the past.⁸⁷ What began as a call for university reform, turned first to a critique of the Vietnam War, then increasingly to a broader Marxist criticism of Western society. This world view was magnified after activist Benno Ohnesorg was shot by a police officer wearing plain clothes on June 2, 1967. Later Green Party Federal Republic Minister of Defense, Joschka Fischer, recalled this as the act that transformed him into a “professional revolutionary.”⁸⁸ Rudi Dutschke, a leader of the Socialist German Student Federation, increasingly turned towards a Marxist critique of the university as “fascist inside the structure”.⁸⁹ Dutschke encouraged a long process of social revolution, in which the students gradually took over the foundations of society—the so-called long march through the institutions—in order to change society from within.⁹⁰ At the same time, he promoted “violence against things,” but not against people, through sit-ins and

⁸⁶ Besides Wolfgang Kraushaar, *Act und Sechzig*, 286-298, see for example the English works: Nick Thomas, *Protest Movements in 1960s West Germany. A Social History of Dissent and Democracy* (Oxford: Berg, 2003); Paul Hockenos, *Joschke Fischer and the Making of the Berlin Republic* (Oxford: Oxford University Press, 2008).

⁸⁷ Nick Thomas, *Protest Movements in the 1960s*, 15-16.

⁸⁸ Paul Hockenos, *Joschke Fischer*, 62.

⁸⁹ Nick Thomas, *Protest Movements in the 1960s*, 59.

⁹⁰ Paul Hockenos, *Joschke Fischer*, 75.

other more radical activity, making the term “*Widerstand*” popular. As one person wrote in a May 1968 magazine, *Konkrete*, “Protest is when I say that and that is not acceptable to me. *Widerstand* is when I take care to make sure it no longer happens, that which I find unacceptable,”⁹¹ This Marxist critique was strengthened by ideological support from the Frankfurt University intellectuals, such as Jürgen Habermas and Herbert Marcuse, although they rejected the more radicalized illegal action of Dutschke.⁹² After a right-wing fanatic, Josef Bachmann, shot Dutschke in 1968, an event that many blamed on the conservative media mogul Axel Springer, 300,000 protestors marched on Easter weekend, many vandalizing Springer assets in 26 cities, particularly in Munich.⁹³

The next couple of months were filled with peaceful protests against the Emergency Laws of May 1968, passed by the Grand Alliance (the SPD/CDU government), which protestors considered to be equivalent to the Nazi emergency degrees. Generally considered the end of the era, the CDU joined the SPD in passing the laws, leading to a decline and diffusion of the movement. A minority of more radical leftists, like Ulrich Meinhof and Andreas Baader, came to the conclusion that the only remaining recourse was violent terrorism against the state and formed the militant Red Army Faction (RAF) in 1970.⁹⁴ Others created a number of radical communist groups both Marxist and Maoist, such as the Communist League West Germany, with the Maoist versions referred to collectively as the K-groups. Some of these had the goal of infiltrating trade unions or factory floors and initiating revolution from below.⁹⁵ Often the members of the K-groups became semi-professional agitators, traveling from one

⁹¹ Quote in Wolfgang Kraushaar, *Acht und Sechzig*, 86.

⁹² Wolfgang Kraushaar, *Acht und Sechzig*, 85.

⁹³ Nick Thomas, *Protest Movements in the 1960s*, 174-175.

⁹⁴ Nick Thomas, *Protest Movements in the 1960s*, 204.

⁹⁵ Paul Hockenos, *Joschke Fischer*, 97-103.

protest to the next, prepared to escalate the demonstration. Other former students joined the anarchists groups, like the *Spontis*, who rejected the dogmatism of the Marxists, adopting a life-style of (as the name implies) spontaneous behavior and dissent.⁹⁶

For most of the post-student movement, however, the 1970's saw the politicization of the personal, through alternative culture. Women began to criticize their noticeable omission in the leadership ranks of the student movement, arguing that sex and the private sphere were political, developing the feminist critique of society. Students and former students joined communal living arrangements (*Wohngemeinschaft or WG*), in which men and women lived together, in theoretically egalitarian lifestyles. In the WG, the entire lifestyle was considered political, since they challenged conventional bourgeois living norms, while offering cheaper housing arrangements.⁹⁷ The 68er movement provided at least three innovations adopted in the anti-nuclear campaign: energetic young people, more aggressive tactics, and a Marxist or 'alternative' critique of nuclear technology. Many of these young people left the university life and infused local initiatives with energy.

The second major innovation of the seventies was the citizens' initiatives (*Bürgerinitiativen*). Citizens' initiatives have been contrasted with the student movement, because they were grassroots groups focused on reforming "local and concrete" problems through the organs of a social welfare state. They considered themselves to be "complementary not oppositional" to the state organs, in the development of local urban space and landscape. While the initiatives drew from reform minded Young Socialists—

⁹⁶ Sabine von Dirke, *All Power to the Imagination! The West German Counterculture from the Student Movement to the Greens* (Lincoln: University of Nebraska Press, 1997), 85.

⁹⁷ Paul Hockenos, *Joschke Fischer*, 103-105.

rejecting the more radical approaches—activists generally derived from student, white collar, professional, and highly educated urban backgrounds.⁹⁸ Generally, it is argued that citizens' initiatives transformed in three phases. Between approximately 1969 and 1972, most citizens' initiatives were so-called 'single-action' groups, dedicated to recommending a change in location, through public discussion, signatures, and the bureaucracy, of one specific large industrial project. Often an airport, trash burning facility, or autobahn, the project was considered a disruption of the local area or city.

After the Oil Crisis of 1973 we see the second phase of the initiatives, until about 1976. During this time, the initiatives began to coalesce into a movement, where protests resonated regionally and nationally. Furthermore, with the onset of the post-oil crisis age, the tone and tactics became more polarized, with larger demonstrations, sit-ins, and legal injunctions common. Under the traditional interpretation, it was in 1974 that activists began to oppose nuclear power not only at the specific site, but also everywhere else (*und nicht anderswo*).⁹⁹ My dissertation has complicated this claim, suggesting that modest examples, such as Baumgartner, implicitly anticipated this concept already in the nineteen-fifties; nonetheless, in terms of the broad public perception, the first noted explicit utterance of this phrase was at the nuclear reactor site at Wyhl in 1974. The exemplary demonstrations at Wyhl began with the plans to construct a nuclear plant at Breisach on the Rhine in Baden-Württemberg—an occurrence that prompted the forming of the regional citizens' initiative, Upper Rhine Action Committee against the

⁹⁸ Manfred Görtemaker, *Geschichte der Bundesrepublik Deutschland: von der Gründung bis zur Gegenwart* (Frankfurt, Fischer Taschenbuch Verlag, 1999), 628-630.

⁹⁹ Theodor Ebert, "Konfliktformation im Wandel: von den Bürgerinitiativen zur Ökologiebewegung," in *Bürgerinitiativen in der Gesellschaft*, Volker Hauff ed. (Villingen: Necker-Verlag, 1980), 351-371.

Environmental Dangers of Nuclear Plants in 1972.¹⁰⁰ After collecting signatures, demonstrators formed (incidentally like the Ebersberg Fasching parade seven years earlier) what became a staple of the anti-nuclear movement—the tractor parade. Like what had happened at Bertoldsheim in the mid-sixties, the Baden-Württemberg government decided to relocate its reactor in 1973, twenty kilometers away in Wyhl.¹⁰¹

The Baden-Württemberg government put forth a strong propaganda campaign, including an information bureau in the mayor's office of Wyhl and a monthly brochure, *Project Information*. Locally, the Pro-Atomic-Power-Initiative formed in support of the plant. On the other side, regional protestors created the Citizens' Initiative Weisweil against the nuclear plant, with support from local farmers, politicians, clergy, students and faculty from the University of Freiburg. In spite of a demonstration before the Baden-Württemberg Landtag in Stuttgart in 1974, the Baden-Württemberg government awarded the construction permit in January 1975. The protestors responded with a civil injunction in the regional court in Freiburg to cease construction and occupation of the construction site. After the police attempted to remove the sit-in, thousands of international protestors collected on the site in February of 1975.¹⁰² Retaining control of the construction site through 1976, the protestors scheduled lectures, concerts and other forms of entertainment, until forcing the Baden-Württemberg government to stop construction, which allowed the completion of the legal process. A quick study of signs posted on or near the construction site village indicates the goals of the movement. On the journey to the reactor, one would have seen the statements: "Better active today, than radioactive tomorrow; We will not allow our beautiful *Heimat* to be destroyed; No

¹⁰⁰ Manfred Görtemaker, *Geschichte der Bundesrepublik Deutschland*, 628-630.

¹⁰¹ Dieter Rucht, *Von Wyhl nach Gorleben*, 81-83.

¹⁰² Dieter Rucht, *Von Wyhl nach Gorleben*, 81-85.

nuclear power plant against the will of 100,000 citizens; Do you know that after 30 years an AKW will remain as a radioactive ruin in the landscape?; Despite Police terror, the AKW will not be built.”¹⁰³ The affair concluded when the Freiburg District Court suspended the construction permit, due to inadequate security measures, in March, 1977.¹⁰⁴

The final step was the turn from Citizens’ Initiative Movement to the Ecological Movement, which began around 1977. During this phase, extra-parliamentary opposition and government confrontation became radicalized and violent. Violent confrontation that year, first at the nuclear construction site at Brokdorf, then with the far left terrorist organization, the RAF, in the so-called German Autumn, led to the formation of the Green Party. The proponents of nuclear power, including the trade unions, the energy utilities, and the government, stringently supported the police action against the opponents of nuclear energy, leading to violent confrontation when demonstrators tried to sit-in on the Brokedorf reactor site, as they had done previously at Wyhl. At the same time, the terrorist of the RAF, and the anti-terrorist backlash, held the country captive during that fall. On October 23, 1977, members of the ecological movement signed the so-called “Green List Environmental Protection,” an agreement to give up violent tactics and create a parliamentary organization, one that operated under a new type of thinking. Two years later, members of the Green List formed the Green Party, celebrated as an organization looking ‘neither right nor left, but forward.’ Unlike parties before it, it was not to be based upon industrial production, but rather, on ecological thinking, alternative energy, grass roots democracy, and alternative styles of living. In this way, the

¹⁰³ Wolfgang Sternstein, *Überall ist Wyhl: Bürgerinitiativen gegen Atomanlagen aus der Arbeit eines Aktionforschers* (Frankfurt: Haag-Herchen Verlag, 1978), 24-25.

¹⁰⁴ Atom Express ed., *Und auch nicht anderswo!* 48-57.

ecological movement operated henceforth as what has been described an extra-parliamentary/parliamentary movement.¹⁰⁵

In order to avoid construction site occupation as had happened in Wyhl, in 1976 the police escorted the construction company in the middle of the night to the Brokdorf site, before pronouncing the permit. Once it was announced in the media, an estimated 30-45,000 demonstrators attempted to walk onto the site, trying to break through the police barricade. The result was massive police retaliation, with water guns, dogs, gas, and paddy sticks that was heavily covered in the media and hailed as “civil war like brutality,”¹⁰⁶ but also heightened intensity between the police and the far left groups. The court in Schleswig then temporarily suspended construction at Brokdorf at the end of 1976. Unlike the non-violent Wyhl occupation, Brokdorf served to discredit parts of the movement, particularly the K-Groups, in spite of declarations by the government that citizens’ initiatives were a necessary counterweight in a democracy, because the Far Left groups were considered by many to be instigating violence. As we will see in Chapter 5, this atmosphere generated a rift between the traditional nature preservation associations, and the newer, more radical activists.¹⁰⁷ It also created tension with the clergy, who preached non-violent confrontation.

Although they rejected the radical turn, the church leadership buttressed the citizens’ initiatives and joined them in full force after 1974. In the 1967 article, “The Historical Roots of our Ecological Crisis,” Lynn White wrote the influential critique of the Christian environmental tradition, in which he argued that Christian theology

¹⁰⁵ Görtemaker, *Geschichte der Bundesrepublik Deutschland*, 631-634

¹⁰⁶ Atom Express, *Und nicht anderswo*, 52.

¹⁰⁷ Rucht, *Von Wyhl nach Gorleben*, 87-91.

developed an anthropocentric system that promoted dominance over nature.¹⁰⁸ Since then, historians have nuanced this claim, saying that Christian theology is a bit more ambiguous. Not only did the tradition emphasize human dominance, it also allowed for the idea of man as the steward of the earth, there to maintain, not dominate, the plant and animal life. This ‘ecological’ reading of the Bible allows for man to be a part of nature, and have a mission to tend to God’s creation.¹⁰⁹ In spite of the general passive support from the clergy for nuclear power before 1970, as previous chapters of this study have shown, many laymen had long questioned fission on the basis of religion.¹¹⁰ Regardless of these historical traditions, many priests within the church during the nineteen-seventies were under the impression that they were transforming the contemporary theology, by emphasizing mankind’s role as steward (instead of governor) of God’s creation.¹¹¹ This led to considerable participation by church leaders in the environmental movement, especially regarding the controversy surrounding nuclear power. While no definitive interpretation has yet been made to explain this phenomenon, it has been suggested that it is in part a carryover from the involvement of the church in the anti-rearmament extra-

¹⁰⁸ Lynn White, “The Historical Roots of our Ecological Crisis,” *Science* 155 (1967), 1203-1230.

¹⁰⁹ H. Paul Santmire, *The Travail of Nature: The Ambiguous Ecological Promise of Christian Theology* (Philadelphia: Fortress Press, 1985.)

¹¹⁰ For an example of Bavarian clerical attitudes from the early nineteen-sixties towards the nuclear bomb and nuclear power see: Ernst-Wolfgang Böckenförde, *Kirche und christlicher Glaube in den Herausforderungen der Zeit. Beiträge zur politisch-theologischen Verfassungsgeschichte, 1957-2002* (Münster: LIT Verlag, 2004), 53-112; or see: DM NL 111 Meier-Leibnitz 006, Heinrich Jebens, Die Allmacht im ATOM, 1957; DM NL 111 Meier-Leibnitz 004, Dr. Johannes Doehring of the Evangelische Akademie Loccum to Maier-Leibnitz, Aug. 19, 1957; for examples of laymen expressing distrust of fission on the basis of religion see: DM NL 111 Maier-Leibnitz 006, Die Deutsche Volksbewegung. *Eine Rede an das Deutsche Volk* (Michelbach: Eigenverlag Ewald Illig, 1957), 65; BayHSA: StK 14008, Max Lechner to the Bayerische Staatsregierung, Jan 14, 1965.

¹¹¹ Waldemar Ruez, “Die katholische Kirche in der Bundesrepublik Deutschland und die Auseinandersetzungen um die nicht-militärische Nutzung der Kernenergie,” in *Bürgerinitiativen in der Gesellschaft: politische Dimensionen und Reaktionen*, Volker Hauff ed. (Villigen:Neckar-Verlag GmbH, 1980), 298-303; the role of religion in the environmental movement remains understudied, and the current literature gives the impression that the church suddenly became aware of nature around 1970.

parliamentary opposition of the fifties, further fostered by an “affinity between evangelical theology and the 68er movement.”¹¹²

In the Vatican II Council, the Catholic Church pronounced that nature was not owned by humans in the Roman sense of the word, but mankind was given merely the right to make use of it. The Council determined that humans must use resources for the goodwill of all people, in order to retain this right. Similarly, technology must prove to function for the improvement of society, instead of individual consumption. On the basis that peaceful nuclear power could be used to benefit mankind, Pope Pius XII sanctioned its use, but warned against its military misuse. However, after the demonstrations at Wyhl in 1974, the archbishop of nearby Freiburg, Schäuferle, announced that nuclear plants should only be constructed if they met specific conditions: the plant was essential to energy production, met the strictest security measures, and did not represent a danger to the surrounding region. This position led to a full-scale discussion, and a 1977 ecclesiastical German Environmental Commission recommended reduction in energy consumption and introduction of environmentally friendly energy sources. However, it declared that the decision to construct nuclear plants would lie with responsible experts, who would determine the safety of them. If a reactor met the requirements of these ethical specialists, then the church would not demonstrate against it. At any rate, most German Catholic leaders, who remained neutral or ambiguous towards nuclear power, advised people to modify their consumer life-styles, and to remain non-violent protestors.¹¹³

¹¹² Wolfgang Kraushaar, *Acht und Sechzig*, 270.

¹¹³ Waldemar Ruez, “Die katholische Kirche in der Bundesrepublik Deutschland, 298-303;

Many, on the basis of Christian moral philosophy, attempted to push the church towards a less ambiguous position. Such was the case with professor of moral-theology at the University of Freiburg, Bernhard Stoeckle, whose speech at the 1977 meeting of the Catholic Academics stressed that the immediate construction of nuclear power, without further research, represented an unethical threat against man and nature. Not entirely unlike those ethical questions put forward against atomic bombs by the Göttingen professors in 1957 (or by the Bavarians against the *Atommeiler*, for that matter),¹¹⁴ Stoeckle argued that the fallible nature of man required he take moral responsibility on technological development. This should include unethical peaceful fission, which places the burden of waste management on future generations, instead of entirely providing an immediate solution.¹¹⁵

Because of its more diffuse structure and the fact that most evidence comes from Northern Germany, it is more difficult to track Bavarian Protestant opinion on nuclear power. Like their Catholic counterparts, Protestant regional synods were ambivalent about the prospects of nuclear power, as well as those who demonstrated against it. Considering mankind to have the duty to both “cultivate and preserve” (*bebauen* and *bewahren*) the earth, the church encouraged a position devoted to both economic growth and energy saving. As example, the Schleswig-Holstein Synod of 1976, addressing the issue of Brokdorf, stressed the ethical responsibility to care for nature, and the need to transform the current style of living. With this policy, the church leaders hoped that nuclear power would only be a temporary solution, one developed with all safety

¹¹⁴ DM NL 111Maier-Leibnitz 006, Die Deutsche Volksbewegung. *Eine Rede an das Deutsche Volk* (Eigenverlag Ewald Illig--Michelbach- Ohrigen, 1957), 1.

¹¹⁵ BayHSA: ND/P 1970, *Natur und Umwelt*, Prof. für Moraltheologie an der Universität Freiburg Bernhard, Stoeckle, “Kernenergie als ethisches Problem,” 2 (April) 1977, 3-6.

measures in mind, and encouraged public participation and education in the decision-making process. In this way, they supported the local involvement of ministers in the anti-nuclear power movement, without directly condemning the construction of the plants. However, the use of violence or the “criminalization” of the opposition, either by the demonstrators or the police, was strictly prohibited.¹¹⁶

An example comes from a media release by the Evangelical Press Service regarding the situation at Wyhl. In it, the church expressed support for citizens’ initiatives against nuclear power, but opposed criminal and violent behavior. The release stressed that Germans had to understand the limits of production, consumption, and expansion, so as not ruin the Creation. Thus, the church was opposed to “the expansionist perspective of the owners, the technocratic arguments of the politically responsible,” the lack of democratic transparency, and the overzealous reaction of the police. If Christians could discover responsible consumer and environmental habits, the release reasoned, the dangerous nuclear plants would become unnecessary.¹¹⁷

However, the church’s official position left much open to interpretation for local pastors, who would determine themselves if a nuclear plant posed a threat to society. Many pastors took up action against local reactors (see Chapter 5 for examples), and participants in the site occupation often fused their rhetoric with Christian theology. An example comes from a sign posted in the middle of the demonstrators’ camp at Wyhl:

¹¹⁶Kurt Oeser, “Evangelische Kirche und Bürgerinitiativen,” in *Bürgerinitiativen in der Gesellschaft*, Volker Hauff ed. (Villingen: Neckar-Verlag, 1980), 264-293; Quote from a State Synod of the Evangelical and Luthern Church of Schleswig-Holstein on November 25, 1976, on page 265.

¹¹⁷ BayHSA: StK 18800, Gemeinschaftswerk der EVangelischen Publizistik e.V, Ein Informationsdienst der Zentralredaktion des Evangelischen Pressediensts, Kernkraftwerk--Planung: Solidarität mit bedrohtem Leben wird zum Pflicht. 0122-7428, March 10, 1975.

“Christ says NO to Nuclear Plant Wyhl.”¹¹⁸ Catholic youth and lay associations, such as the Catholics Peace Movement Pax Christi, outright opposed nuclear power on the premise that it endangered the environment. Unlike the theologically based reasoning of the leadership, the laity articulated practical concerns, particularly targeting plutonium reprocessing and waste storage. Increasingly, these groups called for the transformation of the political and economic structure—a new lifestyle.¹¹⁹ In its 1977 publication of *Nature and Environment*, encouraged by a recent ecological speech by the Pope, the Bavarian chapter of the Nature Protection League emphasized that manufacturing plutonium, with its enormous lifespan of 250,000 years, was the equivalent to playing God. It thus concluded that while “not every environmentalist is Christian, all Christians must be environmentalists.”¹²⁰ Other groups, such as the Alliance of Christian Boy Scouts, made entirely secular arguments against nuclear power. In a letter to the Bavarian Chancellery, the Bavarian troop argued that the real financial cost of nuclear power—when one takes in account waste storage, reprocessing, and security—outweighed other, more viable, alternative energy solutions.¹²¹

Unlike any other movement before it, the anti-nuclear campaign appealed to a broad range of the entire population, reaching across political lines. This coalition included older groups that had long objected to specific locations, such as farmers, conservatives, preservationists, and regional officials. Now, after twenty years, it had brought in newer activists, like young leftists, urban professionals, and clergymen. The alliance was tenuous, however, as some members became more radical. These more

¹¹⁸ Wolfgang Sternstein, *Überall ist Wyhl*, 25.

¹¹⁹ Waldemar Ruez, “Die katholische Kirche in der Bundesrepublik Deutschland,” 313-315.

¹²⁰ BayHSA: ND/P 1970, *Natur und Umwelt*, “Haben die Kirchen versagt?” 1 (Jan.) 1977, 10-11.

¹²¹ BayHSA: StK18794, Verband Christlicher Pfadfinderinnen und Pfadfinder to the Staatskanzlei, 6720-76, 46, March 17, 1977.

radical tactics threatened to tear the local associations, uninterested in violence, away from the larger, more active supra-regional unions.

The 1976 radicalization of the anti-atomic movement centered on the nearing technological realization of nuclear reprocessing. Since the early days of the atomic program, physicists sought a way to extend uranium reserves and cheapen fission production through reprocessing (*Wiederaufbereitung*) used fissionable into plutonium. With the help of the rest of the European Community, West Germany hoped to develop an entire fuel cycle, in which uranium would be mined, then used in reactors, transformed into plutonium, reprocessed, reused, and recycled. In this way, only a small percentage of the original material would be destined for final storage (*Entsorgung*)—the rest would be reused. Integral to this circuit would be two facilities: fast breeder reactors and reprocessing facilities (WAA). Fast breeders fissioned a mixture of plutonium and uranium 238, generating more plutonium during the fission process than consumed. With the reprocessing system, which separates the plutonium from the uranium, the plutonium could be reused, making nuclear power much more efficient and cost-effective. The Federal Republic had constructed a couple of test facilities for this process, with experimental storage at the salt mine Asse II near Wolfenbüttel in 1967 and a experimental miniature reprocessing plant at Karlsruhe in 1971. In 1977, the world's sole civil reprocessing facility in commission existed at La Hague/ Normandy, France, which accepted West German fission material under the guidelines of European cooperation.¹²² In 1980 the Federal Government ruled that construction of nuclear plants

¹²² Dieter Rucht, *Von Wyhl nach Gorleben*. 44-60.

after 1985 was prohibited, if a location for final storage and reprocessing had not yet been decided.

The strong opposition to reprocessing lay on numerous grounds. Like in the fifties and sixties, the critics pointed out that nuclear facilities were susceptible to attacks. With the transportation of fission after-products necessary for reprocessing, this increasingly became focused on plutonium transportation in trains, which were security risks more so than plants, because they were in the open, away from fortification. Unlike previously, the focus was not the Cold War and the threat of Soviet bombing campaigns, but rather increasingly on terrorism. Both political domestic terrorism, from left-wing anarchists like the RAF, and international terrorism, particularly from Islamic radicals like the Palestinian Liberation Organization, were considered likely candidates. Perhaps this growing fear was due to the 1972 Olympics in Munich, in which members of the Palestinian organization, Black September, kidnapped several athletes of the Israeli team, whom they held hostage, then executed. Naturally, the German Autumn compounded this belief. An Augsburg columnist, Rolf Stibitz, argued in 1976 that the threat of terrorism was not a compelling criticism of nuclear power because all industrial facilities were targets during war, conventional or otherwise. These conventional chemical factories would leak hazardous wastes too if destroyed.¹²³

The expected increased costs of reprocessing generated further discussion. Nuclear power had long been advertised as an energy source that would be too cheap to meter. Critics pointed out that many reactors were already underperforming in terms of economic viability, due to constant criticality pauses, system maintenance, and repair.

¹²³ Rolf Stibitz, "Im Kern ist Wohl und Wehe," *Augsburger Allgemeine*, Oct. 18, 1976.

Such was the case between 1970 and 1974 for the Gundremmingen reactor, and the Niederaichbach nuclear plant only operated for about a month. New calculations confirmed Baumgartner's criticism from 1954, that the costs of separation facilities, transportation to and from sites, research, and the reprocessing facilities would not make uranium more viable, but might actually increase overall costs. Each year that the reprocessing center was delayed, costs further escalated. Some estimates for the Federal Republic's planned integrated reprocessing/final storage facility spiraled to the realm of 8-12 billion DM. Critics noted that these unadvertised expenses would be eventually passed on to the consumer.¹²⁴

With the production of plutonium 239, reprocessing represented an incomprehensible escalation in danger. As the World League to Protect Life put it, facilities that produced PU239 were both indirectly and directly contributing to the world nuclear arms race—there was no longer separation of peaceful and military fission.¹²⁵ If exposed to the lungs, plutonium requires only a small micron-particle to be fatal, making it the deadliest substance in the world. Anti-nuclear activists maintained that reprocessing releases some 10 to 1000 times more radiation into the atmosphere than power plants, and plutonium has an enormously long half-life. Furthermore, during the reprocessing and transportation, water is added to the storage tanks, and this water, along with any apparatuses used, is also irradiated with high level radiation. This increases the amount of radioactive material that must be stored; some estimated that globally 100 annual tons would accumulate once recommended amounts of nuclear power went

¹²⁴ StadtA Mü: ZA Presseamt 208, Weltbund zum Schutzes des Lebens to the Bay. SM f. Landesentwicklung und Umweltfragen, Sept. 23, 1976.

¹²⁵ StadtA Mü: ZA Presseamt 208, Weltbund zum Schutzes des Lebens to the Österreichischen Rundfunk, Sept. 25, 1976.

online. All wastes must be stockpiled for 488,000 years, with complete security, free from rogue governments, earthquakes, accidents, terrorists, etc.¹²⁶

Given these inherent risks, German literature—both academic and popular—took a notable apocalyptic turn after 1976. Titles such as “The Devil’s Pact” within *The Uncertain Death*, a quasi-academic collection intended for a lay audience on the theme of reprocessing and nuclear power by Wolfgang Barthel et al. and published shortly after the 1979 Three Mile Island incident in Pennsylvania, illustrate this point. In it, Heinrich Jaenecke argued that nuclear power represented the only technology, which unequivocally endangered man both in the present and the far future that is allowed to operate under the assumption of acceptable and improbable risks.¹²⁷ In apocalyptic popular literature, Bavarian Carl Amery held particular fascination among environmentalists. As a son of a conservative Catholic historian, who often wrote about the destruction of the landscape through unhindered expansion of modern technology, he makes a particularly interesting case, since his Bavarian family represents a cogent example of the shift of ecological thinking from political right to left. Amery began his career by writing a critique of German Catholicism, when he compared it with socialism in East Germany, in *The Capitulation: or German Catholicism Today* (1963). He then became active in social democratic politics after 1970, but increasingly became interested in environmentalism, serving as cofounder of the Green Party. His non-fiction book, *Nature as Policy* (1976), formed the foundations for the party. However, he might be best known for a series of catastrophic science fiction novels, in which pollution and resource exhaustion led to massive human depopulation; his book, *The Fall of the City of*

¹²⁶ StadtA Mü: ZA Presseamt 208, Aktion Pro Vita, “Kernenergie: Sicherheit oder Risiko?” 197?.

¹²⁷ Heinrich Jaenecke, “Der Teufelspakt,” in *Der unsichtbare Tod: Die Angst des Bürgers vorm Atom*, Wolfgang Barthel et al. (Hamburg: Ein Stern Buch, 1979), 7-63.

Passau (1975), was an apocalyptic novel set in a Bavarian city on the Austrian border.¹²⁸

Nuclear catastrophes had long been a typical trope in the genera, but the looming threat of plutonium processing gave new life to an already booming industry.

In 1977, the Federal Government announced the plans to construct an integrated final storage facility with reprocessing capability at Gorleben, strategically chosen because of its remote location near the Eastern Border in Lower Saxony. This led to bloody confrontation, with significant participation from the K-Groups, at the reactor near Grohnde. Shortly thereafter, 60,000 protestors demonstrated (without K-Group contribution) at the fast breeder construction site, at Kalkar. Since the police now controlled the construction sites, usually with a strong show of armed force, water cannons, fences, and dogs, protesters began to resort to a new tactic: the blockade. These blockades took numerous forms, from humans standing with their arms locked in the middle of the street, to felled trees and tractors blocking the roads. While the next year was relatively quiet, in 1979, 100,000 demonstrators made the celebrated trek from Gorleben to Hamburg, via train, tractor, and automobile, to witness the international Gorleben Hearings on the fate of the facility.¹²⁹ For the next twenty years, reprocessing and final storage would be the focus of protest, first at Gorleben, then, after that location was denied, in the former coal region in Bavaria, Wackersdorf. The name Wackersdorf, which will not be covered because the government files remained classified, became synonymous with highly radicalized protest in 1985/86, following the catastrophe at

¹²⁸ Axel Goodbody, "Lianas Across the Jungle: An Interview with Carl Amery," in *The Culture of Environmentalism: Anxieties, Visions, Realities*, Axel Goodbody ed. (New York: Berghahn Books, 2002), 13-29; Carl Amery, *Die Kapitulation oder deutscher Katholizismus heute* (Reinbek: Rowohlt, 1963); Carl Amery, *Natur als Politik. Die ökologische Chance des Menschen* (Reinbek: Rowohlt, 1976); Carl Amery, *Der Untergang der Stadt Passau* (Munich: Heyne, 1975).

¹²⁹ Deiter Rucht, *Von Wyhl nach Gorleben*, 85-95.

Chernobyl. Massive demonstrations against the state and nuclear processing were lasting images in the confrontation.

Many in the anti-nuclear alliance feared the industrial arrangement that Austrian political scientist Robert Jungk had famously coined as the Nuclear State.¹³⁰ Under this interpretation, the state, industry, and the nuclear utilities formed a cooperative system, similar to the military-industrial complex, in which the heads of the major electrical corporations held positions of authority and influence within the atomic commission or the government ministries and “pushed forward (*forciert*) the development of nuclear power.”¹³¹ The state conscientiously subsidized nuclear energy beginning in the 1950’s in order to make up for the backwardness of German science following the war, and to overcome the alleged energy deficit. This practice escalated after the oil shock. The prime directive for the Atomic Forum was to persuade the state to “privatize the advantages and economic windfall of nuclear power, but to socialize the risks and losses.”¹³² Most academics who subscribed to this interpretation, argued that the public had paid for the atomic industry, but lacked decision-making power over its application.

An example of this suspicious collusion resided in the issuing of Bavarian nuclear permits. The construction permit required the Land Planning Authority’s approval, in which the water, land, and forestry bureaus were consulted. However, the local administration could be over-ruled by the state ministry or the Supreme Court, in what appeared to the public to be a dictated decision, lacking transparency. Often the judgment was rationalized by the fact that construction lasted approximately two to four

¹³⁰ Robert Jungk, *The Nuclear State*, translated by Eric Mosbacher (London: John Calder Publishers, 1979).

¹³¹ Helga Bufa and Jürgen Grumbach, *Staat und Atomindustrie. Kernenergiepolitik in der BRD* (Cologne: Pahl-Rugenstein Verlag, 1979), 58.

¹³² Helga Bufa and Jürgen Grumbach, *Staat und Atomindustrie*, 73.

years, providing significant time to perform further tests on water, air, and climate, before a criticality permit was assessed. However, once the utility spent billions on construction, much of that consisting of state subsidization, most observers agreed that the residing bureaucracies would be forced to rubber stamp the permit, unwilling to leave the undertaking partially finished.

Throughout this study, though, I have demonstrated that the Bavarian populace actively took part in the process of constructing the landscape of the nuclear power program. That had been the case for the first *Atommeiler*, where numerous potential sites were ruled out due to public concerns, and similarly when security measures were erected in Garching, in part because of public requests. In the sixties, nuclear facilities were not built at Ebersberg Forest and Bertoldsheim, mostly due to public protests. While it is true that in the seventies nuclear plants like Grafenrheinfeld were pushed through, despite significant opposition, landscape planning had to account for local concerns about the overburdening of the environment, by committing to more ‘environmental friendly’ measures. Certainly, the government did not allow complete transparency upon all matters of debate, and the anti-nuclear opposition did not achieve all of its goals, but if this work demonstrates anything, it is that we must look beyond the nuclear state interpretation in order to understand landscape planning in the Federal Republic.

Disappointed with the growing state authority and the escalating violence, some anti-nuclear advocates suggested that the best way to defeat the nuclear industry was to save energy instead. Most commentators wanted to improve energy saving through application of new technology, not through reduction of consumption, per se. Under the plan of environmental activist and political scientist, Lutz Mez, for example, energy

could be reduced 20-40 % in all economic sectors within twenty years, so that energy consumption would be roughly the same in 2000 as 1980. He proposed that improved insulation, use of sun and alternative power, and more efficient gadgets in the home could reduce domestic consumption by 40%. Through smaller vehicles and improved street navigation, integrated public transportation, and speed limits, use of petroleum in transportation could drop 30%. In the industrial sector, Mez recommended the coupling of residential heating with electrical production, improved efficiency in energy production and usage, and recycling, which would reduce energy use by 20 percent. Finally, he suggested the introduction of biological agents in production, instead of synthetic ones, and improving recycling, in order to reduce energy use in chemical production.¹³³

One of the proactive grass-roots techniques for saving energy was the so-called electricity boycotts, began in various cities after about 1977. Adopted from Anglo-American activists, protestors simply refused to pay their utilities until energy companies abandoned their attempts to construct nuclear plants.¹³⁴ An even better solution, very popular in the sunny region of the Black Forest, was to convert to solar power. By placing panels on the rooftops of their homes, citizens thwarted the official's threats of rolling blackouts. While this only had partial success in the seventies, because of the high costs of solar panels, in the nineties it met with greater triumphs, particularly in those regions near Wyhl. An example comes from tiny Schönau in 1996, where, when

¹³³ Lutz Mez, "Der atomindustrielle Komplex. Dimensionen und Stellenwert der Atomindustrie und Situation auf dem Weltreaktormarkt," in *Widerstand gegen Atomkraftwerke: Information für Atomkraftwerkgegner und solche, die es werden wollen*, Hanz-Christoph Buchholtz et al. (Wuppertal: Peter Hammer Verlag, 1978), 15.

¹³⁴ Lutz Mez, "Bundesrepublik Deutschland—Der unaufhaltsame Aufstieg zur Atommacht," in *Der Atomkonflikt. Berichte zur internationalen Atomindustrie, Atompolitik, und Anti-Atom-Bewegung*, Lutz Mez ed. (Reinbek: Rowolt, 1979), 49.

the regional nuclear-powered electricity utility (KWR) attempted to purchase the local nuclear-free utility—and pass on the extra costs of nuclear power—citizens raised over 1 million marks to prevent the takeover. Doing so allowed the community to remain on a nuclear-free electricity grid, powered mostly by local solar and wind generators.¹³⁵

Supporters of nuclear power, particularly the Information Alliance for Nuclear Power, considered these activists, at best, a hypocritical minority. As Heinz Rhode wrote, despite attempts to change their lifestyles, environmentalists continued to maintain high standards of living and German electricity consumption continued—albeit at an incrementally slower rate—to increase, due to the employment of various domestic electrical devices. Furthermore, he cited an Allensbach Institute study that suggested the number of skeptics of nuclear power had actually declined since the fifties—an evocative report of interest for this study. In his view, fission represented the sole ‘bridge’ technology, until hydrogen energy would be realized. The alternatives, fossil fuels, were increasingly expensive, running on short supply, and environmentally dangerous. Oil, he warned, should be spared for chemical processes. Nuclear power had the added bonus that engineers would (hopefully) soon develop the technology to capture the released steam, and use it for long-distance heating.¹³⁶ At any rate, Jaumann and others made it clear that it was not energy retardation that was at stake; but rather, reduction specifically in oil consumption. Advocates of nuclear power asserted that electricity consumption still increased, albeit incrementally slower than in the sixties, and petroleum power had to

¹³⁵Paul Reimar, “Wer das Netz hat, hat die Macht! Die Strom-Rebellen aus dem Schwarzwald,” in *Und nicht anderswo! Die Geschichte der Anti-AKW-Bewegung*, Atomexpress ed. (Göttingen: Verlag die Werkstatt, 1997), 212-214.

¹³⁶ BayHSA: ND/ E 203, *Kernenergie ohne Geheimnisse*, Informationskreis Kernenergie, Heinz Rhode, 197?.

be replaced by nuclear power, regardless of any diminishment in electrical consumption. Electricity remained the cleanest and safest form of domestic energy; attempts to change towards domestic steam, geothermal, solar, tidal, wind or other forms of power was not cost-effective.

While the Green movement gained significant momentum in the late seventies, coalescing into a new party, the movement's success and the violence at Brokdorf generated considerable backlash as well. Even though the violence within the demonstrations was initiated by a few individuals, often members of the K-groups, and was also directly antagonized by police action, the nightly news images of gas bombs, water cannons, and mayhem shook up proponents and opponents of nuclear power alike. Traditional preservation organizations, like the Bavarian Nature Preservation League, began to distance themselves in 1977 from the radical leftist. On May 4, 1977, the League announced that it would not take part in a demonstration the following weekend at the Isar I reactor, because it expected a repeat of the chaos at Brokdorf. Local citizens' initiatives originally planned to join the League in protest of the criticality of the Isar I reactor, but a K-group distributed flyers across Germany, calling for massive demonstrations similar to those at Brokdorf. These flyers led the League to foresee young semi-professional misfits arriving in mass by rail, and attempting to occupy the site.¹³⁷ In preparation, 7000 policemen were expected to surround the construction site. The league told newspapers that it "would not allow itself to be used as a Trojan

¹³⁷ *Abendzeitung*, "Eine Schlacht wie in Brokdorf jetzt in Niederbayern?" May 4, 1977.

horse.”¹³⁸ Because the League had no desire to confront the police, the K-groups had actually frightened away their closest allies.

In Bavaria, the trade union (DGB and DAG) leadership had traditionally taken a ‘*Jein*’ position towards nuclear power. Horst Damköhler, Bavarian secretary of the DAG, and Max Wöhner, chair of the DGB of Bavaria, had both been members of the Bavarian Atomic Commission in the nineteen-fifties. Damköhler and Wöhner’s successor, Willi Roth, had consistently announced their advocacy of nuclear power in the sixties and seventies, but at the same time contested specific locations. In the Ebersberg Forest affair, Damköhler had been decidedly against the use of the Forest for the accelerator. Such was the also case when Roth objected to Grafenrheinfeld as a location in 1973.¹³⁹ Following the recession in 1975, the DGB began to support nuclear power more actively, arguing that power plants offered employment and economic growth. At this time, the Bavarian government recommended promoting the trade union’s support in its public relations campaign, even though Roth opposed the specific Grafenrheinfeld reactor.¹⁴⁰ Following the chaotic actions of 1977, the DGB leadership announced it would arbitrate between the extremists in the environmental groups and the government, but remained decidedly pro-nuclear, to the ire of the environmentalists.¹⁴¹

In its April 5, 1977 statement, the DGB pronounced its advocacy of nuclear energy, but only under fulfillment of three specific criteria—designed to promote

¹³⁸ *MM*, “Droht ein zweites Brokdorf? Chaoten im Anmarsch auf Ohu,” May 4, 1977.

¹³⁹ *SZ*, “Unbehagen über Atomkraftwerke,” Oct. 19, 1973.

¹⁴⁰ BayHSA: StK 18800, StK, IA I 7 - 6720-9 - 23, Aufklärung der Bevölkerung in Schweinfurt und Umgebung für das Kernkraftwerk Grafenrheinfeld, April 14, 1975.

¹⁴¹ BayHSA: StK 18794, Deutscher Gewerkschaftsbund, Kernenergie und Umweltschutz: Stellungnahme des DGB-Bundesvorstandes vom 5.April.1977, 6720-85.

“environmental and social growth.” First, a final solution for the wastes had to be legislated, before the construction of the next generation of nuclear plants. Second, the DGB wanted landscape planning to involve regional authorities, but warned that it must not devolve into individualistic chaos. Finally, the trade union desired strong radiation security for workers.¹⁴² 1977 reports from the Power Plant Union Corporation supported trade union claims; it estimated that an abrupt German-wide end to nuclear plant construction would immediately cost some 260,000 jobs. If 20,000 megawatts of electricity were not up-and-running by 1985, the German Institute for Economic Research projected that unemployment would reach 8% and economic growth would slow to 3.5% annually. If this policy continued, by stringently ceasing expansion of energy production, by 1990 West Germany would face 10 to 13 % unemployment rates and zero economic growth. Jaumann was concerned that Bavaria would face even more extreme contraction, causing an 18% unemployment rate.¹⁴³ Anti-nuclear organizations, such as the Munich Initiative against Nuclear Plants, warned the unions that support of nuclear power only benefited the capitalist agenda. If nuclear plants were constructed, the Munich Initiative argued, coal workers were sure to lose their jobs; and more electricity led to further industrial rationalization, resulting incidentally in a net loss in employment. It also warned that waste storage was inherently dangerous and was impossible to secure.¹⁴⁴

These lukewarm supporters offered some potential for the Bavarian Ministry of Economics to form an alliance, with which to develop the nuclear agenda. Unfortunately

¹⁴² BayHSA: StK 18794, Deutscher Gewerkschaftsbund, Kernenergie und Umweltschutz: Stellungnahme des DGB-Bundesvorstandes vom 5.April.1977, 6720-85.

¹⁴³ Bayerische Landtag, *Drucksache* 5702, 8 Wahlperiode, June 30, 1977.

¹⁴⁴ BayHSA: FISig 716, Münchner Initiative gegen Atomkraftwerke, 1977.

for the Ministry's ambitious landscape plans, which had showed considerable promise in 1973, the vicissitudes of popular acceptance began to tilt against the government. Following the Oil Crisis, society polarized, as the very same evidence of oil depletion that provided the Bavarian Government with new impetus to complete its program, also was interpreted as confirmation of a decline in energy consumption, reinforcing the opposition's claims that nuclear power was unnecessary. The challenge from the anti-nuclear campaign, now fused with the energy of the New left, was indeed vast, spirited, and persistent. Having adopted a critique of reprocessing, the anti-nuclear movement could appeal more universally, disrupting nuclear plants across the Federal Republic. Surprisingly though, as we will see in the next chapter, locational disputes still predominated the Bavarian debates in nuclear power controversies, at least until 1980. In this way, the discussion remained amazingly similar to that of the nineteen-fifties. We turn now to the implementation of the nuclear program, first and foremost with the story of the Grafenrheinfeld nuclear plant, which was constructed despite general regional opposition. However, this victory was pyrrhic at best, because similar protests elsewhere curtailed the systematic expansion of nuclear power.

Chapter 5: Implementation and Retraction: Grafenrheinfeld and the Nuclear Power Program

The ambitious plans of the Bavarian Government to construct a nuclear power network met a new political climate in the nineteen-seventies. Within this charged political climate, the Bavarian government had established numerous new locations for nuclear power plants, but due to hydrospheric, lithospheric, or atmospheric limitations quickly discovered that these sites were heavily contested. While the concerns came first from traditional associations and bureaucracies about regionally specific complaints—particularly with regard to the dispersion of excessive thermal energy—increasingly the new groups became involved, infused with innovative rhetoric. In Bavaria, these demonstrations remained modest in comparison to Baden-Württemberg, although quite noteworthy in their own right. In fact, the older locational-oriented objectives predominated for the vast majority of the Bavarian population through 1980. In view of the entire nuclear agenda of the Bavarian Government, which sought to construct a vast array of nuclear reactors on the Main-Danube watershed, the Government only saw limited success. Aside from the existing sites at Gundremmingen and Ohu, a sole nuclear reactor was constructed on only one new location at Grafenrheinfeld. The focus of much of this chapter, the nuclear plant at Grafenrheinfeld witnessed large-scale regional demonstrations, predominantly against the thermal and hydraulic discharge into the environment. In spite of regional demonstrations, litigation, and legislation, the Bavarian Government pushed the nuclear permits through the administration and courts,

constructing the reactor. For the Government, this was a pyrrhic victory however, as similar technical difficulties and popular discontent elsewhere curtailed further expansion, leading to a sizable downscaling of the nuclear agenda. This chapter will first provide a lengthy exploration of the affair at Grafenrheinfeld, then look briefly at other projects of the nineteen-seventies across Bavaria.

5.1 Reaction to the Nuclear Plant Grafenrheinfeld

In 1987, Gundrun Pausewang authored the youth book, *Die Wolke* (Fallout), a fictional account of worst-case-scenario (GAU in German) explosion at the Grafenrheinfeld nuclear plant. Based on the Chernobyl catastrophe of the previous year, Pausewang captured the atmosphere that would follow if such a calamity struck West Germany, especially as it affected the 14 year old Janna-Berta. While she flees her house in a small town of Schlitz in East Hesse to eventually reside with an aunt in Hamburg, she must live with the tragic loss of the rest of her immediate family, who were not so lucky to escape. Traumatized, her hair falling out, Janna-Berta seeks to return to the site of her brother Uli's death. Pausewang intended the best-selling book to educate youth of the dangers of nuclear power, providing a post-apocalyptic poem in the foreword. The work was a follow-up to her 1984 youth dystopia, *The Last Children in Schewenborn*, which described a youth's survival in a small German town after nuclear war. At the twentieth anniversary of Chernobyl, 2006, *Die Wolke* was adapted to the big screen, in a

film by Gregor Schnizler. This time the disaster was set in the fictional town of Marktebersberg, departing thereafter from the story that Pausewang established.¹

Pausewang chose Grafenrheinfeld because it resided near the border of Bavaria, not far from her childhood town of Schlitz in Hesse. Of the potential Bavarian sites chosen for the construction of Bavarian nuclear reactors in the nineteen-seventies, Grafenrheinfeld, southwest of Schweinfurt on the Main River in Northeastern Bavaria, was the most controversial. Although demonstrations were modest in comparison to the contemporaneous outbursts in Baden-Württemberg or Schleswig-Holstein (or later the Bavarian reprocessing plant at Wackersdorf)—protests remained mostly regionalized amongst a more conservative population—we can witness a similar progression of events over the course of the decade. In continuation of the trends from the last twenty years, protest initially focused on the local effects of the thermal discharge on the landscape, agriculture, recreation, and climate. Regional and municipal nature preservation bureaucracies pursued legal means—namely through the judicial system—to stop the dispersal of heat and radiation into the hydrosphere, atmosphere, or lithosphere. Following the 1974 site occupation at Wyhl, we witness the intensification and widening of hostility between the Bavarian Government and the region, as rumors abounded that a ‘second Wyhl’ may happen. The demands remained largely the same, but the local youth, churches, and trade unions became acutely involved in the episode, heightening the security fears of the regional police. Finally, after the radical turn at Brokdorf,

¹ Gundrun Pauseweg, *Die Wolke*, 2005 ed. Part of the Süddeutsche Zeitung Junge Bibliothek series (Ravensburg: Otto Maier, 1987); *Die letzten Kinder von Schewenborn oder... sieht so unsere Zukunft aus? : Erzählung* (Ravensburg: Otto Maier, 1984); Pauseweg has also authored youth books on such somber topics as Adolf Hitler and the Eastern Front during World War II.

conservative regional protestors began to question their relationship with the national associations, while at the same time, began to more actively discuss the dangers of plutonium processing. This tenuous alliance broke down after 1976, allowing the project to move forward.

Planning for the Bayernwerk 1200 megawatt light-water reactor began in the late sixties, and the State Planning Process went forward in January, 1972. At that time, Bayernwerk had declared the nuclear plant an absolute necessity for the security of Bavarian electricity supply. In 1972, Bavaria consumed about 5350 electrical megawatts at peak capacity, but only produced 4760 domestic megawatts, relying on importation to meet consumer needs. Of this, Bayernwerk produced 2450 megawatts, with the utility already operating at 96% capacity. Relying on annual energy growth averages since 1949, Bayernwerk concluded that it must expand its capacity at 10-11% *per annum*, doubling every seven years, with a goal of a 2600 megawatt increase by 1980. This goal could not be attained by diminishing reserves of fossil fuels—brown coal, black coal, natural gas, nor oil—of which Bavaria already imported more than any other German state. Bayernwerk determined that the Grafenrheinfeld nuclear plant had to be completed by 1978 at the cost of 1.1 billion deutschmark, with a second 1200 MW reactor at the same location soon to follow, together providing about 92% of the 1980 target.² Writing the ministries on behalf of the Energy Outlook Commission, following a meeting held on March 1, 1973, Minister of Economics, Anton Jaumann, stressed that at the current 7.2% rate of annual energy consumption expansion, 4400 MW would be necessary by 1977 and 6000 MW by 1980. He suspected that new environmental regulations would lead to

² BayHSA: StK18799, Bayernwerk Aktiengesellschaft, Die Verzögerung der Genehmigung des Kernkraftwerks Grafenrheinfeld bei Schweinfurt gefährdet die Stromversorgung Bayerns, Feb, 19, 1973.

an overall industrial net raise in energy demand. In this meeting, held approximately six months before the October, 1973 OPEC induced oil crisis, the Commission concluded that Bavaria was more susceptible to oil crises, because oil produced a quarter of its electricity, compared to a sixth of West Germany's other federal states.³ This speculation came from the recent rise in oil barrel price since February 1973, when the price of oil was set free from the United States Dollar.⁴ Of the 4400 MW projected for 1977, oil power plants at Ingolstadt and Pleinting would produce 1825 MW (41%), the brown coal plant at Schwandorf would produce 700 MW (16%), the black coal plant at Aschaffenburg would produce 489 MW (11%), existing nuclear reactors 589 MW (14%), and 154MW (4%) would derive from hydroelectricity. This left 634 MW (14%) that must come from other sources beginning in 1977.⁵

In 1973, Bavarians used less electricity annually per capita than the other federal states. Bavarians consumed 3300 kilowatt-hours per person, while the national average was 4300 kilowatt-hours per capita, and Rhineland Westphalia consumed near 6000 kilowatt-hours per person. Jaumann predicted that the with improving living standards in Bavaria, as well as the state's dedication to energy intensive industries like aerospace and plasma physics, that Bavarian energy consumption would increase incrementally faster than other surrounding states.⁶ In the Grafenrheinfeld project, Large Power Plant Franconia Corporation was a 25% partner with Bayernwerk, and its chairman Professor

³ BayHSA: StK 18799, Jaumann, Errichtung eines Kernkraftwerkes im Grafenrheinfeld, 6312- VI/ 2a – 10719, March 9, 1973.

⁴ Edgar Wolfrum, *Die geglü ckte Demokratie: Geschichte der Bundesrepublik Deutschland von ihren Anfängen bis zur Gegenwart*, (Stuttgart: Klett-Cotta, 2006), 338.

⁵ BayHSA: StK 18799, Jaumann, Errichtung eines Kernkraftwerkes im Grafenrheinfeld, 6312- VI/ 2a – 10719, March 9, 1973.

⁶ BayHSA: StK 18799, Landtagdienst, Die Angst vor den Atomkraftwerken, Oct. 19, 1973.

Ipfelkofer declared that the corporation would reach electrical capacity in 1977 and needed to expand production the following year.⁷

There were three main phases of receiving atomic permits: the Land Planning Procedure, the construction permit, and the operational permit, which allowed full criticality. The construction permit required water, electricity, and other permits, issued by the Regional Government of Lower Franconia in Würzburg, based upon the recommendations of the Land Planning Authority. Specialists considered Grafenrheinfeld to be topographically and meteorologically suited for a nuclear plant. However, numerous difficulties arose with regard to nature preservation. When the Land Planning Procedure slowed in 1973, delaying the construction permit, the ministries began to warn stringently of the “lights shutting off” as the repercussion for not continuing construction. This forced Bayernwerk to directly appeal to Minister President Goppel, to intervene on the utility’s behalf.⁸ The application for a construction permit began June 7, 1973. Critics of the project later (1975) blamed Bayernwerk for creating the conditions for rolling blackouts, because, they claimed, the utilities waited until the last moment, when demand reached critical proportion, before they expanded power production; this tactic aided the utility in pushing through the legal processes.⁹

Jaumann also argued that further delays with the nuclear plant would require Bayernwerk to construct instead a 600 megawatt oil power plant, in order to meet electricity demands. This would have numerous negative consequences. Of principle

⁷ BayHSA: StK 18799, Landesdienst, Grosskraftwerk Franken kann auf Kernenergie nicht verzichten, June 15, 1973.

⁸ BayHSA: StK 18799, Auszug aus der Niederschrift der Ministerratssitzung vom 18.9.73, September 18, 1973.

⁹ *Der Spiegel*, “Bürgerproteste,” (14) 1975, 2-5.

concern would be a higher dependence upon foreign oil and subsequent elevation of costs, which Jaumann noted as problematic in letter to Streibl two months before the OPEC oil contraction. Jaumann also believed that this decision would irreparably impede nuclear technology and implementation in Bavaria. Showing a sign of the changing times, he was compelled to also pose an environmental case for nuclear power. Not only would the oil plant pollute directly, particularly by emitting sulfur dioxide, but he asserted that the oil pipelines would damage the landscape.¹⁰

This location was also preferable, because Bayernwerk was convinced that a North Bavarian power plant was necessary. According to the company, aside from this site, there was little space available for a reactor on the Main; the River at the Kahl reactor site near Großwelzheim was categorized in the 1973 state water assessment as either Class III-IV “very strongly polluted,” or Class II-III “critically burdened.”¹¹ Bayernwerk pointed out that the Aschaffenburg region was home to three industrial areas and a residential region of 1.3 million people that already heavily burdened the water supply. While further construction was possible on the Danube, Bayernwerk argued it was unwise to build all of the Bavarian electrical production in the South. To make this point, the utility emphasized both economic and environmental factors. If the reactor were built in the South, then 400 kilometers of 380 kilovolt high-voltage power lines would have to be erected to transfer the power, at the cost of 240 million DM and countless ecological and local disputes.¹² Jaumann added that the government already paid 20 million DM annually to transport energy from south to north, because only a

¹⁰ BayHSA: StK 18799, Jaumann to Streibl, 6312 - VI/ 2 - 10719 II, Aug. 20, 1973.

¹¹ Monika Bergmeier, *Umweltgeschichte der Boomjahre*, 297, original source: *Raumordnungsbericht der Bayerischen Staatsregierung 1973*, 205.

¹² BayHSA: StK18799, Bayernwerk Aktiengesellschaft, Die Verzögerung der Genehmigung des Kernkraftwerks Grafenrheinfeld bei Schweinfurt gefährdet die Stromversorgung Bayerns, Feb, 19, 1973.

sixth of power sources resided in North Bavaria, with two-thirds south of the Danube.¹³ Furthermore, a new power line would require 30 square kilometers of land over its 400 kilometer length.¹⁴ As mentioned in the previous chapter, Landtag members of the FDP, Otto Bezold and Franz Penzel recommended that utilities construct a decentralized electricity grid, with one power plant in each of the seven regions.¹⁵ Jaumann felt that if the Land Planning Authority could overcome the inherent burden that energy production placed on the water supply—namely by constructing cooling towers—then nuclear power would fill this niche, as plants could be situated in the corners of Bavaria, far from fuel sources.¹⁶ Forecasting for 1980, his designs called for 5 to 6 reactors, so that 50% of electrical production came from nuclear power.¹⁷

The first phase of the State Planning Process, the water permit, met considerable regional bureaucratic resistance. In the 1973 Bavarian State Report on watershed, the sections of the Main River South of Schweinfurt near the proposed reactor location were listed as either Water Class III “strongly sullied” or Water Class II-III “critically burdened.”¹⁸ This problem was magnified by the concurrent construction of a conventional power plant on the Left Bank in Hesse, on the border to the Aschaffenburg region.¹⁹ The Bavarian State Bureau for Water Protection reported in 1972 that current conventional power plants in the Aschaffenburg region, along with the reactors at Kahl,

¹³ BayHSA: StK 18799, Jaumann, Errichtung eines Kernkraftwerkes im Grafenrheinfeld, 6312- VI/ 2a – 10719, March 9, 1973.

¹⁴ ACSP: NL Klein 164, *Welt am Sonntag*, “Donauwasser für den Main,” April 22/23, 1973.

¹⁵ BayHSA: StK 18779, Landtagsdienst, Auszug Bayerische Landtagsdienst, Berichte und Informationen aus dem Parlament, October 19, 1973.

¹⁶ ACSP: NL Klein 164, Referat VI 2 MWi Lämmle to Referat M 3, Abteilung VI MWi: Gegendarstellung der Bürgeraktion Umwelt- und Lebenschutz Schweinfurt e.V. der Welt am Sonntag, May 4, 1973.

¹⁷ ACSP: NL Klein 164, *Welt am Sonntag*, “Donauwasser für den Main,” April 22/23, 1973.

¹⁸ Monika Bergmeier, *Umweltgeschichte der Boomjahre*, 297, original source: *Raumordnungsbericht der Bayerischen Staatsregierung 1973*, 205.

¹⁹ BayHSA: StK18799, Auszug aus der Niederschrift der Ministerratssitzung vom 18.9.73, September 18, 1973.

already heated the water to 28 degrees Celsius in the summer, and threatened to reach hazardous levels of over 30 degrees. In order to stop this from happening, the bureau demanded cooling towers be retrofitted on the conventional power plant already at Aschaffenburg and that Main water flow be improved expeditiously.²⁰ Based upon these gloomy reports, the Highest Construction Authority and the Bavarian Biological Testing rejected the planned reactor, unless another source of cooling water surfaced. Social Democrats in the Landtag, led by Oskar Soldmann, came to similar conclusions. He argued that the nuclear plant would heat the water to the degree of critical pollution temperature and also lower water tables to a serious level, slowing shipping traffic to 100 meters per hour.²¹ The Regional Planning Association Main/ Rhön suggested that the nuclear plant's water use should not be allowed to limit further economic growth of the region, by way of hampering industrial and residential expansion.²² Land Planning officials recognized Main's deplorable condition and a second reactor planned at Bamberg was cancelled due to insufficient water flow, giving priority to Grafenrheinfeld.²³

However, the Bavarian Land Bureau for Water Sources and Water Protection declared that it was not necessarily true that the reactor would threaten the integrity of the Main River. Banking on the completion of the Rhine-Main-Danube Canal, the Bureau recognized that the Main would soon have the hydraulic capacity to operate 4000 additional megawatts. The RMD was designed to divert water from the Altmühl and

²⁰ BayHSA: StK 18802, Bayerisches Landesamt für Wasserversorgung und Gewässerschutz, Wärmelastrechnungen Main, Aug. 1972.

²¹ BayHSA: StK 18799, Landtagdienst, Die Angst vor den Atomkraftwerken, Oct. 10, 1973.

²² BayHSA: StK 18799, Chair of Regional Planungsverbandes Main/ Rhön Walter Keller to Alfons Goppel, June 28, 1974.

²³ BayHSA: StK 14666, Landesdienst Bayern der Deutschen Presse-Agentur, Pläne für Kernkraftwerk zurückgestellt, June 2, 1973.

Danube Rivers towards the Main River, hopefully improving the watershed of both major river systems. This additional water flow would easily cover the proposed 2600 MW of the two reactors, planned to be completed in the same year, 1981. Until then, smaller, cheaper canals, water treatment, and river regulation would provide enough water to operate the single unit. Key to this thinking was that the plant construction would last about four years, providing significant time to overcome the obstacles.²⁴

Problematic were the enormous costs and the consistent opposition towards the project, both of which continually delayed its completion. By 1974, the projected deadline was postponed to at least 1984, then at that time, until the 1990's; the canal was only finished in 1992.²⁵ The delays required more substantial water diversion (*Wasserüberleitung*), and members of the SPD reluctantly suggested lakes south of Nuremberg, Brombach Reservoir and the Altmühl Lake for such a project, but remained opposed to the nuclear reactor, if the water problem could not be resolved.²⁶ Furthermore, to improve Main water temperature, a water treatment plant was in the works at Würzburg.²⁷ However, in 1974 the Highest Construction Authority felt these piecemeal measures would not be enough, without construction of another reservoir. Water diversion from the Danube, the Regional Planning Authority worried, would jeopardize river levels at the already endangered Ingolstadt region.²⁸

²⁴ BayHSA: StK 18799, Bayernwerk Aktiengesellschaft, Die Verzögerung der Genehmigung des Kernkraftwerks Grafenrheinfeld bei Schweinfurt gefährdet die Stromversorgung Bayerns, Feb. 2, 1973.

²⁵ BayHSA: StK 18799, Landesdienst, SPD-Abgeordnete befürchten Überheizung des Mains durch Kernkraftwerk, August 30, 1974.

²⁶ BayHSA: StK 18799, Landesdienst, SPD-Abgeordnete befürchten Überheizung des Mains durch Kernkraftwerk, August 30, 1974.

²⁷ SZ, "Wasserrechnung mit Atomkraftwerk," Dec. 8, 1976.

²⁸ BayHSA: StK 18800, Tonaufzeichnung der Demonstrationsveranstaltung in Schweinfurt am 19.4.75 wegen des Baues des KKW in Grafenrheinfeld, 67209-31, April 19, 1975.

The RMD Canal project met strong opposition at every village between Regensburg and Nuremburg. An example was the regional bureaucracies and Landrat from Straubing.²⁹ Offering particularly strong condemnation of the project was the Bavarian Nature Preservation League, which published continual criticisms in its *Magazine for Nature and Environmental Preservation*. The League argued that the canal, like the autobahn, was an eye-sore on the landscape and endangered the riparian ecology of the Altmühl, Sulz, and Ottmaring Valleys. On the basis of these criticisms, the planning agencies had to increasingly incorporate expensive ecological measures, attempting to lessen the impact on the surrounding landscape. For example, the final upgrade on the stretch from Nuremburg to Altmühl integrated a water-saving lock system.³⁰

On top of decreased water flow, the nuclear plant threatened to reprehensibly heat the Main River water temperature. To combat this problem, the Bavarian State Bureau for Water Supply and Water Protection approved the plan to construct an enormous 170 meter high, 120 meter wide evaporation cooling tower. While the nuclear plant would require 4.35 cubic meters per second of Main water to cool the secondary water circuit, the tower would intake air at its base, mix with the condensation, cooling the reactor, then release steam through its top, high in the atmosphere. The steam in the secondary circuit never comes into contact with the enclosed primary loop, which is the only one that is irradiated, and is filtered of radiation particles. Through this process a minimum of

²⁹ ACSP: NL Klein 164, Chairman Riederer of the Bürgeraktion Umwelt- und Lebenschutz Schweinfurt to the Redaktion der Welt am Sonntag, Gegendarstellung zum Artikel Donauwasser für den Main in 22/23.4.73, April 25, 1973.

³⁰ See a brief history by a former chair of the German Canal and Shipping Association Rhine-Main-Danube on the corporation's website: Wilhlem Doni, "Überblick über die Geschichte des Main-Donau Kanals," <http://www.schiffahrtsverein.de/doni2.htm>, accessed October 5, 2008.

condensation is lost, with most of the water more sensibly returned to the river, at a very acceptable ten degrees Celsius. With these cooling towers, a considerable amount of the heat is transferred into the atmosphere at high altitude—an estimated two thirds of the thermal energy produced.³¹ In the future, it was hoped that so-called dry cooling towers would replace the condensation towers. In the early seventies, this process was only technically feasible for power plants of under 200-300 MW—not nearly large enough to be economically viable with nuclear power. Even though cooling systems were more expensive and reduced overall electrical output, the environmental ministry placed considerable faith in these towers to reduce substantially cooling water used per megawatt.³²

Even more so than the direct exploitation of the Main River, the cooling tower represented the critical point of contention and a symbol that galvanized and rallied the opposition. Given that the two industrial regions of Northeastern Bavaria, Schweinfurt and Aschaffenburg, were relatively close together, and also likely sites for future nuclear plant expansion, CSU Municipal Council member in Schweinfurt, German Cramer complained that there was an over-concentration of power plants in the region, overburdening the population with steam clouds.³³ As reported in *Der Spiegel*, engineer Harold Grübel warned that increased fog would hinder traffic on the nearby autobahn, leading to frequent multi-car pileups.³⁴ Others complained that the tower's air intake

³¹ *Bayerische Staatsanzeiger*, "Bekanntmachung des Bayer. Staatsministeriums für Landesentwicklung und Umweltfragen," November 16, 1973.

³² BayHSA: StK 18799, Ministerdirigent Wochinger of SM für Landes und Umwelt to Horst Damköhler, representative of the Deutschen Angestellten-Gewerkschaft, Landesverband Bayern, 6311 - VI/2b - 9381, April 5, 1974.

³³ *Schweinfurter Tagblatt*, "Atomfrage spaltet Stadtrat nicht," Ludwig Wiener, October 31, 1973.

³⁴ *Der Spiegel*, "Bürgerproteste," (14), 1975, 2-5.

valves or turbines would generate overbearing noise pollution that would disturb the local population, the recreation, or the wildlife.

Streibl had this to say about these fears:

“The operation of the cooling tower will produce a murmur, similar to a rainstorm or a mountain stream. This murmur can be dampened through the use of tested technical measures so far that the sound level will not reach intolerable levels at 1000 meters away. Further effects, like the artificial formation of fog on the surrounding area or artificial drizzle are improbable and limited only to the periphery of the nuclear plant.”³⁵

Regional farmers were concerned about the androgenic manipulation of the microclimate connected with the condensation towers. These artificial changes could include: “humidity, fog, hail...stronger storms and less sunshine.”³⁶ Wilhelm Will, Landtag member of the CSU, further asked whether the cooling towers would have any effect on the fruit and wine region ten kilometers south of the nuclear plant. His inquiry stretched the breadth of the alleged climate alteration, beyond just the periphery. Naturally Streibl unequivocally excluded the possibility of radioactive contamination, or a reduction in the competitiveness of fruit or wine from the region, but had this telling bit to say about the climate:

Experience shows that the cooling towers will only produce a 10 to 100 meter billowing steam plume during sunny, clear skies. Other weather conditions may change that, up to a kilometer, but much of it will not be visible in most of the light spectrum. Other effects like artificial rain are not expected. There may be some warming of the atmosphere, but nothing close to the ground.

³⁵ BayHSA: StK 18799, Landtagdienst, Streibl zerstreut Grafenrheinfeld, October 16, 1973.

³⁶ *Main-Post*, “Der Harte Streit um das Atomei,” Ludwig Wiener, December 29, 1973.

He concluded that this will have no effect on the fruit and wine region.³⁷

Similarly, on the floor of the Bundestag the FDP pursued the possibility of implementing decentralized, helium or other dry cooling towers, which employed gas or dry air, instead of water. In theory, these towers, not bound to locations near water, could then be placed in more remote locations, away from the Main River.³⁸ Unfortunately, the ministry regarded the dry towers irrelevant until the future. The sole related experiment in the Federal Republic with this specific technology was the prototype 300 MW Thorium High Temperature Reactor at Uentrop—the dry towers were just not suitable for 1200-1300 MW.³⁹

Besides climatic effects, the towers generated opposition on aesthetic and symbolic grounds. In an article published December 29, 1973, the *Main-Post* described how the tower would dominate the landscape. Not only would the 170 meter tower (or towers) protrude from the trees, making it visible from as far as a hundred kilometers away, the “monstrous” cooling tower would dwarf nearby churches. The reactor building itself would rise about 100 meters above the surface. Called the “cathedral of the atomic age,” the newspaper attempted to incite a rather unenthusiastic response by comparing the reactor to the churches at Garstadt and Röthlein, demonstrating how these formerly dominant churches would become miniscule in the reactor’s shadow. To be more provocative, the article established that the church in Pfarrkirche would lie within the danger zone in the case of an accident.⁴⁰ Among many complaints, the Schweinfurt City Council argued that the “mammoth power plant” would disrupt the city’s “organic”

³⁷ Bayerische Landtag, *Drucksache* 5054, 7 Wahlperiode, Oct. 1, 1973.

³⁸ Bayerische Landtag, *Drucksache* 5099, Wahlperiode 7, Oct. 18, 1973.

³⁹ Bayerische Staatsministerium für Landesentwicklung und Umweltfragen, 3. *Raumordnungsberichte* (Munich: Druckhaus Bayreuth, 1976) 214.

⁴⁰ *Main-Post*, “Der Harte Streit um das Atomei,” Ludwrig Wiener, Dec. 29, 1973.

expansion.⁴¹ This had been a common complaint in many projects, but in this case, locals believed that the reactor would cease Southern residential and industrial growth.

To make matters more controversial, the public felt that Bayernwerk had duped it during the permit process. The Columbia Motor Firm had originally performed the cooling tower assessment in 1972, when Bayernwerk proposed four towers (for both reactors) of 147 meters in height. But the new plan called for a single, cheaper 170 meter tower for each reactor. In retrospect, the Citizens' Initiative declared the 147 meter towers acceptable, unlike the 170 meter tower.⁴² Among other factors, the misinformation on the towers led the Citizens' Initiative to doubt the integrity of any permits issued by the Bavarian State, especially the weather and climate reports of the Land Bureau, because of alleged government-utility collusion. As the Citizens' Initiative put it, Bavaria, as a principle owner of Bayernwerk, would be providing itself "so to speak, self given permits."⁴³ As Soldman pointed out, four members of the cabinet sat on the Bayernwerk board of directors.⁴⁴ At the same time, Bayernwerk wished to hurry the permit through the process, and the Economic Ministry had a stake in pushing it forward, because the cooling tower took approximately 36 months to construct.⁴⁵

The proposed location for the nuclear plant resided near the autobahn intersection, south of Schweinfurt. On both sides of the intersection were regions under landscape preservation, including a recreational, camping, and bathing center at the flooded rock quarry-turned-lake (*Baggersee*) five kilometers northeast from the reactor, and three

⁴¹ BayHSA: StK 18799, Landesdienst, Bürger wollen gegen geplantes Kernkraftwerk prozessieren, May, 29, 1973.

⁴² *Main-Post*, "Verbrennt in Grafenrheinfeld die Demokratie?" November 17, 1973.

⁴³ *SZ*, "Kein Wermustropfen für Weinort," Oct. 18, 1973.

⁴⁴ Bayerische Landtag, 67 Sitzung, 7 Wahlperiode, June 6, 1973.

⁴⁵ Bayerische Landtag, 7 Sitzung, 8 Wahlperiode, Jan. 29, 1975.

landscape protection zones.⁴⁶ The first group to protest was the Ornithological Alliance Lower Franconia in 1972, which was able to convince Lower Franconia and Schweinfurt County nature preservation officials, Dr. Karl and Wilhelm Schaffner respectively, to join the crusade.⁴⁷ SPD member Oskar Soldmann spoke out against the nuclear plant in 1973, because the requisite 50 hectares would disrupt this area, which was North Bavaria's "one-of-a-kind" bird sanctuary. Furthermore, the lake and parks served Schweinfurt as a recreation area, and the people of the region had the "right to recreation plots."⁴⁸ Elsewhere, the City of Schweinfurt argued that the planned expansion (about a million DM) of recreational facilities at the lake would be hemmed in by the land necessary for the nuclear project.⁴⁹ The nuclear plant would actually divide two of the landscape preservation zones, Elmus and Garstädter Hölzle.⁵⁰ Later in October 1973, Streibl predictably responded that the nuclear plant would have no affect on recreation in the area, neither through radioactive emission, nor through microclimatic change. Here, Streibl was peculiarly addressing the concern that increased cloudiness or rain may hinder recreational enjoyment in the region, particularly at a beach on the lake.⁵¹

In protest, the Citizens' Initiative Environment and Life Protection Schweinfurt (*Bürgeraktion Umwelt- und Lebenschutz Schweinfurt*, referred to as Citizens' Initiative or CI hereafter) organized on July 7, 1972, and signed 36,000 names to a list of protest by the middle of 1973—and continued to elicit signatures to at least 45,000 in 1974. A non-

⁴⁶ BayHSA: StK 18799, Landtagdienst, "Die Angst vor den Atomkraftwerken," Oct. 10, 1973.

⁴⁷ Klaus Gasseleder, *Und ewig strahlt der "Nachbar": Wie der Bau des Kernkraftwerks Grafenrheinfeld gegen den regionalen Widerstand durchgesetzt wurde* (Schweinfurt: Verlag in der Disharmonie, 1993), 6-7.

⁴⁸ BayHSA: StK 18799, Landtagdienst, "Die Angst vor den Atomkraftwerken," Oct. 10, 1973.

⁴⁹ *Main-Post*, "Der Harte Streit um das Atomei," Ludwig Wiener, December 29, 1973.

⁵⁰ *Main-Post*, "Der Harte Streit um das Atomei," Ludwig Wiener, December 29, 1973.

⁵¹ Bayerische Landtag, Drucksache 5054, 7 Wahlperiode, Oct. 1, 1973.

partisan regional initiative, it was led by Schweinfurt Mayor, Kurt Pezold (SPD), and two Schweinfurt City Council members, the legal advocate, German Cramer (CSU), and *Gymnasium* professor, Karl Riederer (FDP). The situation began with Bayernwerk's announcement of the project in June, 1972, meant to inform the public, but producing a very different, unintended result. When the Bavarian government had originally released notice of the venture in 1969, it received little fanfare. In fact, then Mayor Volk of Schweinfurt welcomed the project and its considerable tax revenue.⁵² The June 1972 declaration was given by Bayernwerk representative Werner Strasser, who intended to quell any fears, stating that the Main would not be overburdened, there was no possibility of an accident, and that nuclear power was environmentally friendly. Very similar to the origins of the Ebersberg Forest episode, the editor of the local *Schweinfurter Tagblatt*, Ludwig Wiener, began publishing reports from numerous local experts, such as Wilhelm Schaffner, who concluded that Bayernwerk had been disingenuous with the public.⁵³ According to the same newspaper, the city was split in half on its opinion, but the letters-to-the-editor were 97 to 3 opposed to the project. At the same time, all of the local branches of the major parties, SPD, FDP, and CSU, resisted the project, except for the CSU faction of the county of Schweinfurt.⁵⁴

Included in the Citizens' Initiative was the City of Schweinfurt, and in June 1973 the two began to pursue legal means to disrupt the State Planning Process, by hiring well known attorneys, Professor Hinz Bremen and Professor Mayer-Tasch of Munich, who authored several anti-nuclear books in the late seventies.⁵⁵ This legal group appealed to

⁵² Klaus Gasseleder, *Und ewig strahlt der Nachbar*, 5.

⁵³ Klaus Gasseleder, *Und ewig strahlt der Nachbar*, 7-8.

⁵⁴ *Main-Post*, "Der Harte Streit um das Atomei," Ludwig Wiener, December 29, 1973.

⁵⁵ *Main-Post*, "Der Harte Streit um das Atomei," Ludwig Wiener, December 29, 1973.

the Regional Administrative Court in Würzburg, in effort to stop construction, an approach similar to that tried at Gundemmingen and Wyhl. While much of the opposition derived from local groups, two regional associations, the Bavarian Nature Preservation League and German Trade Union League (DGB) established a ‘*Jein*’ position at this time—not unequivocally opposed to nuclear energy, but against the proposed location.⁵⁶ Similar were the objections of the SPD in the Landtag, led by Oscar Soldman, who were critical of the specific site.⁵⁷

Max Streibl suggested in a cabinet meeting that the Citizens’ Initiative was led by politically “left and extreme left” groups and the Land Planning Process should be expedited, bringing it to the swiftest possible conclusion. The Ministers agreed and pressed the procedure forward, under the premise of maintaining energy stability. Also on the agenda was keeping construction costs as low as possible, because setbacks incrementally increased overall expenses.⁵⁸ Still, the government announced it would accept any grievances sent to the Landsrat Bureau Schweinfurt before February 6, 1974.⁵⁹ Approximately 800 complaints were filed, but the Environmental Ministry awarded the first so-called ‘partial construction permit’ (*Teilbaugenehmigung*) on June 21, 1974.⁶⁰ This allowed construction to begin, especially on the cooling towers. At this time, the blueprints were altered so that two less obstructive, 143 meter high towers would be built for the first reactor, with a base of approximately 104 meters, and parabola top of about

⁵⁶ SZ, Christian Schneider, “Unbehagen über Atomkraftwerke” October 19, 1973.

⁵⁷ BayHSA: StK 18799, Landtagdienst, Die Angst vor den Atomkraftwerken, October 19, 1973.

⁵⁸ BayHSA: StK 18799, Voraus-Auszug aus der Niederschrift über die Ministerratsitzung vom Dienstag, 10.4.73.

⁵⁹ *Bayerische Staatsanzeiger*, “Bekanntmachung des Bayer. Staatsministeriums für Landesentwicklung und Umweltfragen,” Nov. 16, 1973.

⁶⁰ BayHSA: StK 18800, Staatsministerium für Landesentwicklung und Umweltfragen, Unterlage für Pressekonferenz am 17.4.1975, 17,00 Uhr

64 meters. August 26, 1974, in the case of the City of Schweinfurt versus the Free State of Bavaria, the Regional Administrative Court in Würzburg ruled the nuclear plant construction permit invalid—that construction could only proceed after the final, entire atomic permit was issued. The decision was reached on the grounds that it was in the public interest to limit project investment until the entire legal process was completed.⁶¹

With the court decision unquestionably in its favor, the city had won what appeared to be a pronounced victory for the entire region. Potentially, the ruling could delay construction for several years, buying the Citizens' Initiative valuable time for further civil litigation, if not permanently stalling the process. This achievement was more remarkable because the grievances had remained regionally based, largely focused upon traditional landscape issues, without national influence. However, since the nuclear plant represented the Northeastern cornerstone in the government's agenda to transform the Bavarian landscape, the ministries would not relinquish so easily. Beginning in 1974, the affair escalated, as the Government doggedly pursued its goal, and the new national anti-nuclear campaign became involved.

⁶¹ BayHSA: StK 18799, Landesdienst, In Grafenrheinfeld darf vorerst nicht wiedergebaut werden, Sept. 3, 1974.

5.2 The Situation Intensifies

With the regional court's decision, by all standards the local protest had triumphed. However, the project was much too important for Bayernwerk and the Bavarian Government to simply allow the events to transpire. Rather, it led to a series of heated debates and judicial battles, as Bayernwerk appealed to the Bavarian Supreme Administrative Court (*Verwaltungsgerichtshof*) to overrule the regional decision. This resulted in a broadening and deepening of the dispute, galvanizing new constituencies normally not present in nuclear power debates—youth, ministers, and unionists. The next couple of years witnessed mass street demonstrations and the threat of an outbreak of violence, as the affair polarized the region.

In order to expedite the erection of the tower, without overstepping the legality of the permit process and the court decision, the construction company began building what was referred to as a “thick wall” on the site, even before receiving the requisite permits. This wall was the foundation for two cabins, which were a not element of the nuclear power plant itself, but rather were designed to facilitate its construction. In an attempt to halt this process, the City of Schweinfurt appealed to the Regional Administrative Court in Würzburg, which summarily ruled August 2, 1974, in favor of the construction company, because the cabins were external and superfluous to the nuclear plant.⁶² Since the power plant had not been issued the proper construction nor atomic permits, and the construction company received permission from the State Bureau Schweinfurt regardless, it was once again perceived as a clever means—through a technical

⁶² BayHSA: StK 18799, Landesdienst, “Schweinfurter klage wegen Grafenheinfeld abgewiesen,” August 8, 1974.

loophole—of subverting the democratic and legal processes.⁶³ Immediately on the following weekend, 3000 people met at the Schweinfurt City Council Building to listen to Mayor Kurt Petzold, who complained that the government was, in the name of finance, “constructing before thoroughly inspecting.”⁶⁴ Placards at the subsequent procession read: “Environment on their lips, but money in their pockets; Democracy of the people, or dictatorship of the bureaucracy?”⁶⁵ On November 11, 1974, the ruling of the Würzburg Regional Court was overturned in the Bavarian Supreme Administrative Court in Munich, reapplying the original partial atomic permit.⁶⁶ The Supreme Court’s judgment established the precedence that the Ministry of Economics could provide energy construction permits, even before a criticality permit were secured, if sustaining energy production was in the public interest. Construction began in earnest on the two cooling towers, which locals mockingly referred to as Schorsch (Bavarian for George) and Erwin.⁶⁷

After the government granted the construction permit, the protest intensified in scale and resolution. On October 8, 1974, almost one year after the oil crisis, demonstrating groups under the umbrella of the Citizens’ Initiative signed a resolution in Schweinfurt. The list of signatory groups shows considerable continuity and some transformation of participants in the anti-nuclear movement. Signing the resolution were the traditional nature preservation groups: the Bavaria Nature Preservation League; the German Alpine Association; the Nature Friends; the Nature Hail Association; two

⁶³ *MM*, “Klage wegen Kernkraftwerk,” August 2, 1974.

⁶⁴ BayHSA: StK 18799, Landesdienst, “Bürger protestieren erneut gegen Atomkraftwerk,” August 10, 1974.

⁶⁵ BayHSA: StK 18800, Regierung von Unterfranken, Stellungnahme der Landespolizeidirektion Unterfranken, April 10, 1975.

⁶⁶ *SZ*, “Schweinfurt unterliegt im Kraftwerkstreit vor dem Verwaltungsgerichtshof,” Nov. 26, 1974.

⁶⁷ Klaus Gasseleider, *Und ewig strahlt de Nachbar*, 48.

beekeeper associations; the Historical Association; the Flower, Landscape, and Garden Facility Schwebheim Forest; the Bird Protection League; and the Ornithological Society of Lower Franconia. As had been the case since the nineteen-fifties, private businesses protected their interests, and in this case, the Trade, Banks, and Insurance Union penned as well. However, to indicate the generational shift in protest, a whole slew of youth associations and all of the major political parties were included: the Young Union, the Young Democrats, the German Labor Union (DGB) Youth, the District Youth Ring, and the most noteworthy and contentious, the Young Socialist. The resolution called for a cessation of construction and rejected further permits from the allegedly partisan Landrat Bureau, only accepting those from regional or local institutions. In particular, the CI demanded expert collaboration on ecology from the University of Würzburg, on climate from the Technical University in Munich, and on meteorology from the German Weather Service. Third, they proposed a “public choice of location” (*Standortwahl*), which would include contributions from professors who were not part of the establishment, and who had openly raised questions about the atomic complex. Fourth was the request to examine precisely and deliberately the objections put forward by the regional bureaucracies. The fifth part of the resolution was emblematic of the post-Oil Crisis climate—a request for the government promotion of energy saving through taxation and subsidization. As an addition, the Initiative requested that power plants develop the technology to combine electrical and thermal operations, so that the two-thirds of thermal energy discharged through the cooling towers would be efficiently utilized in residential housing.⁶⁸ Young people also formed two new associations that were not necessarily

⁶⁸ BayHSA: StK 18799, Bürgeraktion Umwelt und Lebensschutz, Resolution der Bürgeraktion Umwelt- und Lebensschutz e.V. Schweinfurt, verkündet auf der Protestdemonstration am 10.8.74 in Schweinfurt.

satisfied with the judicial procedure, but were involved in CI meetings: Symbiosis, an association dedicated to ecological issues, and AKW-No, which developed connections with other anti-nuclear groups throughout West Germany.⁶⁹ Finally, the original extra-regional anti-nuclear activist, Walter Schweiger of the World League for Protection of Life, who had been actively writing the Bavarian government since the mid-sixties, continued his prolific assault on all Bavarian Reactors.

Schweiger, who had been in opposition to nuclear power since at least the Ebersberg Forest incident, rejected the Grafenrheinfeld plant on three bases: it was illegal, not economically viable, and insecure. In a rather lengthy document to the Bavarian Landtag at the end of 1974, Secretary Alfred Dick addressed all of these objections. First, the Supreme Court's decision had indisputably recognized the legality of the project. With regards to the economic viability of reactors, Dick pointed out that one must include a long-term outlook in order to evaluate true expenses. At this time, about 25% of Bavarian electricity was produced by oil, which was steadily increasing in price. Enough Uranium reserves, however, exist until 2000; thereafter reprocessing and Thorium would supply the needs of Germany. With the rising costs of fossil fuels, not only from OPEC, but also due to emission regulations, electricity produced by fossil fuel would soon increase to 6 to 7 pfenning per kilowatt hour. Even with only 3000 operational hours per year, nuclear power, he insisted, projected at 4 to 4.5 pfenning per kilowatt hour for base load electricity (perhaps even middle load). Any eminently reasonable maintenance or security pauses, which received unjustified hyperbolic press coverage and allegedly resulted in a diminishment of profit, were a normal part of

⁶⁹ Klaus Gasseleder, *Und ewig strahlt de Nachbar*, 49-50.

industrial machinery, industry, and technology—all factories must occasionally make modifications. Whereas the 1966 Euroatom treaty set the tolerance dosage for radiation under 170 mrem per year, the Bavarian permits mandated emissions must remain below 30 mrem *per annum*. While natural radiation in West Germany averaged about 110 mrem yearly, most often, nuclear plants emit 1 mrem annually. The International Commission for Radiation Protection declared in 1972 that current radiation requirements need not be altered. In regards to fission byproduct, high radiation wastes had been stored at Asse II and low radiation wastes at Neuherberg near Munich, since 1967.⁷⁰

Unlike Wyhl, construction had already commenced at Grafenrheinfeld, before large-scale demonstrations contested the site. Some twenty million DM had already been spent on the wall and tower erection, making police protection more likely than had been the case at Wyhl. It also gave legitimacy (or perhaps excuse) for the judicial decision at the Bavarian Administrative Court.⁷¹ After Schweinfurt's injunction against the construction permit was overturned, individual protestors filed civil lawsuits in the Supreme Administrative Court against the criticality of the facility. Because of this, construction inherently held the risk that the facility could be completely built, only to remain an unused shell, much like the reactor at Niederaichbach.⁷² This was later the case at the experimental fastbreeder at Kalkar, where the cooling tower was built, but the facility never permitted to go critical, in part because of technical difficulties. Today a mural covers the face of the Kalkar tower, and the surrounding open lot often serves as a festival grounds. Even though three individual, private suits remained through 1976,

⁷⁰ BayHSA: StK 18799, Alfred Dick to the Präsidenten des Bayerischen Landtags, 6341a7-VI/2b-31263, Dec. 27, 1974.

⁷¹ *Nürnberger Nachrichten*, "Der Geist von Wyhl geht bei den Schweinfurtern um," April 15, 1975.

⁷² BayHSA: StK 18800, Bayerische Landtag, 17 Sitzung, 8 Wahlperiode, April 23, 1975

after the favorable November 22, 1974 decision from the Supreme Administrative Court, the government insisted it could continue construction, instead of waiting for further judicial processes. Critics though, felt that the enormous tax revenue spent on the project ensured that the government could force the courts to authorize the operational permit.⁷³

One of these lawsuits was represented by attorneys German Cramer and Mr. Haas in the Regional Court at Würzburg, on behalf of a property owner at the construction site, Georg Rügamer from Schwebheim. As a property owner, he claimed the right to be included as a plaintiff in the Bavarian Supreme Administrative Court's previous case. The Supreme Court had ruled that the Energy Outlook Bureau, headed by the Ministry of Economics, could award permits to construct energy facilities, if it served the good will of the people. On March 6, 1975 Cramer and Haas argued before the court that the verdict of the Supreme Court was faulty, because the projected energy needs were misrepresented. The former decision was based upon the 1974 German Institute for Economic Research report, which did not accurately reflect the economic recession and subsequent retardation of energy consumption. Rügamer pointed to the conclusions of Professor Petter Gräff of the Plasma Physics Institute in Garching, who, during the debate over the Isar I reactor, claimed that distance heating was technically feasible and that thermal output could reduce electrical consumption by 15-40%, rendering nuclear power unnecessary.⁷⁴

In a letter to the attorneys, Economic Ministerial Director Klein provided one of the more compelling responses to Rügamer's claim. Klein explained that currently

⁷³ SZ, "Atomkraftwerk Grafenrheinfeld wird nicht auf Eis gelegt," March 3, 1975.

⁷⁴ BayHSA: StK 18802, Ministerialdirigant Klein of BWi to Staatsanwaltschaft beim Verwaltungsgericht Würzburg, 6720-22a, April 4, 1975. For more on Gräff and the Isar I reactor see below.

thermal energy could only replace electrical kilowatt hours produced, not overall electrical production. Distance heating was intended to be a substitute for nighttime electrical consumption, but peak usage hours were in the daytime; current thermal design did not provide enough power to keep pace with peak consumption. Transferring electrical production to thermal production, Klein continued, would result not in a diminishment of nuclear power, but rather an overall increase, especially in the near term. Removing the heat would require a 27% efficiency loss in electrical output and necessitate a complete reconfiguration of housing appliances and gadgets, encouraging a short-term spike in energy needs. Citing a 1974 study given at a Berlin conference on thermal transfers, he demonstrated that economic viability relied upon 10-12,000 residents per cubic kilometer. The Schweinfurt region had less than two-thirds this population density. Of course, Klein recognized that constructing a large facility in the middle of a metropolis like Berlin or Hamburg, where it would be most effective, would have serious environmental consequences. He concluded that if distance heating were employed instead of cooling towers, it would result unwittingly in massive damage to the environment, because the heat would be discharged hazardously into the river during the summer.⁷⁵

In March, 1975, the Citizens' Initiative complained that the Bavarian Government was allowing construction in order to influence the ongoing court cases in Munich and Würzburg. If this collusion between the state and the utilities continued, the Initiative warned, it might lead to a "second Wyhl"—a site occupation. At the same time, it advised the government not to follow the example set by the Baden-Württemberg

⁷⁵ BayHSA: StK 18802, Ministerialdirigant Klein of BWi to Staatsanwaltschaft beim Verwaltungsgericht Würzburg, 6720-22a, April 4, 1975.

Government, by criminalizing the anti-nuclear movement and referring to the demonstrators as revolutionaries and anarchists. The CI assured that the movement drew from all portions of society, had a broad following, and maintained legality.⁷⁶ However, if the government continued with this course of action, the CI cautioned of “spontaneous demonstrations, that are neither induced nor controlled by us. The populace has unmistakably, with considerable resonance, demanded site occupation.”⁷⁷ Striebl’s response asserted that the nuclear plant proceeded legally, that grievances and lawsuits were handled in the proper responsible bureaucracies and courts, and that it was on the onus of the people to further respect the legality of the project.⁷⁸ Bayernwerk, having read several newspaper articles suggesting an occupation might occur, became apprehensive that protestors would attempt to vandalize the property, and implored the ministry review its police measures—which it proceeded to do on March 26.⁷⁹

This led to the creation of a new operational command within the Regional Police Division of Protection, Transportation, and Crime, which would deploy emergency units to the construction site. Fifty policemen from the immediate region could respond within 30 minutes, an additional 40-90 in an hour-and-half, and more could travel from Würzburg, if given two to three hours. However, based on the experience at Wyhl, where protesters bypassed barbed wire and trenches by covering them with tree branches—then overran 400 policemen—the police determined that the 220 centimeter high chain-link periphery fence was easily surmountable. At Wyhl, the demonstrators also led with “children and pregnant women,” “restricting the discretionary action” of the

⁷⁶ BayHSA: StK 18800, Bürgeraktion Umwelt und Lebenschutz to Max Streibl, Mar. 21, 1975.

⁷⁷ BayHSA: StK 18799, *Main Post*, “Bürgeraktion warnt bayerische Staatsregierung,” March 24, 1975.

⁷⁸ BayHSA: StK 18799, *Schweinfurter Tagblatt*, “Striebl antwortet Bürgeraktion,” March 29, 1975.

⁷⁹ BayHSA: StK 18799, Bayernwerk Aktiengesellschaft to SM für Landesentwicklung und Umweltfragen, 6720-9-20, April 3, 1975.

police. Regional police were further worried about other, non-Bavarian protestors joining the endeavor. The report concluded that even though these men could be deployed, police efforts could not stop a massive attempt at occupation like Wyhl, especially since the local press would support the demonstrators. Because of this, policemen would maintain surveillance on Symbiosis, the more radical offshoot from the CI, since they posted a sign on the Catholic Church door encouraging site occupation. However, they implored the government to resolve the situation immediately, with a non-confrontational political decision. Police depositions record that spontaneous protests broke out near the construction site on March 3 and 15; both remained under 60 persons (“many mothers and children”), and left the site “without confrontation.”⁸⁰ Based upon this report, Regional President in Würzburg, Meyer, recommended a suspension of construction to defuse the situation, at least until the informational pamphlets took effect. He expected 1000 demonstrators in Schweinfurt on April 19, with Mayor Pezold, Dean Strauss, CI leader Riederer and others to speak. Particularly, he was worried the CI had been emboldened by the outcome of Wyhl.⁸¹

In a ministerial meeting on April 15-16, Jaumann and Kiesel rejected this approach. Jaumann argued that stopping construction was impossible, because failure to meet energy needs would require Bavaria to import electricity—from states with nuclear plants. For his part, Kiesel suggested that since construction had already begun (unlike at Wyhl), the police had the legal obligation to protect the owners’ property. He suggested

⁸⁰ BayHSA: StK 18800, Regierung von Unterfranken, Stellungnahme der Landespolizeidirektion Unterfranken, April 10, 1975.

⁸¹ BayHSA: StK 18800, Regierungspräsident Meyer, 6720-9-26, April 16, 1975; Whereas in the fifties the women who authored letters questioning the *Atommeiler* were usually retired, such as the Ladies of Cöburg, the women involved in the Grafenrheinfeld demonstrations were overwhelmingly young and of child bearing age. The police reports betray a gendered perspective that warrants further study. For a discussion of gender relations at Wyhl see: Jens Ivo Engels, *Naturpolitik in der Bundesrepublik*, 369-371.

the ‘hard line’ approach, deploying at least 1000 policemen for the weekend’s demonstration. Unfortunately, he recognized that the press would take him to task, especially if journalists recorded the police bashing “women and children.” Streibl and Jaumann, though, were wary of the hard line, because it would escalate the situation, and suggested issuing a public declaration of the intent to erect a supervisory board on April 30, consisting of numerous representatives. The ministry voted to adopt both the hard and soft approaches.⁸² Thus they issued an announcement in the newspaper: the government would continue to support construction; the permit had followed due process in the Environmental Ministry and the Bavarian courts; it was in the public interest to meet energy needs; the government would approve of all legal means, including the use of police force to protect the property.⁸³

Letters-to-the-editor, such as that sent by Hubert Ettl on April 17 to the *Main Echo*, also encouraged a second Wyhl, although he did not specifically provide a plan for action.⁸⁴ Threats followed the April 11 decision of the Regional Administrative Court at Würzburg—an attempted second injunction by the City of Schweinfurt—which ruled against halting construction, on the grounds that it would lead to destruction of the property; namely, the water current would destroy the foundation.⁸⁵ On Friday, April 18, the Ministry of the Interior strenuously warned the demonstrators against site occupation, that the police would deploy a sizeable police force to prevent such action, but recognized the legally issued permit for a peaceful march.⁸⁶

⁸² BayHSA: StK 18800, Auszug aus der Niederschrift der Ministerratssitzung vom 15-16.4.1975, 6720-3

⁸³ BayHSA: StK 18800, StK, Entwurf einer Erklärung der Staatsregierung, 6720-9-29, April 16, 1975.

⁸⁴ *Main Echo*, “Den Bau von Kernkraftwerken verhindern!” April 17, 1975.

⁸⁵ *Schweinfurter Volkszeitung*, “Erstmals: Vollendete Tatsachen,” April 18, 1975.

⁸⁶ *Ausburger Allgemeine*, “München warnt Atomwerk-Gegner,” April 18, 1975.

Newspapers reported some 10,000 participants on April 19, the largest protest in Schweinfurt, with about 200 tractors pulling wagons. After parading around for four kilometers near and in Schweinfurt (under the supervision of two police helicopters), demonstrators met at the Town Hall, where numerous officials spoke, amidst ‘phooey’ calls. Tractors carried such signs as: “Where there’s a tractor, so a reactor?” and “We want life.”⁸⁷ Mayor Hussy opened the speeches, making the point that Schweinfurt would remain civil unlike Wyhl, because people of the region were not extremists, in spite of government intimidation. Also on the agenda was Schweinfurt Mayor Pezold, who insisted that the nuclear plant violated the Atomic Law, since it endangered the public, and that construction dishonored the City’s ongoing lawsuit in the Würzburg court. Following him was the common worker, Josef Endres, who considered the police security deployment hypocritical, because the government was unwilling equally to safeguard local nature or agriculture from the nuclear plant. As a member of the Regional Planning Authority, Landrat representative Keller was upset that the objections submitted by local and regional agencies, particularly those directed towards the senseless misuse of the Main and the RDM Canal, went unheeded by the ministry. Chairman of the Citizens’ Initiative, Karl Riederer, then reiterated that three citizens’ lawsuits still remained in the Würzburg court and the outcome would determine the next course of action. Finally, the deacons of the Lutheran and Protestant Churches made an appearance, beginning an active campaign that is discussed below.⁸⁸

In the weeks following the demonstration, the Ministry of the Interior fielded a barrage of questions and criticisms about its decision to field such an overwhelming

⁸⁷ SZ, “10000 protestieren gegen Kernkraftwerk,” April 21, 1975.

⁸⁸ BayHSA: StK 18800, Tonaufzeichnung der Demonstrationsveranstaltung in Schweinfurt am 19.4.75 wegen des Baues des KKW in Grafenrheinfeld, 67209-31, April 19, 1975.

security force. Minister of the Interior, Bruno Merk, defended the choice to deploy the enormous State Police of Würzburg presence (some 1500 personnel) on April 19, 1975, because they had received intelligence that protestors would attempt to occupy the site. Given this threat, he felt it was eminently justified to establish blockades on streets leading towards the nuclear plant, and to have non-uniformed policemen collect information on demonstrators—including taking photographs and acquiring license tag numbers.⁸⁹ According to the Schweinfurt police report, about 4000 demonstrated and the K-Groups distributed flyers which “indirectly” called for occupation. The crowd, however, remained uninterested in anything more than peaceful speeches and intercity marches.⁹⁰ Although it was not included in the police intelligence released at this point, *Der Spiegel* reported that 500 protestors had occupied the construction site at various times during the year, referring to the occasions as a “Second Wyhl,” and had to be forcibly removed by the police.⁹¹ In spite of this reoccurring behavior, the Citizens’ Initiative called Merk’s measures a “declaration of war” and demanded his resignation.⁹²

In the Landestag April 21, 1975 SPD representative Soldmann further inquired into the scandal. He wondered why the state police blockaded the construction site, when the demonstration was limited to the city center. Merk assured that an “appropriate” force had been deployed, given the vast size of the construction site and the realities of 1975, in which some “rogue” individuals aspired to disrupt legal procedure through occupation. The fact was, he finished, that the overwhelming police force performed its

⁸⁹ BayHSA: StK 18800, Landesdienst, Jaumann warnt vor Kernkraftwerks-Stopp, April 23, 1975.

⁹⁰ BayHSA: StK 18800, Kpi Schweinfurt, SSS Bymuim 849 2104, 1815, Situationsbericht über das KKW Grafenrheinfeld, April 22, 1975.

⁹¹ *Der Spiegel*, “Bürgerproteste,” (14) 1975, 2.

⁹² BayHSA: StK 18800, Landesdienst, Bürgeraktion fordert Rücktritt von Innenminister Merk, April 22, 1975.

duty, by discouraging these disorderly individuals from making an appearance.⁹³

Bayernwerk came to similar conclusions, and requested a continued police presence to quell further attempts during the upcoming holidays in May, such as Ascension Day the weekend of May 8-11.⁹⁴ But Schweinfurt CSU city council member Cramer was of a completely different opinion. As a party official, he was dedicated to maintaining the Citizens' Initiative's peaceful organization and civic mentality. In his opinion, the police action had radicalized members of the Citizens' Initiative towards more violent means, including sit-ins. While the Initiative originally had received support from both conservative farmers and leftist youth groups, Cramer feared that further alienation would lead to an unwelcomed takeover by the radical groups. As example, he pointed to letters-to-the-editor in the Schweinfurt papers, in which farmers from Bergheinfeld, while examining their fields, complained they had been inspected at numerous blockades at gunpoint. Other families grumbled that helicopters had pressured their autos.⁹⁵

Beginning with the April 19 demonstration, a new group became involved in the nuclear plant controversy—namely church leaders. Most notable was the intercession on behalf of the public by two Schweinfurt clergymen. At the Schweinfurt demonstration, the Lutheran deacon of Schweinfurt, Johannes Strauss, spoke against the reactor because it represented a threat to the landscape preservation zone and the “natural and cultural substance” of the region, posed risks to a densely populated region, and circumvented the continuation of legal obstruction in the courts. Though he had no theological objection, he protested, as he felt Christ had wished, on the grounds of protection of life and

⁹³ Bayerische Landtag, 8 Wahlperiode, 17 Sitzung, April 23, 1975.

⁹⁴ BayHSA: StK 18800, Bayernwerk Aktiengesellschaft to the Landpolizeidirektion Unterfranken, 6720-9-35, April 29, 1975.

⁹⁵ BayHSA: StK 18800, SSS Bywurf 183 2504, 1300, April 25, 1975

environment. Strauss followed the lead of the Catholic Archbishop of Freiburg, the Federal Republic Evangelical Council for Environmental Affairs, the Synod of Deacons, and the Evangelical Environmental Commissioners, all of which were ambivalent towards nuclear power, due to reservations about reprocessing, waste storage, decommissioning of reactors, radioactive emissions, and use of the hydrosphere. In the speech, he disputed the government's claim that the area was not densely populated. Whereas the ministry reported only 155 residents per square mile for twenty miles, he countered that 350 residents per square mile inhabited the first ten miles.⁹⁶ He forwarded the speech and a letter to Goppel, pleading to the man who had staked his reputation on nature conservation, asking him to consider not only the environmental, but also the political implications of the controversy. If the government proceeded with the construction, against the will of the people, Strauss foresaw the CSU losing many of its most fervent supporters in the region. Strauss reiterated that he was not against nuclear power, but against the specific location. He also made it known that he was skeptical of the existence of an energy deficit, since the population had clearly reduced energy consumption after the oil crisis.⁹⁷

Strauss followed this up with a series of letters to the Bavarian government, co-signed by Sebastian Spielmann, the Protestant deacon, in sympathy with the opposition, but with the intent to have the situation remain civil. In a letter dated May 7, 1975, but with information from April 4, they recounted the split of the city of Schweinfurt, following the construction of nuclear power, made worse when the Bavarian Supreme

⁹⁶ BayHSA: StK 18800, Johannes Strauß Evang. -Luth Dekannt Schweinfurt, speech at Innenhof des Schweinfurter Rathauses, "Beitrag zur Kundgebung gegen die Errichtung des Kernkraftwerkes Grafenrheinfeld," April 19, 1975.

⁹⁷ BayHSA: StK 18800, Johannes Strauss to Alfons Goppel, 6720-9, April 21, 1975.

Court overruled the Würzburg Court. In their opinion, the protestors were justifiably resentful. However, the deacons felt the opposition should also propose solutions to the energy needs; because, they argued, the entire episode was symptomatic of the indulgent shift in society's priorities. "The Christian Church and all Christians must have the nerve," in order to protect life and the environment, "to pay the price to forego the unconditional privileging of economic expansion and industrial progress."⁹⁸ A flyer tacked up by Group Symbiosis on the church door on April 4 declared that "Christ has given the responsibility to preserve life." It concluded that everyone should be aware of the dangers of nuclear plants and plutonium.⁹⁹

Jaumann responded on April 23 to both of the deacons. In this correspondence, he emphasized that, in spite of the minority of scientists that opposed nuclear power and unduly received more press coverage, scientists and experts had been dedicated to perfecting the security measures of nuclear plants for twenty years. Under these very strict guidelines, the responsible bureaus had taken account of all hydraulic, climatic, and environmental factors. Jaumann warned against the dogma of energy saving. First, even if energy were spared, Germany would still expand its consumption, albeit at an incrementally slower rate; regardless, electricity production should not rely on petroleum. Even more concerning, Jaumann argued, was the idea of abandoning economic growth, which would result in social unrest, unemployment, lower standards of living, and would endanger free society. He concluded with a tellingly frustrated statement that reminds of Goppel's stance on Ebersberg Forest:

⁹⁸ BayHSA: StK 15735, Johannes Strauß, Evang. -Luth Dekannt Schweinfurt and Sebastian Spielmann, Bischöfliches Stadtdekanat Schweinfurt, Zum Geplanten Kernkraftwerk Grafenrheinfeld, May 7, 1975

⁹⁹ *Schweinfurter Tagblatt*, "Staatsregierung und Bayernwerk lügen," April 4, 1975.

“While the government has listened to the public and taken in their suggestions, in the end it must make the decisions. In a democracy, state decisions cannot be made dependent on the agreement of all, and citizens’ groups cannot dictate to the state, as they have been doing. Democracy is not anarchy, and a government, with the power bestowed upon it, would not be just, if it were not prepared to make unpopular decisions in the interests of the common good.”¹⁰⁰

Deacon Strauss took issue with Jaumann’s claim that the protestors were resorting to anarchy; instead, it had been the “martial” actions of the police that had incited the situation. Second, the deacon was convinced that local experts, those residing in Schweinfurt, had unequivocally objected to the nuclear plant. Had this situation be reversed, that is if the reactor were planned for Munich and the local people and agencies objected, he felt the Bavarian government would have had an entirely different reaction. Instead, local people should make local decisions, Strauss claimed. Finally, he argued that while Jaumann was correct that the economy was quite complicated and tied to social stability, ecology was similarly intricate and interdependent. If the towers were to affect climate, it could damage the horticulture economy of the entire region.¹⁰¹

The deacon had hit on a salient point made by Baumgartner twenty years earlier: if the government were to seek permission from every village in Bavaria before erecting a nuclear plant, then it would never find a suitable location. While Baumgartner’s response had been typical of Southern Bavarians, who resented the encroachment of the Federal Government upon Bavaria, the people of the Schweinfurt and Franconia were offended now by the centralizing tendency of the Bavarian State. This suggests considerable continuity between the two eras, as West Germans remained amazingly attached to local communities, in spite of the growth of supra-regional associations. However, there was

¹⁰⁰ BayHSA: StK 18800, Anton Jaumann to Dekan Sebastian Spielmann, 6720-9-32, and Anton Jaumann to Dekan Johannes Strauß, Schweinfurt, 6341a 7 - VI /1 – 19140, both on April 23, 1975.

¹⁰¹ BayHSA: StK 15735, Johannes Strauss to Anton Jaumann, May 2, 1975.

one major difference. Whereas much of the Social Democratic Left in the fifties considered these particularistic attitudes evidence of Bavarian parochialism and backwardsness, the Ecological Left of the seventies welcomed this appeal to localism against the growth of the bureaucratic state. It is not difficult to imagine Baumgartner appreciating one of the catchphrases of the ecological movement, “small is beautiful.”

In what is Jaumann’s final recorded response, published within the *Bulletin of the Bavarian State Government*, he reminded the deacon that many individuals had been quoted in the newspapers, specifically calling for occupation. Frustrated, he believed that the government could not require the approval of every person, because it would fall into anarchy. Jaumann’s next comment continues vividly to display the disconnect between the government and the people. He reiterated that despite the contrary claims of laymen, numerous experts—including climatologists and physicists—had filed sensible reports on all matters of the environment. In fact, the environmental ministry had taken extra precaution, because of the proximity of the landscape protection zone. The problem lay in the fact that the newspapers and initiatives gave more credence and priority to those minority of experts who spoke out against the project. Finally, he emphasized, on May 9, 1975, the Würzburg Administrative Court had agreed with the Bavarian Government, that the risks of halting construction of the nuclear plant (tremendous financial loss, continued dependence on foreign oil, and shrinking electricity reserves) outweighed any threats of radiation.¹⁰²

¹⁰² BayHSA: StK 15735, “Keine vollendeten Tatsachen- Jaumann erwidert Dekan Strauss aus Schweinfurt in Sachen Kernkraftwerk,” June 4, 1975, in *Bulletin der Bayerischen Staatsregierung*, 1975, page 8-10.

Frightened by the “specter of Wyhl,”¹⁰³ the Bavarian government formed an information bureau at the construction site, sent out a massive brochure campaign, and invited representatives to a town meeting, in 1975. This campaign began with a weeklong Reactor Exhibition of the Atomic Forum in Nuremberg, April 7-11, 1975 which would educate the public on security measures surrounding Grafenrheinfeld. While it was meant to elicit public support for nuclear energy, Federal Minister for Research and Technology Hans Matthöfer’s speech on April 10 caused quite a stir, even though the ministry alleged he was misquoted in the press. Published days later in full, his speech emphasized the growing disconnect between the public and the state over the necessity to construct nuclear power. In order to rectify this apparent communication barrier, and develop trust, supporters must open a dialog with the protestors to convince them of three things: that nuclear energy needs were not tied to energy growth rates, but rather to ending oil consumption; that security could be proven beyond a doubt; that the selected location must undergo rigorous bureaucratic ecological and landscape scrutiny. This latter problem could be overcome with the development of long distance heating, which would expedite landscape planning.¹⁰⁴ The *Münchener Merkur* quoted Matthöfer as also saying: “If all due processes of law are concluded, it must also be possible for a democratic government, to prevail the common good against the protest of a small group.”¹⁰⁵ In his response the next day, Jaumann stressed that gaining the conferral of every location before construction, as Matthöfer had implied, was beyond the democratic

¹⁰³ BayHSA: StK 15735, “Keine vollendeten Tatsachen- Jaumann erwidert Dekan Strauss aus Schweinfurt in Sachen Kernkraftwerk,” June 4, 1975, in *Bulletin der Bayerischen Staatsregierung*, 1975, page 8-10.

¹⁰⁴ BayHSA: StK 18800, Presse- und Informationsamt der Bundesregierung, BM für Forschung und Technologie, Hans Matthöfer, at Reaktortagung in Nürnberg on 10.4.75, Kernenergie und Öffentlichkeit, April 12, 1975.

¹⁰⁵ *MM*, “Atomenergie braucht Vertrauen,” April 11, 1975.

process to which he personally subscribed.¹⁰⁶ Because the Citizens' Initiative began to publish the quote in the newspapers, it appeared that Matthöfer was insisting that the government would wait for the judicial process to end, but then push the nuclear plant through anyway. Bayernwerk and the Environmental Ministry were convinced this was a mistaken quote or an adlib on Matthöfer's part.¹⁰⁷ Other speeches included Chairman of Research Center Jülich, Dr. Karl Beckurts, who recognized that experts needed to improve public relations with journalists, who would in-turn represent the public in critical dialogue.¹⁰⁸ He emphasized that most protestors, in 1975, were more concerned with the location—that is to say the landscape—and the democratic process, rather than nuclear power itself. These problems were inherent to all forms of energy production.¹⁰⁹ While Beckurts probably did not intend for his speech to be inflammatory, it became so when he accused anti-nuclear protestors of being hypocrites, if they continued to consume electricity.¹¹⁰

Announced on April 14, but carried out after the public relations debacle on April 19, the ministry met with representatives of the Schweinfurt civil society, in order to open a dialogue with them and to “isolate the small radical group” who would attempt to “occupy and radicalize” the reactor. Concurrently, the ministry would lobby through a published series in the newspapers and press, with 50,000 brochures, and a speech campaign, which would emphatically counteract the opposition. Under the supervision of the Bavarian and Federal ministries, the local CSU spearheaded this drive, focusing on

¹⁰⁶ SZ, “Jaumann setzt auf Kernkraftwerke,” April 11, 1975.

¹⁰⁷ BayHSA: StK 18800, Bayernwerk Aktiengesellschaft to the SM Landesentwicklung und Umweltfragen, April 14, 1975.

¹⁰⁸ SZ, “Kernenergie soll populär werden,” April 9, 1975.

¹⁰⁹ BayHSA: StK 18800, Landesdienst, Kernenergie nicht gegen, sondern für die Bürger, April 8, 1975.

¹¹⁰ BayHSA: StK 18800, Landesdienst, Wenn wir Strom haben wollen, brauchen wir Atomkraftwerke, April 7, 1975.

the following themes: energy needs, employment, reactor safety, legality of the reactor, and hydrospheric and atmospheric effects. Of particular emphasis was the support shown by the Unions (DGB), which recently championed nuclear power, on the basis of job creation and economic growth.¹¹¹ In this public forum, Bruno Merk, Anton Jaumann, and Max Streibl stressed that the local leaders could air their grievances until construction, but once the building was underway, the government would not allow the process to be delayed, because at least 150 million DM would be jeopardized.¹¹² To encourage the appearance of transparency, the government published in 1975 the aforementioned *Bulletin of Bavarian Government*, a collection of relevant bureaucratic documents, newspaper clippings, and personal letters. This lengthy series was intended to outwardly display government efforts at reconciliation, hoping to show that the nuclear plant was not part of a bureaucratic conspiracy to ‘forcibly’ construct against the people’s will, but rather was a process of collaboration with experts and representatives of the local populace. Like other things, the *Bulletin* did not have its intended effect on a suspicious audience; not only did local residents complain about finding their mailboxes full of government issued brochures, readers commonly wondered which important or sensitive documents were conveniently missing. For the historian, though, it makes for a terrific source, as it highlights the dialogue between the Bavarian government and the locally concerned. In general, the document collection reinforces the level of disconnect and local resentment between the Franconians and the officials in Munich. And although documents were withheld for various reasons, be they industrial secrecy or simple lack of

¹¹¹ BayHSA: StK 18800, StK, A I 7 - 6720-9 - 23, Aufklärung der Bevölkerung in Schweinfurt und Umgebung für das Kernkraftwerk Grafenrheinfeld, April 14, 1975.

¹¹² BayHSA: StK 15735, StK, Gemeinsame Erklärung der Bayerischen Staatsregierung, der Bürgeraktion Schweinfurt, May 12, 1975.

interest, our ability to corroborate them through recently opened archival material helps to verify their veracity.¹¹³

By 1975, the broad movement had reached its apex in influence. It incorporated regional opposition, resentful of the centralization of authority under the Bavaria government, with supra-regional associations, which increasingly opposed nuclear power on principle. Socialists celebrated joining clergymen and farmers and in a common cause. Even after its favorable court ruling, the Bavarian Ministries scrambled to confirm their reputations as democratic institutions that followed sensible bureaucratic process. This was not a seamless anti-nuclear alliance, though, as the activities of the more radical supra-regional associations threatened to undermine the longstanding local grievances.

5.3 Momentum Lost

After 1976, a growing gap between regional associations and the supra-regional organizations was becoming more evident in Schweinfurt. The former, consisting of local citizens' initiatives, nature preservation leagues, farmers' associations, and regional bureaucratic officials, had largely maintained a *Jein* position (in favor of nuclear power but against the location), was concerned with regional landscape or government transparency, was dedicated to the judicial system and non-violence, and was generally more conservative—often belonging to the CSU. With the latter, there was a

¹¹³ BayHSA: StK 15735, Bavarian StK, *Bulletin der Bayerischen Staatsregierung*, 1975.

generational gap, as the supra-regional environmental or anti-nuclear associations, particularly AKW-No, were often comprised primarily of young people, who traveled from reactor to reactor protesting all forms of nuclear power. Much more willing to resort to radical tactics, like occupation or police confrontation, these groups displayed more sympathy towards ideologies of the left. While there was considerable truth to the claim that the anti-power plant movement attracted all manner of people from right to left—farmers, workers, preachers, students, professionals alike—this alliance was somewhat tenuous, and began to erode as national tension mounted over nuclear power.

Beginning in 1976, the City of Schweinfurt started to question whether a long, protracted judicial battle was worth the extensive costs. With the three private suits¹¹⁴ dismissed and the cooling towers far into construction, prospects for overturning the construction permits were diminishing. Instead of halting the construction, the City Council announced that it wished to negotiate some sort of settlement with Bayernwerk, so that it may affect the outcome of the project. Shocked, local newspapers accused Mayor Pezold of accepting a deal with Bayernwerk, in exchange for a multi-million DM water treatment plant. Pezold, for his part, denied the quid pro quo; rather, the prospect of Bayernwerk's investment proved that coordination with the project offered a more sensible approach and hope for negotiation, than a bleak lawsuit. The CI remained unconvinced, and voted to reject the proposal, on the grounds that it would weaken any chance to obstruct the criticality permit. Instead, the Initiative continued to support the judicial process. Within the City Council, CSU members expediently used the

¹¹⁴ A second case had been dismissed in 1976, because the judge ruled that a nuclear plant could not be contested legally based solely on "principle," as the lawsuit had claimed. *MM*, "Kernkraft-Feind darf nicht klagen," April 24/25, 1976.

unpopularity of the proposal to strengthen their positions for the upcoming election. Likewise, SPD members began to question the position, heading into 1977.¹¹⁵

On March 14, 1977, the Freiburg Regional Administrative Court declared an unprecedented immediate cessation of construction at Wyhl. It determined that the construction permit for the Wyhl light water reactor must include the erection of a security system to ensure that cracks could be contained in the pressure tanks.¹¹⁶ Pezold felt the Wyhl decision was encouraging, and additionally the court cases at Würzburg expanded, so that the Town of Bergtheinfeld and 7 individuals joined the City of Schweinfurt's lawsuit against the reactor. He recognized the precedence of the Freiburg injunction for Schweinfurt's suit,¹¹⁷ because, as the Nature Preservation League pointed out, they had the same security deficiencies inherent in this reactor model.¹¹⁸ Streibl, though, remained clear that this was a Badenese court decision, having no bearing on Bavarian reactors—unless the Federal Reactor Commission stated otherwise.¹¹⁹ Indeed, the Federal Ministry of the Interior and the Reactor Security Commission backed Streibl. The Wyhl decision did encourage the Reactor Security Commission to comprehensively upgrade reactor safety in 1977, a measure that reinforced Alfred Dick's confidence in the Schweinfurt reactor, which still had to pass the operational permit.¹²⁰ On March 25, 1977, the Würzburg Regional Court once again dismissed the City's lawsuit, to the resignation of the CI, which was tiring of the judicial process. The city did appeal to the

¹¹⁵ Klaus Gasseleider, *Und ewig strahlt der "Nachbar,"* 55-60.

¹¹⁶ Bayerische Landtag, 71 Sitzung, 8 Wahlperiode, March 23, 1977

¹¹⁷ *MM*, "Ein zweites Wyhl in Bayern?" March 16, 1977.

¹¹⁸ BayHSA: ND/P, 1970, *Natur und Umwelt*, "Signal für KKW Grafenrheinfeld," (2) 1977, 27.

¹¹⁹ Bayerische Landtag, 71 Sitzung, 8 Wahlperiode, March 23, 1977

¹²⁰ Bayerische Landtag, Drucksache 5514, 8 Wahlperiode, May 27, 1977. State records in BayHSA: StK 18801, which document events following 1977 for Grafenrheinfeld reactor, remain closed to the public until 2011.

Bavarian Supreme Court in Munich, on the grounds that the individual states needed to produce a more uniform decision on reactor legality.¹²¹

Frustrated with the legal processes, AKW-No announced that summer that they would host a large demonstration on October 22, 1977. The organization had already established a counter-information anti-nuclear center in Schweinfurt in 1975. Fearing the City had lost its mettle to oppose the nuclear plant in the courts, CI agreed to co-sponsor the event. Following the proceedings at Brokdorf back in February, Riederer had reconfirmed CI's commitment to the non-violent judicial process, as opposed to the chaos at Brokdorf. Again in September, the CI announced the demonstration would remain civil, but forcefully urged the stopping of criticality. The leadership then began to arrange speakers ranging from Karl Becher, professor of theology, to Hubert Weinzierl from the Nature Preservation League, to Priest Oeser. CI's stated grievances drifted, for the first time, away from specific problems of the local landscape and democracy, and towards more supra-regional criticisms. In particular, it began to object to fast breeder technology, while advocating subsidization of alternative energy technologies.¹²²

The scheduled date, October 22, 1977, at the absolute height of the German Autumn, turned out to be the least fortuitous timing for a large-scale demonstration. Not only had protests at Brokdorf and Grohnde ended in massive conflict and bloodshed, the police's hunt for the RAF was gripping the world's attention. After a series of high profile murders, on October 18, Martin Schleyer was discovered dead in Alsace, France. This initiated an all out German-wide pursuit of suspected terrorists. The CI became concerned that the heightened atmosphere would reasonably lead to an escalation with

¹²¹Klaus Gaseleder, *Und ewig strahlt der "Nachbar,"* 61-62.

¹²² Klaus Gaseleder, *Und ewig strahlt der "Nachbar,"* 63-64.

the police. Furthermore, it feared that minority elements amongst the demonstrators, particularly from the practically professional protestors who agitated at every nuclear site, would attempt occupation, forcing the police to ratchet up the defense. As before, Bayernwerk requested that the protestors remain civil and that the police bolster their security of the power plant.¹²³ With the heightened security alert, regional policemen went further, appealing for citizens' vigilance in reporting persons carrying objects such as, "iron rods, bolt cutters, protective helmets, metal hooks, chains, etc." particular on trains.¹²⁴ Not exclusive to the Schweinfurt region, this was part of a Federal Republic-wide system of security, intended to hinder terrorism, violent protest, and industrial vandalism alike. It was this electric atmosphere that persuaded the CI council on October 20 to cancel the weekend's demonstration, because the threat of radicalism was too evident.¹²⁵

Now under the leadership of Priest Ludwig Wild, AKW-No strongly resented the cancelation of the demonstration. Expressing their disappointment, Wild and 30 of his loyal youth followers walked out on the CI decision, continued with their own sit-in at a theater on Saturday, followed by an auto procession, finally nailing a flyer on the door of the city hall in protest. Within it, AKW-No declared the CI leadership acted without the will of the entire group, was not sensible when it cancelled only two days before the demonstration, and allowed the police to intimidate its policy. In retribution, AKW-No demanded that all fellow protestors attend the next CI meeting and "show them the consequences." The parade, after circling Schweinfurt and neighboring towns, was

¹²³Klaus Gaseleder, *Und ewig strahlt der "Nachbar,"* 65-66.

¹²⁴ Story from the *Schweinfurter Tagblatt*, Oct. 10, 1977, reprinted in Klaus Gaseleder, *Und ewig strahlt der "Nachbar,"* 67.

¹²⁵ Klaus Gaseleder, *Und ewig strahlt der "Nachbar,"* 68.

prohibited from reaching the reactor and returned to the Anti-Nuclear Information Center.¹²⁶ Reaction against AKW-No, from CI, the press, and the surrounding more conservative population, was strong. Those that wanted to alienate the actions of AKW-No labeled the group extreme left, and tried to exclude Father Wild not only from the CI, but from Schweinfurt altogether. In this manner, AKW-No was being ousted as a supra-regional youth organization, not necessarily welcome in Schweinfurt, if its tactics turned volatile. It remained in the best interest of the CI to distance itself from AKW-No or risk becoming conflated with radical actions during the German Autumn. Such was the case when the *SZ* declared numerous environmental protection associations under the influence of communism.

While Wild represented only a small minority of the radical population, the rift created by this outburst nonetheless weakened the opposition as a whole. Small, symbolic protests and litigation continued for several years,¹²⁷ but the momentum was lost, and the opposition declined after 1977. Clearly, the divided movement was less effective. Much of the reduction in enthusiasm was a result of the now obvious and intimidating skyline. The first 143 meter high cooling tower was finished in 1976, the second in 1977. Additionally, a thin remote sensory inspection mast jutted 164 meters out from the landscape after 1978, 750 meters south from the reactor. This was part of Germany's first remote emission control system, the Nuclear Reactor Remote Supervisory System (KFÜ), first in commission at Isar I on September 28, 1978. Within

¹²⁶ Flyer reprinted in full on Klaus Gaseleder, *Und ewig strahlt der "Nachbar,"* 64-65.

¹²⁷ As the relevant archives remain classified until 2011, this study will not thoroughly explore the more limited debate over criticality, 1978-1981.

the tower, sensors monitored emissions during both construction and operation of the reactor and sent data to the Bavarian State Bureau for Environmental Protection.¹²⁸

In 1981, the reactor achieved criticality, with full output April 17, 1982. Today, maintained by E.ON Kernkraft, the Grafenrheinfeld reactor proudly boasts that it has served over 25 years as an alternative to fossil fuels, not emitting substantial amounts of green house gases or sulfur dioxide, protecting the environment and climate. With the cooling towers, only three percent of the heat is returned to the Main, raising the temperature .5-1 degrees Celsius. In 1994, onsite waste storage facilities were added. As of 2007, it had produced over 10.9 billion kilowatt hours.¹²⁹

In spite of large demonstrations, regional opposition, and constant litigation, the Bavarian Government was able to push the Grafenrheinfeld nuclear plant through. The evidence suggests that the broadening of the opposition, especially through the radicalization of a small minority, actually discouraged local activism. For the most part, Bavarians had long been content with developing landscape policy while not directly opposing nuclear power; they did not have the inclination to oppose nuclear energy at all cost. Along with the sheer determination of the Bavarian government, this division in the movement seems to have presented the government with the opportunity to build the reactor even with regional protest. The victory was significant, but pyrrhic, considering the location was the last new one chosen after the early seventies. After its

¹²⁸ Bayerische Staatsministerium für Landesentwicklung und Umweltschutz, *5. Raumordnungsbericht 1977/1978* (Bayreuth: Heinz Neubert, 1980), 231

¹²⁹ E.ON Kernkraft GmbH. ed. *Grafenrheinfeld: Information zum Kernkraftwerk* (Hannover: E.On Kernkraft 2007/2008); also see the E.ON Kernkraft website http://www.eon-kernkraft.com/pages/ekk_de/Standorte/Grafenrheinfeld/index.htm, accessed Jan. 16, 2009.

construction, only former sites were selected for erecting additional reactors: Isar and Gundremmingen.

5.4 The Brief Era of Nuclear Power

After the success with the Grafenrheinfeld plant, the ambitious Bavarian nuclear program went into decline, and the next couple of years witnessed a great retreat from nuclear power. There are three main reasons for this curtailing of the program. First, the negotiations between the public and the government over landscape policy broke down, as an amenable technocratic solution could not be immediately designed to adequately deal with thermal discharge. Second, modest demonstrations similar to those at Grafenrheinfeld erupted throughout Bavaria, at nearly every nuclear facility site. Finally, the pressure from outside of Bavaria to design a final solution to nuclear waste storage threatened to end the entire Federal Republic nuclear program. This section will explore the decline of the Bavarian nuclear program and these three general themes, by discussing a series of realized and unrealized Bavarian reactors.

With nuclear plant locations becoming increasingly difficult to plan, a Location Securing Committee was constructed in 1973 from members of the Economic, Interior, and Environmental Ministries, to begin the process of finding additional locations. Anton Jaumann described the Location Securing Plan as an attempt to optimize the “criteria of land planning, environmental protection, and energy supply.” He hoped that it would better coordinate the ministries, responsible regional agencies, and the energy utilities.

These plans called for seven to nine additional nuclear plants, each of 1200 MW, by 1990. This estimate was based on the German Institute for Economic Research report, which forecasted a 4.8 to 6.4 percent annual energy increase. Knowing that expansion on the Danube and Main Rivers beyond Grafenrheinfeld was dangerous, the Ministry of Economics began searching on the tributaries: the Lech, Isar, Inn, and Salzach. Among another 30-60 locations, this made Marienberg, Burghausen, Moosburg, Rehling, Pleinting and Schongau possibilities by 1975, of which only Rehling and Pleinting received serious consideration.¹³⁰ Physics experts out of Jülich, who had projected out to 2030 in a federally sponsored report, known as *Arbeit 120*, predicted the need for 77 nuclear plants and 7 reprocessing facilities in Bavaria alone. Possibilities for nuclear plants were: Kahl, Stockstadt am Main, Schweinfurt, Bayreuth, Forchheim, Erlangen, Kirchbach an der Iller, Raum Memmingen, Gundremmigen, Großraum Augsburg, Unterhausen an der Donau, Bergheim-Gerolzing, Ingolstadt, Au, northern Munich, Moosburg, Mühldorf, Niederaichbach, Ohn, Rottenburg, Burglengenfeld, Vilshofen, and Neustift. Rieneck, Freising, Mühldorf, Ansbach, and Pegnitz would field reprocessing facilities.¹³¹

Quite early on, this plan received modest regional criticism. After receiving word that Marienberg, north of Rosenheim, was the possible destination for a reactor, Walter Schweiger sent a letter of protest to the newspaper, arguing that the location endangered the water temperature and radioactive levels of the Inn River, in a densely populated region. In this 1971 letter, he further insisted that the constitution provided the right to life with health and liberty. Perhaps in a departure from his previous diatribes, and

¹³⁰ SZ, "Wohin mit den Atomkraftwerken?" Nov. 20, 1976.

¹³¹ SZ, "Spekulationen um 77 neue Reaktoren," Nov. 8, 1975.

anticipating protest of 1977, he began his personal campaign against fast breeders.¹³² When Schweiger discovered a plan to expand Großwelzheim, next to the Kahl and the lesser known Thermal Condensation Reactor, he wrote the County of Alzenau on the grounds that the Main water was already overburdened, from heating and radiation, to the point of endangering Franconia. This threat would be increased by the 100 meter proposed chimney, which released aerosol and Krypton into the air.¹³³ Once Großwelzheim was looking bleak as an option, due to the over-burdened Main River, Streibl announced Hörstein/ Unterfranken as a possibility. Representative Rummel (SPD), though, brought up the fact that this area lay between the relaxation region Vorspessart and the populated area of Hörstein and Wasserlos, and was a wine producing region.¹³⁴

The Water Protection Bureau also was concerned with the entire Danube watershed basin. Because the inflow of the Isar, Lech, Inn, and Iller rivers had a symbiotic relationship with the Danube, the bureau predicted that the construction of nuclear power anywhere on these rivers would cause significant overheating difficulties in the eventuality of a drought. Thus, the Bureau required that potential reactors at Pleinting, Großmehring, and Irsching be accompanied with cooling towers and suggested that older power plants on the watershed basin be retrofitted with modern cooling equipment.¹³⁵ Water reports from 1973 and 1975 also concluded that further nuclear

¹³² BayHSA: StK 14666, Walter Schweiger of Weltbund zum Schutze des Lebens, Nachrichtlich mit der Aufforderung sich dem Protest anzuschließen, Sept. 16, 1971.

¹³³ BayHSA: StK 14666, Walter Schweiger to Landratsamt Alzenau, 1300 MW-Leichtwasserkernkraftwerksprojekt, in der Gemarkung Großwelzheim im Landkreis Alzenau, Oct. 5, 1971.

¹³⁴ Bayerische Landtag, 43 Sitzung, 7 Wahlperiod, June 21, 1972.

¹³⁵ BayHSA: StK 18802, Bayerisches Landesamt für Wasserversorgung und Gewässerschutz, Wärmelastrechnungen Donau, June 1973.

plants could be constructed also at the mouth of the Isar, as it flows into the Danube, near Landshut.¹³⁶

During the seventies, even with the increase in activity from regional, national, and international protest organizations, most objections to nuclear plants derived from local press, bureaucracies, and residents, in regards to the health of the local landscape and ecology. The effects of nuclear power on local agriculture, recreation, and landscape aesthetics continued to resonate. Perhaps the greatest new consideration for landscape planners was the escalating discussion of thermal discharge of the nuclear plants, as rivers increasingly were overheated and were necessarily placed off limits for further industrial expansion. A number of methods were proposed, with vapor cooling towers being the most chosen viable option, especially for the generation of reactors currently being constructed, including Gundremmingen, Grafenrheinfeld, and Ohu. By 1975, the Bavarian government was considering new options for thermal discharge, because the cooling towers were meeting considerable backlash for their unaesthetic appearance and alleged affects on the microclimate. To overcome the need for the cooling towers, several reports, like those of the Munich City Council and Munich City Utility in 1975, suggested that central city heating systems combined with electrical production would most efficiently disperse the entire energy produced in a nuclear plant. This ambitious and popular plan, while theoretically presenting a promising option, was fraught with technical difficulties.¹³⁷

By 1975, the ambitious report was still delayed. Jaumann had announced that the overall quantity of reactors had been scaled back, due to contracting energy demands and

¹³⁶ Bayerische Landtag, Drucksache 3535, Walhperiode 8, Sept 29, 1976.

¹³⁷ StadtA Mü:Pressamt 208, Entwurf des Energiekonzepts, 1975.

increasing protests. Furthermore, reportedly a fundamental rift developed between the Ministry of Economics, which wanted to forecast and disclose reactors well into the next century, and the Environmental Ministry, which wanted to select only 2-3 sites at a time. Speaking on behalf of the Environmental Ministry, Alfred Dick argued that this would allow more involvement by the citizens' initiatives, and better cooperation would lead to fewer disputes.¹³⁸ Streibl also emphasized that announcing so many locations, especially with them far from finalized, would only cause massive unrest amongst the population. Taking an entirely different viewpoint, Jaumann stressed that nuclear planning required meeting strict landscape criterion with which the government had to compete with industry, residents, and nature. The sheer scale of design necessitated, he thought, long-term planning; and if the citizens knew far in advance, they could potentially negotiate the sites.¹³⁹ He delayed the plan again in 1976, awaiting a coming report on the viability of underground reactors from the Federal Government. Of course, had underground nuclear plants been a reality, it would have greatly changed his planning strategy.¹⁴⁰ In 1977, members of the SPD in the Bavarian Landtag were of similar opinion, that if all of the locations were revealed, there would be initial unrest, but it would encourage public cooperation. They felt that full disclosure would be better than the slow release of rumors and innuendo (often originating out of Federal discussions at Jülich Research Center) that was causing considerable panic.¹⁴¹ An example of this whistle-blowing was the tip from an unknown SPD member, who provided the Nature Preservation League with the sensitive information that the plan called for a small 100 MW nuclear heating

¹³⁸ SZ, "Wohin mit den Atomkraftwerken?" Nov. 20, 1976.

¹³⁹ *Nürnberger Nachrichten*, "Standortplan vertragt," Oct. 20, 1976.

¹⁴⁰ *Nürnberger Nachrichten*, "Ist Bau von unterirdischen Atomkraftwerken geplant?" Oct. 28, 1976.

¹⁴¹ BayHSA: StK 18794, Auszug Bayerischer Landtagsdienst: Berichte und Informationen aus dem Parlament, Jan. 20, 1977.

plant to be constructed near the new Munich Airport II. Another leak out of Jülich announced Freising north of Munich as a possibility for a reprocessing facility.¹⁴² Increased coordination (and interference) from the Federal government was also making life difficult for Jaumann.

In 1977, Bayernwerk still only produced 1% of its energy from nuclear power. At the end of that year, the 907 megawatt Bayernwerk and Isar-Amperwerke nuclear power plant Isar I (KKI) near Landshut next to Niederaichbach went critical, doubling Bayernwerk's nuclear output. The site was in the territory of the village of Ohu and is sometimes referred to as Ohu I. In 1969, the reactor was planned to be smaller, perhaps 800 MW, but by 1970 the cost for such a reactor increased by 50% the expected price—from 400 to 600 million DM. This led to an increase in size, because the 900 MW reactors would be of very similar construction costs. Beginning in 1972, the Bavarian Environmental Ministry preformed its first atomic permit process, allowing fission in 1977.¹⁴³ According to the Bavarian news reports from October 19, 1974, the reactor garnered some 800 initial complaints against the water permit, mostly due to the potential to heat the lake, and kill exotic fish species. After speaking with residents in Gundremmingen, the Ohu mayor came to the conclusion that this was unfounded. Still, to compensate for the heating, the reactor was retrofitted with four small cooling cell-towers, which reduced heating, but substantially increased costs. After the reconfiguration, the locals became concerned that the reactor would become unprofitable, much like Niederaichbach. The cooling towers satisfied most concerned individuals, who dropped their grievances, except for a lone representative of World League to

¹⁴² *MM*, "Stadtwerke planen Atomkraftwerk in Flughafennähe," Jan. 25, 1977.

¹⁴³ Manfred Pohl, *Das Bayernwerk*, 384, 391-393.

Protect Life, who drove in from Munich to disseminate flyers. Advocates of the power plant argued that it was necessary to continue to construct nuclear power plants, even though the oil crisis had slowed energy consumption, because they were safer than fossil fuel plants, which produced dangerous sulfur dioxide.¹⁴⁴

By 1977, the attitude towards Isar I had dramatically shifted, following the announcement that a second reactor would be constructed at the same site, known as Isar II (or Ohu II). The original reactor had already been constructed, and was awaiting its operational permit, which Alfred Dick bestowed in November, 1977. At that time, the reactor could produce 30% of its total output, 270 megawatts.¹⁴⁵ K-group (Maoist associations) threats of demonstrations on May 9, 1977, led 8000 policemen, what was called the largest show of force on Bavarian soil since the Olympics, to protect the reactor. During the event, the police force disrupted surrounding traffic for several kilometers, in spite of a modest showing of 2000 protestors.¹⁴⁶ Due to the K-group involvement, traditional conservation organizations, such as the Bavarian Preservation League, chose not to attend. Bavarian newspapers were ashamed of the police over-reaction (4 or 5 policemen to 1 demonstrator), because the young demonstrators were reportedly, unlike at a recent violent outbreak at Brokdorf reactor, “quiet, unarmed...marching with flowers and singing.”¹⁴⁷ In October of 1977, the Nature Protection League collected 7000 signatures protesting the Criticality Permit and sent

¹⁴⁴ BR FS Archiv 331150/ 19317, Paul Mautner, “Der Koloß von Ohu: Wie ein Kernkraftwerk die Landschaft verändert”, aired Oct. 19, 1974.

¹⁴⁵ StadtA Mü: ZA Presseamt 687, *KKI Nachrichten: Nachbarschafts Zeitung der Kernkraftwerk ISAR GmbH*, “KKI Am Netz! Wir liefern Strom,” 4 (1977), 1.

¹⁴⁶ *Abendzeitung*, “Mit Helmen und Panzern gegen die Blumenkinder,” May 9, 1977.

¹⁴⁷ *Augsburger Allgemeine*, “Ohu ist kein Modell,” May 9, 1977.

them to District Government of Lower Bavaria.¹⁴⁸ Its reasoning: the government’s “unscrupulous” construction of an energy cartel without regard to the inherent risks of accident or sabotage.¹⁴⁹ Furthermore, the city of Landshut objected to the reactor, until Bayernwerk agreed to a *quid pro quo*—funding a 12 million DM water treatment plant.¹⁵⁰ The corporation announced the package as an act of goodwill—a 12 million DM compensatory package to District Government of Lower Bavaria for unnamed ecological measures within the county of Landshut. Bayerwerk was able to make the gesture from funds that derived from higher electricity prices during the construction delays, due to the continued burning of fossil fuels.¹⁵¹ The *Donau Kurrier* noted the incredible irony in the settlement; Landshut not only resides upstream from Isar I, the reactor had to be moved a couple of kilometers further downstream, because Landshut had polluted the Isar water supply, rendering it unusable for the reactor.¹⁵²

The reactor was further delayed in 1977, when Streibl unexpectedly refused to confer the full criticality permit, because of a recent accident at the Gundremmingen reactor.¹⁵³ In spite of these setbacks, the Isar Corporation thanked its “neighbors” in the surrounding region for showing “objectivity, composure, and prudence,” during the process.¹⁵⁴ In 1979, Isar I was cleared for full output and produced for the electricity net, ten years after its conceptualization. Isar I represented the first German reactor to be

¹⁴⁸ BayHSA: ND/P 1971, *Natur und Umwelt*, “Gegen Kernkraftwerke bei Landshut und Rehling,” 4 (Oct.) 1977, B2.

¹⁴⁹ *MM*, “Ohu ein Objekt der Skrupellosigkeit?” May 27, 1977.

¹⁵⁰ *Donau Kurrier*, “Für sein Ja hat Landshut zwölf Millionen Kassiert,” Nov. 19, 1977.

¹⁵¹ StadtA Mü: ZA Presseamt 687, *KKI Nachrichten: Nachbarschafts Zeitung der Kernkraftwerk ISAR GmbH*, “Finanzierungsbeitrag zur ökologischen Verbesserung im Raum Landshut,” 4 (1977), 3.

¹⁵² *Donau Kurrier*, “Für sein Ja hat Landshut zwölf Millionen Kassiert,” Nov. 19, 1977.

¹⁵³ *Bild Zeitung*, “Atomkraftwerk Ohu vorläufig stillgelegt!” Jan. 24, 1977.

¹⁵⁴ StadtA Mü: ZA Presseamt 687, *KKI Nachrichten: Nachbarschafts Zeitung der Kernkraftwerk ISAR GmbH*, “KKI Am Netz! Wir liefern Strom,” 4 (1977), 1.

inspected by the Nuclear Reactor Distance Supervisory System (KFÜ), a remote metrological and radiological emission inspection system coordinated by the Bavarian State Bureau for Environmental Protection.¹⁵⁵ Like the reactor at Niederaichbach, Isar I experienced numerous technical difficulties in its career, resulting in stoppages in 1978 and 1981. In both cases the components for processing and storing hazardous wastes were faulty or out-of-date, and had to be replaced and reconfigured. These work stoppages resulted in new regulations and demands in nuclear plant construction.¹⁵⁶

Following the smaller reactor, a second 1300 MW block was later constructed, known as Isar II. The longest on-going negotiations were between the City of Munich, by way of the Municipal Power Utility, and the principal utilities, Bayernwerk and Isar-Amper Electricity, over purchasing a share of the nuclear plant. In 1975, the city council agreed in principle to finance 325 MW of Isar II for about 400 million DM, to ensure a stable source of city electricity. Bayernwerk projected construction costs at 1.4 to 1.8 million DM and to be completed in the early nineteen-eighties.¹⁵⁷ The Munich Municipal Utility predicted this would save 2 pfenning per kilowatt hour, or 30 million DM annually, over conventional power, due to the high cost of fossil fuel transportation.¹⁵⁸ Also under discussion was a smaller 400 MW nuclear thermal facility (for the purpose of providing city heating only), owned primarily by the City of Munich, in the vicinity to the city. The City Council considered this the “ideal solution,” offering

¹⁵⁵ StadtA Mü: ZA Presseamt 687, *KKI Nachrichten: Nachbarschafts Zeitung der Kernkraftwerk ISAR GmbH*, “Sicherheit über alles!” 4 (1977), 2.

¹⁵⁶ Manfred Pohl, *Das Bayernwerk*, 384, 391-393. The corresponding file for Isar I at the Bavarian State Archives, which would include evidence on public opinion, bureaucratic paperwork, and official decision-making, remains classified through 2009. Until its release, the reactor will remain understudied. Media sources indicate that the construction of both Niederaichbach and Isar I received relatively little attention from the public, and were both passively accepted until right before commission of Isar I. The technical failings, though, did generate skepticism towards other reactors.

¹⁵⁷ *MM*, “Atomkraftwerk bei München,” Oct. 22, 1975.

¹⁵⁸ *Abendzeitung*, “Atomstrom: Chance und Risiko,” Dec. 18, 1977.

a “secure, reasonably priced, and environmentally friendly” energy source.¹⁵⁹ Because it was an electricity utility, not a heating corporation, Bayernwerk had less interest in this project. It also projected further significant difficulties with obtaining an atomic permit, because the reactor would have to reside within 25 kilometers of city center, or risk losing too much heat to remain economically viable. The substantial costs of burying the necessary piping—to the estimated tune of 5000 DM per meter—increased the expenses exponentially. One proposal that remained on the table was to transfer this thermal energy to the new Munich Airport II, which would require considerable heating for the terminals and the runways. This would potentially allow the plant to reside farther from the city, since the new airport resides far to the north near Freising. Problematic though, especially in prognosticating economic viability, was that this plant would only operate about half the year.¹⁶⁰

Observers felt that the smaller reactor would be superfluous, because the heating could be dispersed to Munich from the Isar I reactor, despite its distance from the city, of about 70 kilometers. The Bavarian Preservation League pointed out that the current Ohu reactor produced 870 MW of electricity, but lost an additional 1705 MW of thermal energy, discharged by the retrofitted small cooling cell-towers. If the necessary pipeline were laid concurrently with the contemporaneous autobahn construction, the League hoped destruction of the landscape could be minimized.¹⁶¹ As the first of the two blocks was under construction, the League protested the construction of the cooling towers, offering that the thermal exhaust would be better used in melting the autobahn or heating

¹⁵⁹ *SZ*, “Kernenergie aus Niederbayern für München,” Oct. 21, 1975.

¹⁶⁰ *MM*, “Atomkraftwerk bei München,” Oct. 22, 1975.

¹⁶¹ *SZ*, “Heiz-Kernkraftwerk: ein 2-Milliarden-Projekt,” Sept. 23, 1975.

the town of Landshut.¹⁶² The new reactor would produce approximately 3750 thermal MW, translating into only 1300 MW of electricity, losing the other 2450 MW in the cooling discharge. Nonetheless, many argued that perhaps 50% of the potential heat would be lost in winter, doubling the initial temperature necessary, rendering the pipeline unviable. In an interview in the *Tagszeitung* Professor Pitter Gräff of the Plasma Physics Institute in Garching insisted, however, that modern piping materials could maintain heating consistency, losing only 1 degrees Celsius, albeit at a hefty cost of 300 million DM. The problem, he continued, was not was the pipes, but in the turbines initially equipped at Ohu, which do not allow for controlled discharge. Still, this 300 million DM price tag would be cheaper than constructing a second reactor, upwards of a billion DM.¹⁶³ Amongst the public and the City Council FDP faction, this plan began to gain steam (no pun intended), in part because retrofitting older reactors with thermal collection technology would improve river conditions.¹⁶⁴ The FDP pointed to the example of Stockholm, which had already linked its city heating system to a nuclear plant approximately 160 kilometers away,¹⁶⁵ and made recommendation to the Munich City Council.¹⁶⁶ At the same time, the Bavarian branch of the World League to Protect Life contested the economic viability of the proposed reactor on the basis that reactors inherently underachieved due to constant work stoppages and maintenance. Kahl and

¹⁶² SZ, "Abbruch in Ohu beantragt," Nov. 27, 1976.

¹⁶³ TZ, "Streit um Atomkraftwerk vor den Toren Münchens," Oct. 28, 1975.

¹⁶⁴ StadtA Mü: ZA Presseamt 208, Nukleare Fernwärme: Antrag 556 FDP-Stadtratsfraktion, Oct. 22, 1975.

¹⁶⁵ SZ, "Heizkraftwerk hausintern geplant," Sept. 28, 1975.

¹⁶⁶ StadtA Mü: ZA Presseamt 208, Nukleare Fernwärme: Antrag 556 FDP-Stadtratsfraktion, Oct. 22, 1975.

neighboring Niederaichbach housed reactors now permanently out-of-operation, and the Gundremmingen reactor graded out economically poor due to periodic maintenance.¹⁶⁷

Still the bulk of the city council, on the basis of recommendations from the City Utility and the Bavarian Ministry of Economics, considered this plan not technically feasible until the mid-eighties, and economically not competitive even then. The Ministry of Economics estimated 500 million DM for the 100 kilometers of pipeline required to transport the heating from Ohu and then disperse it in the city, with an additional 50 million DM in annual maintenance.¹⁶⁸ The Municipal Utility maintained that the Stockholm prototype, cited by the FDP, was operating at exceptionally high costs; estimates to bring thermal discharge from the conventional plant at Moosburg fifty kilometers away from Munich were three times higher than other energy sources.¹⁶⁹ Because of the difficulties presented, and the numerous other objections to nuclear power—including to reprocessing—24 members of the SPD and FDP voted against Munich's investment in the Isar II reactor complex, in spite of the pleas of SPD chairman of the Municipal Utility. The CSU voted as a block in favor of the project, under the leadership of Mayor George Kronawitter, who felt disapproval would contribute to Munich's expansion of environmentally hazardous fossil fuel plants.¹⁷⁰ Because of this, the City voted in favor of investment in December, 1977. While debating continued, the opposition slowly dwindled among residents of Munich; a 1979 report from the Opinion and Market Research Institute Cohring found that 43 % of Munich citizens were in favor

¹⁶⁷ StadtA Mü: ZA Presseamt 208, Weltbund zum Schutze des Lebens to the City Council of Munich, Sept. 24, 1976.

¹⁶⁸ StadtA Mü: ZA Presseamt 208, Atomenergie für München? Oct. 27, 1975.

¹⁶⁹ StadtA Mü: ZA Presseamt 208, Werkreferat, Az. 83-38, Vorblatt zur Beschlußvorlage für den WA am 9. Dec. 1975.

¹⁷⁰ *MM*, "Nach heißer Debatte im Stadtrat: 24 Ohu-Rebellen unterliegen," Dec. 15, 1977; *SZ*, "Schwere Spannungen um den Atomstrom," Dec. 7, 1977.

of the project, 34% against.¹⁷¹ The project was set back numerous times, but Munich did invest in Isar II, along with Bayernwerk and Isar-Amper, and the reactor went critical in 1988 at 1400 MW, the second largest reactor in Germany. With the delays, Munich began to worry that it could not stop rolling-blackouts after about 1985, and began to discuss oil, gas, and trash burning plants to replace it. Today it is maintained by E. ON Nuclear Power, a Federal Republic conglomerate which oversees a majority of the reactors operational at the time of this study.

In 1976, the Environmental Ministry awarded a construction permit to expand the Gundremmingen reactor complex with two 1300 MW blocks (B and C). The Land Planning Process had been completed in 1974, and today is owned by RWE and E.ON.¹⁷² Because these two nuclear plants went critical in 1984, government documents will not be available until at least 2014; however, in the newspapers, it was the 1977 accident at the original Gundremmingen reactor that stole the headlines. It followed a small reactor accident on November 19, 1975, in which two men were killed during routine maintenance of the ventilator of the primary circuit. The first reactor accident resulting in human death on West German soil, the two men were performing checks on the ventilation, when irradiated, pressured steam at 270 degrees Celsius suddenly burst forth, because the valves had not been properly turned off. Streibl referred to the incident as an example of “human error.” Both men died from heat burns, not the radiation exposure specifically, and the radiation leak was contained within the security hull. Some experts claimed there was little difference between this ventilation accident and a similar occurrence at a conventional plant. Still, the accident naturally was quite scary for

¹⁷¹ SZ, “Mehrheit für Ohu-Beteiligung der Stadt,” June 8, 1979.

¹⁷² Bayerische Staatsministerium für Landesentwicklung und Umweltfrage, *4. Raumordnungsbericht* (Amberg: Flierl-Druck, 1978), 136.

residents of Gundremmingen and Günzburg, who believed there may have been previous accident cover-ups. Of course, the opposition to nuclear power latched onto the story, not only arguing that more radiation leaked than was reported, but also pondering whether human error could lead to a full reactor meltdown.¹⁷³

While the accident was traumatic, Streibl considered the security systems a success, because the radiation was contained within the nuclear plant. He suggested that security measures would be upgraded to compensate for the problem, and the soon-to-be-installed Remote Sensory System would overcome previous imperfections in the maintenance routine.¹⁷⁴ After considerable debate about the nature of the disaster, and several more work stoppages in 1976,¹⁷⁵ a second, more extensive accident on January 12, 1977 followed. The accident was a result of short circuit in the exterior high voltage grid during extremely cold, windy winter weather, which led to an inability to properly regulate the turbine.¹⁷⁶ After water flooded the reactor building, which overheated to about 80 degrees Celsius, it had to be ventilated to allow cooling, releasing radiation. Radiation was contained within the security periphery, but the reactor had to be thoroughly cleansed.¹⁷⁷

The accident resulted in two separate decisions. First, Streibl declared that the Bavarian Environmental Ministry would temporarily cease granting all atomic permits,

¹⁷³ See the *Augsburger Allgemeine*, “Reaktortod weckt alte Ängste,” “Skeptiker sehen sich bestätigt,” “Der Tragische Unfall liefert Kraftwerksgegnern neue Argumente,” Nov. 21, 1975; *SZ*, “Das Risiko der Kernenergie,” (precise date unknown), 1975; BayHSA: StK 18792, Dr. Vaitl of Bayer. SM für Bundesangelegenheiten, Bericht des Bayer. Staatsministers für Bundesangelegenheiten vom 25.11.75, AI1-1538-3-150, Nov. 25, 1975.

¹⁷⁴ *MM*, “Künftig Checkliste für Reaktor-Reparaturen,” July 12, 1976.

¹⁷⁵ *SZ*, “Kernkraftwerk Gundremmingen repariert,” Sept. 25, 1976.

¹⁷⁶ See the Nuclear Power Plant Gundremmingen website: http://www.kkw-gundremmingen.de/kkw_t9.php, accessed April 6, 2009.

¹⁷⁷ BayHSA: StK 18794, Leonhard Heilmeyer of the Bayerische Landtagsdienst, Auszug Bayerischer Landtagsdienst: Berichte und Informationen aus dem Parlament, Jan. 20, 1977.

until the nature of the disaster was determined, and new security measures were employed. This decision had the effect of delaying both the Isar I and Grafenrheinfeld reactors by about two years as the Environmental Commission in the Landtag refused to issue permits for Isar I.¹⁷⁸ Second, the damage was so extensive (about 180 million DM), that in 1980 it was decided to leave the reactor permanently offline. The process of decommission began in 1985 for the reactor, but the surrounding buildings (minus the reactor) are now used for research. In spite of the accident, or perhaps because of it, construction on the 1300 MW Blocks B and C were begun in 1976, with both reactors going critical in 1984. Today owned by RWE Power and E.ON Kernkraft GmbH, they combine to produce about 30 percent of the annual Bavarian energy consumption.¹⁷⁹

Pleinting, near Passau, 28 kilometers from the Eastern border with Austria at the foot of the Alps, received considerable attention for a prospective Bayernwerk twin nuclear reactor (both 1200-1300MW) block. In the Government of Lower Bavaria, the Land Planning Process proceeded in 1974, without major complaints. At that time, the Bavarian government planned a reactor for 1981, but the schedule for the second expansion would be determined in the future, dictated by energy needs.¹⁸⁰ To meet this deadline, Bayernwerk estimated that construction needed to begin in 1976. The location was within an isolated industrial region, featuring a 300 MW oil power plant, another 425 MW under construction, and 50-100 industries. Even though it was surrounded by numerous towns, Pleinting was 1.2 kilometers southeast, Hofkirchen was 1.1 kilometer

¹⁷⁸ *Augsburger Allgemeine*, "Ohu muß auf Gundremmingen warten," Jan. 26, 1977.

¹⁷⁹ See the Gundremmingen power plant site: www.kkw-gunremmingen.de/kkw_p.php, accessed April 7, 2009.

¹⁸⁰ BayHSA: Bay. Landsamt für Umweltschutz 4, Krezmar of Landesplanungsbehörde in Regierung von Niederbayern, Über die Bezirksplanungsstelle an den Regionalen Planungsverband Donau-Wald, 022464, Dec. 13, 1974

northeast, and Künzing and Girching were 2 kilometers west, Bayernwerk expressed some satisfaction that it was not directly in a nature preservation region; the closest was 3 kilometers away. Still, some 70,000 lived within a 15 kilometer radius of the proposed location, although the population density was well under the national average. Because Lower Bavaria relied so heavily on tourism, it had a unique pattern of settlement, in which residents were spread out, even if in relatively thick clusters. This location, on a narrow strip of the Danube, had the advantage that the wind whipped through at high velocity, resulting in optimal dispersion of the emissions. With this in mind, Bayernwerk felt that the cooling towers might be better received, because the plume would be generally less visible, dependent upon weather conditions.¹⁸¹

By studying the 1974 Weather Service Report, one can gather suggestive information on the suspected microclimatic effects of cooling towers. The weather service based its report on data collected at the Biblis reactor in Germany and corroboration from the United States. An American report from Zion, Illinois indicated that cooling towers for 2200 MW power plants discharged 2.2×10^{12} calories/ hour into the atmosphere, about one-sixth that of a mid-size city like St. Louis. Chicago, though, dispersed approximately 45.3×10^{12} calories per hour, significantly altering local climate, raising surrounding heat by 1-2 degrees Celsius. At night, a large city could theoretically increase the temperature as much as ten degrees Celsius.¹⁸² At Pleinting, the nuclear

¹⁸¹ BayHSA: Bay. Landsamt für Umweltschutz 4, Bayernwerk Aktiengesellschaft, 2 x 1300 MW Kernkraftwerk Pleinting: zum Raumordnungsverfahren für das geplante Kernkraftwerk Pleinting im Landkreis Passau, Aug., 1974.

¹⁸² BayHSA: Bay. Landsamt für Umweltschutz 4, Deutscher Wetterdienst, Stellungnahme über die meteorologischen Verhältnisse und die Auswirkungen von Kühltürmen am Standort Pleinting, Nov. 1974, 14.

plant would be half the size of the one in the Zion report, but the two towers combined, could alter local climate. In particular, the report suggested that one tower could increase precipitation by ten millimeters per year, and an additional tower up to about thirty millimeters per year.¹⁸³ In a meeting in the district government from Lower Bavaria, it was suggested that the towers be moved southward near an already planned electrical transformer, in order to prevent further damage to the natural surroundings. However, the government was concerned that this location, only 40 meters from highway B 8, would be dangerous for traffic, if the condensation produced additional fogginess or drizzle.¹⁸⁴ The newly formed Bavarian Bureau for Environmental Protection clarified in 1975 that the drizzle would only fall to the earth under perfectly still conditions, and only at the base of the tower.¹⁸⁵ At any rate, the Weather Service considered these microclimatic changes within acceptable limits, and quite comparable to Biblis.¹⁸⁶

Others who read the report came to quite different conclusions, using it as justification for objection. After the District Government of Lower Bavaria accepted the plan in 1976, the Bavarian Conservation League argued that the increased atmospheric moisture could detrimentally affect agricultural or horticultural interests in the region by increasing the amount of fungi.¹⁸⁷ In order to reach such a conclusion, the League had to

¹⁸³ BayHSA: Bay. Landsamt für Umweltschutz 4, Deutscher Wetterdienst, Stellungnahme über die meteorologischen Verhältnisse und die Auswirkungen von Kühltürmen am Standort Pleinting, Nov. 1974, 28.

¹⁸⁴ BayHSA: Bay. Landsamt für Umweltschutz 4, Oberregierungsrat Dünckelmeyer of the Regierung von Niederbayern to the Bayer. Landesamt für Umweltschutz, 800- 18/74 E, July 14, 1975

¹⁸⁵ BayHSA: Bayerisches Landesamt für Umweltschutz 4, Bayerisches Landesamt Umweltschutz to the Regierung von Niederbayern, VIII 3 - 7363 – 39112, Aug. 7, 1975.

¹⁸⁶ BayHSA: Bay. Landsamt für Umweltschutz 4, Deutscher Wetterdienst, Stellungnahme über die meteorologischen Verhältnisse und die Auswirkungen von Kühltürmen am Standort Pleinting, Nov. 1974, 28.

¹⁸⁷ *MM*, “Neues Kernkraftwerk in Pleinting Regierung stimmt grundsätzlich zu,” March 8, 1976.

accuse the German Weather Service of misrepresenting the metrological facts; it claimed the weather service had collected its sample data at the weather station at Passau-Oberhaus, 100 meters higher than the Danube Valley—a topographical difference that would misconstrue the temperature and moisture. While the German Weather Service claimed that the cooling towers would have no extreme effects on the climate, the Landplaning Process required Bayernwerk to meet strict regulations in release of condensation, because “it could not be ruled out, that a such a change, as for example, the increase in air moisture, would lead to the increase of fungal disease in agriculture and horticulture.” Even if no fungal disease was generated, there was further worry that the effort to protect the vegetables in the region, through heavy application of pesticides, would reduce the ability to remain competitive in the marketplace.¹⁸⁸

In 1975, representatives of Bayernwerk, the Nature Preservation League, the Bavarian Environmental Ministry, and the Citizens’ Initiative Environmental Protection met for a public debate on the Pleinting reactor. In this discussion, it became clear that many people from the surrounding county resented the fact that local nuclear power would produce electricity for a far away city like Munich.¹⁸⁹ Of particular concern to local residents, however, was the possibility that the towers would discourage tourism to the region. As mayor of Markt Hofkirchen, Eckmiller, expressed in his January 1, 1975 letter to the State Bureau for Environmental Protection, tourism represented the single industry for which a town near the Bavarian Forest could base its economy. According to his statistics, there were 11,321 overnight stays in the year 1973-74, and this vital part of the economy would come to a halt if the towers, or the workers who accompanied it,

¹⁸⁸ BayHSA: Bay. Landsamt für Umweltschutz 4, Regierung von Niederbayern, Raumordnungsverfahren für den Bau zweier Kernkraftwerksblöcke in der Gemarkung Pleinting, 800 - 18/74 E, Feb. 10, 1976.

¹⁸⁹ *Passauer Neue Presse*, “Schon zu spät für den ‘Sprung vom Tiger’?” Nov. 10, 1975.

ruined the landscape.¹⁹⁰ Certainly, a 160 meter high and 140 meter wide cooling tower would greatly alter the landscape.

In the Land Planning Process nearly every administrative branch or representative body in the Lower Bavaria region presented either a conditional endorsement or a total objection towards the project. Of the fourteen separate agencies that introduced criteria-based approval the most common requirement was the strict hindrance of radioactive emissions or effluents, from operation or transportation of radioactive agents.¹⁹¹ Further qualifications were brought forward by the Bavarian State Bureau for Memorial Safety, which wanted to protect ruins from two Roman streets and a settlement from 100-700 BC, which would reside 200 meters east of the planned electricity transformer. Other agencies, particularly the Highest Forest Directive Regensburg and the Bavarian State Agency for Natural Resources and Plants, required further testing and precautions to protect the forest, only two kilometers away, from the affects of heating and moisture. Others worried about the inundation of the site; Bayernwerk agreed to dike one meter over the 1000 year flood plain. Finally, the Trade Supervisory Center and the City of Vilshofen wanted to ensure that the nuclear plant did not have additional adverse affects when combined with other industries in the area. For the City of Vilshofen, it was the planned barrage on the Danube near Wieshof that was concerning, because it could change the water current and temperature. The Trade Supervisory Center wanted to

¹⁹⁰ BayHSA: Bay. Landsamt für Umweltschutz 4, Bürgermeister Eckmiller of Markt Hofkirchen to Bay. Landesamt f. Umweltschutz, 024561, Jan. 21, 1975.

¹⁹¹ BayHSA: Bay. Landsamt für Umweltschutz 4, Regierung von Niederbayern, Raumordnungsverfahren für den Bau zweier Kernkraftwerksblöcke in der Gemarkung Pleinting, 800 - 18/74 E, Feb. 10, 1976; these requirements were brought forward by the Regional Planning Alliance Danube-Forest, State Bureau Passau, City of Vilshofen, State Health Bureau Passau, Bavarian State Bureau For Water Economy, and Markt Pleinting.

further examine the effects of mixing the nuclear power steam with sulfur dioxide produced from the oil plants.¹⁹² If Bayernwerk sufficiently met all of these criteria, the fourteen agencies were willing to give tentative approval.

Another nine bureaucratic conglomerations held objections specifically towards the cooling towers, not the nuclear plant. The most common complaint regarded the destruction of the landscape aesthetic by the 160 meter high towers.¹⁹³ If this happened, then the region near Bavarian Forest would suffer in its primary economic endeavor, recreation and tourism. Particularly upset about this was the County of Deggendorf, which considered itself the port for the Bavarian Forest, and the Bavarian Peasants League, which regarded the weekend “excursion to the farmhouse” as a vital vogue enterprise. As with the nuclear reactor itself, the towers also represented a hindrance to line-of-sight from the Hilgartsberg near Pleinting, to memorials in the area, according to the Bavarian State Bureau for Memorial Safety. Of a more technical matter, many agencies wished that the cooling towers could be removed, simply by piping the thermal energy to nearby towns, like Birnbach, or to the University of Passau.¹⁹⁴

Ten clusters of administrative organizations unconditionally objected to the nuclear plant on numerous grounds. Once again tourism was a primary motive for

¹⁹² BayHSA: Bay. Landsamt für Umweltschutz 4, Regierung von Niederbayern, Raumordnungsverfahren für den Bau zweier Kernkraftwerksblöcke in der Gemarkung Pleinting, 800 - 18/74 E, Feb. 10, 1976

¹⁹³ BayHSA: Bay. Landsamt für Umweltschutz 4, Regierung von Niederbayern, Raumordnungsverfahren für den Bau zweier Kernkraftwerksblöcke in der Gemarkung Pleinting, 800 - 18/74 E, Feb. 10, 1976; in this category we can include City of Vilshofen, Village of Künzing, Deggendorf County Nature Preservation Commission, Bavarian State Bureau for Environment, and the Location Planning Authority for the District Government of Lower Bavaria.

¹⁹⁴ BayHSA: Bay. Landsamt für Umweltschutz 4, Regierung von Niederbayern, Raumordnungsverfahren für den Bau zweier Kernkraftwerksblöcke in der Gemarkung Pleinting, 800 - 18/74 E, Feb. 10, 1976; those in favor of pumping the heating include: Regional Planning Alliance Danube-Forest, Land Bureau Passau, City of Vilshofen, Markt Pleinting, Village of Alkofen, Bavarian Nature Preservation League, Passau County Nature Preservation Commission, Location Planning Authority for the Government of Lower Bavaria, and the Nature Preservation Committee at the State Bureau Deggendorf.

complaint; the village of Hofkirchen, which had invested 2 million DM the previous year in tourism development, was the most uncompromising.¹⁹⁵ Because small farmer coops had invested 5 million marks in the last year towards the expanding fruit and vegetable cultivation near Künzing, the Peasant League and the Bureau for Agriculture and Livestock Rearing unequivocally objected. They argued that even if the steam did not cause fungal disease, the consumers would refuse to purchase produce from a region near a nuclear plant. Worried about forest death, the Bavarian Wood Owners Alliance felt sulfuric acid emissions mixed with smog would kill the surrounding forest. Village Neßlbach wanted the government to research wind turbines, perhaps joining in a wind project at Honnef. The District *Heimat* Protectors felt the plant would destroy the Danube Valley *Heimat*. As always, the Nature Preservation League objected on numerous grounds: that reprocessing of nuclear wastes was not yet possible; that the weather service had been deficient in its report; that the nuclear plant was not necessary, because there was no energy deficit; that the location was too near the Eastern border and therefore a security risk.¹⁹⁶ By late 1976, with the numerous objections and decreasing energy needs (and perhaps because it was on the Austrian border), the facility was delayed until 1985; it was permanently removed from consideration in 2000.¹⁹⁷

Beginning in 1977, the Bavarian Environmental Ministry also required the completion of

¹⁹⁵ BayHSA: Bay. Landsamt für Umweltschutz 4, Regierung von Niederbayern, Raumordnungsverfahren für den Bau zweier Kernkraftwerksblöcke in der Gemarkung Pleinting, 800 - 18/74 E, Feb. 10, 1976; others that voiced this complaint were Nature Preservation Commission in Passau and Deggendorf counties.

¹⁹⁶ BayHSA: Bay. Landsamt für Umweltschutz 4, Regierung von Niederbayern, Raumordnungsverfahren für den Bau zweier Kernkraftwerksblöcke in der Gemarkung Pleinting, 800 - 18/74 E, Feb. 10, 1976

¹⁹⁷ BayHSA: StK 18794, Bayerische Staatskanzlei, Ergebnissniederschrift der Sitzung der Gesprächsgruppe Bayern- Oberösterreich am 26.11.1976 in München.

‘final waste storage’ as a prerequisite for issuing further atomic construction permits.¹⁹⁸ Instead, the government constructed a second reactor at an already sure location, Ohu.¹⁹⁹

In 1976, Rheinland-Westphalia Electrical Corporation and Lech Electricity out of Augsburg named Rehling as its next site, about 12 kilometers north of the city center of Augsburg and 30 kilometers east from Gundremmingen. The location would house two 1200 MW reactors, with criticality planned for 1984 and 1986 respectively.²⁰⁰ For some time, Lech Electricity had been planning for a location in Swabia, somewhere on the Lech River, a tributary of the Danube. Originally, the utility wanted the nuclear plant to be closer to Augsburg, at Gersthofen—a project that the company believed would have saved them 40-50 million marks, especially if it allowed long distance heating—but it deemed the location too close to Augsburg. Theirhaupten was also considered, but ruled out due to proximity to water pumps.²⁰¹

When electricity rates contracted following the Oil Shock, Jaumann began to confidently proclaim that the construction of the reactors at Rehling would allow Bavaria, not to just meet energy needs, but to exceed them. In doing so, the historically heavy energy importer Bavaria would be able to export to other Federal states or Austria.²⁰² Other politicians were less than impressed with this revelation. CSU Landtag representative Hermann Knipfer inquired why Bavaria should construct a nuclear plant, endangering water supplies on the Lech (which was considered a potential drinking water

¹⁹⁸ Bayerisches Staatsministerium für Landesentwicklung und Umweltfragen, *4. Raumordnungsbericht* (Amberg: Flierl-Druck, 1978), 136.

¹⁹⁹ BayHSA: StK 18794, Bayerische Staatskanzlei, Ergebnisniederschrift der Sitzung der Gesprächsgruppe Bayern- Oberösterreich am 26.11.1976 in München.

²⁰⁰ *Augsburger Allgemeine*, “Kernkraftwerk-Experte nimmt zu Rehlinger Projekt Stellung,” October 26, 1976.

²⁰¹ *Augsburger Allgemeine*, “Notfalls Enteignung für Atomkraftwerks-Bau,” Nov. 20, 1976.

²⁰² *Donau Kurier*, “Meinungsverschiedenheiten um Standorte für Kernkraftwerke,” Dec. 28, 1976.

source Nuremberg), in order to export to the other states.²⁰³ Because RWE was the primary stockholder in the project, the Nature Preservation League accused the Bavarian government of bowing down to a non-Bavarian “dictatorship of energy-supplier monopolies.” In its estimation, this led to an unnecessary and reckless destruction of the “Heimat landscape.”²⁰⁴ Put differently, the thought of overproduction of nuclear energy was criticized under the old Bavarian fears of external exploitation—that Rhineland companies were continuing to invade the Bavarian *Heimat*. Additionally, the League was concerned that the location resided “only” eight kilometers from the water protection area at Noris on the Lechs River, which supplied Nuremberg.²⁰⁵

As an olive branch to the locals, engineers of the REW and Lech utilities offered “free heat” to the city of Augsburg. With the promise that the nuclear plant would channel its thermal heat towards 10,000 personal homes, swimming pools, and the city water pump only 8 kilometers away, the utility representatives enthusiastically triumphed their future plan before Augsburg City Council in Rehling, in late 1976. If possible, this would spare not only an estimated 40% of lost heat, but also approximately 72 tons of steam daily. These engineers also suggested that the switch from individual domestic oil heating to centralized nuclear heating would directly improve the environment, by reducing sulfur dioxide emissions. City leaders, including the Mayor of Augsburg, Hans Breuer, Mayor of Rehling, Fritz Höß, and Mayor of Meitingen, Leopold Kroul, eagerly threw support towards the project. It was noted that Höß, though, was an unpaid representative of Lech Electric.²⁰⁶ He was particularly hopeful, because the nuclear plant

²⁰³ *MM*, “Augsburg CSU-Chef gegen Atomkraftwerk,” Oct. 18, 1976.

²⁰⁴ *Augsburger Allgemeine*, “Atomdiktatur der Konzerne,” Oct. 16, 1976.

²⁰⁵ *Nürnberger Nachrichten*, “Nürnberger Trinkwasser von Kraftwerk gefährdet,” Oct. 16, 1976.

²⁰⁶ *Augsburger Allgemeine*, “Atomkraftwerk will Wärme verschenken,” Oct. 14, 1976.

would temporarily bring 2000 construction workers, and 800 permanent workers—along with 800,000 marks annual tax revenue—to the tiny town. Like Garching twenty years before, a considerable number of local farmers were excited to create an atomic village. And the Augsburg newspaper called the land “relative worthless riparian forest.”²⁰⁷

The Nature Preservation League, which had been advocating distance heating for a couple of years, remained skeptical that a corporation would pursue such an unprofitable goal, but pointed to the Nuremberg water pump as a strong candidate for heating.²⁰⁸ Rehling Young Democrats, though, took an informal survey indicating that 70% of questioned in the region and in Augsburg opposed the nuclear plant. This led the Young Democrats to join the Augsburg FDP in pleading for an open city forum that would include representatives of the corporation, “independent” scientists, and local citizens.²⁰⁹ Quite quickly, the Anti-Power-Plant-Front Augsburg, Citizens’ Initiative Aichach-Friedberg, Citizens’ Initiative Augsburg, and Citizens’ Initiative Rehling formed, supported by the Young Socialist, who founded Struggle against the Nuclear Plants, and held the first modest protests. One upset farmer who owned some of the proposed land, Josef Lechner, after announcing that he would not sell the land under any circumstances—because the land had been owned by his family for four generations—later reconsidered, agreeing to theoretically sell it for the hefty price of 1.2 million DM.²¹⁰ Others worried that the reactor’s relatively close proximity to Gundremmingen (they were both in Swabia, 30 kilometers apart, on opposite sides of a large Augsburg forest preserve) would ruin the capacity for “sight-seeing” at nearby Taglilienfeld, an

²⁰⁷ *Augsburger Allgemeine*, “Pudels Kern im Kernkraftwerk: Armes Dorf will reicher werden,” Oct. 14, 1976.

²⁰⁸ *SZ*, “Naturschützer formieren sich gegen Atomkraftwerk in Rehling,” Nov. 16, 1976.

²⁰⁹ *Augsburger Allgemeine*, “Beim Atomwerk sind noch viele Kern-Fragen offen,” Oct. 21, 1976.

²¹⁰ *Augsburger Allgemeine*, “Preispoker um Areal für Atomkraftwerk,” Oct. 19, 1976.

area on the Lech known for its lily and orchid fields and preserved as a natural memorial in 1982.²¹¹ Social Democrats in nearby Gersthofen complained that their region, which housed numerous older industrial buildings, would develop an unhealthy environment, although newspaper accounts are not precise as to why. Similarly, Citizens' Alliance Lech Quarter, an Augsburg-based initiative organized to protect the old city center's "character" along the Lech River, shifted its attention towards Rehling, as it alleged that the nuclear plant was "before the gates" of Augsburg. While there were numerous citizens' initiatives in the region, newspaper reports suggested that they were unable to smoothly form region-wide alliances due to organizational problems and because of the local rejection of the K-group involvement. The appeal by these Maoists groups for revolutionary agitation and direct confrontation with the police dissuaded the local, more conservative population from forming region-wide alliances.²¹²

Perhaps one of the more compelling complaints came from a group of Rehling small farmers, who considered the nuclear industry an attempt to squeeze out small-scale farming. Following the trade union leadership's announcement on May Day 1977 that it would support the construction of nuclear plants in order to produce employment in the stagflation economy, 3000 citizens and farmers assembled in protest. Appalled by the workers' loyalty to the atomic industry, the farmers warned the unionists that big businesses and utilities did not have it in their best interests to protect employment; instead, the capitalists would use the electricity produced to further rationalize factories, leading to a reduction in employment, not an overall increase. Thus, the farmers called for a coalition with workers against the electrical utilities. At the heart of the farmers

²¹¹ *Augsburger Allgemeine*, "Die Gefahr lockt," Oct. 16, 1976.

²¹² *Augsburger Allgemeine*, "Heftiger Widerstand gegen Kernkraftwerk," Nov. 6, 1976.

dismay was the apparent alliance between nuclear industry, big farmers, and the Bavarian state, which were intending to displace the small farmers of the region, by choosing a location in the middle of small farms. Aside from Lechner, 34 other small farmers would be forced to sell property or accommodate the construction. With the building of the cooling towers, they argued, the vegetables, fruit, and milk would be ruined by either heavy moisture or radiation. A further consideration was the dropping of the water table, or the heating of water, which meant that farmers were required to purchase expensive irrigation equipment or fertilizers. This competition for land between farmers and industry, they argued, had reportedly led to 900,000 families 'losing' small family farms. Under this interpretation, the winners of Bavarian state planning policy were industry and large farmers.²¹³

The Rehling project has an ill-fated ending. By 1977, members of the Alliance Democratic New Order out of Remscheid distributed highly inflammatory flyers to Rehling farmers, which made a claim that a fictitious reactor accident instantaneously killed 20,000 people in the region.²¹⁴ Among other problems, the regional opposition convinced the government to look elsewhere. Pfaffenhofen on the Zusam near Augsburg became the new potential residence for the reactor and was championed by Franz Josef Strauss, but it met it strong opposition from farmers in the region, who did not want to

²¹³ BayHSA: FISIg 900, Augsburgener Bürgerinitiative gegen das Atomkraftwerk Rehling, April 2, 1977.

²¹⁴ *Der Spiegel*, "Wie eine Walze," 46 (Nov. 7, 1977), 116, found at the magazine website: <http://wissen.spiegel.de/wissen/dokument/dokument.html?id=40736383&top=SPIEGEL>, accessed Jan. 16, 2009.

“lose *Heimat* and bread.”²¹⁵ There the project remained suspended indefinitely, until it was also abandoned in 2000.

By 1980, the Ministry of Economics had greatly scaled back its ambitious nuclear power program, only completing four 1300 megawatt reactors in the coming years: Gundremmingen B and C; Grafenrheinfeld; and Isar II. Reactors at Pleinting and Pfaffenhofen remained in the planning stage until 2000, and even though Franz Josef Strauß adamantly championed the latter in the early eighties,²¹⁶ they were denied ultimately the necessary permits. While the Federal Republic turned its attention towards reprocessing facilities, leading to the showdown at Wackersdorf, it was clear that the Bavarian government never overcame the difficulties of landscape planning formulated in the last thirty years. Those issues first articulated in the fifties—*Heimat* preservation, tourism, agriculture, and radiation exposure—were still present at more remote locations like Rehling, Pleinting, and Pfaffenhofen. Developed in the sixties, recreation and hydrospheric concerns remained prevalent at Pleinting and Grafenrheinfeld. Finally, those technologies only developed in the seventies, namely cooling towers and distance heating, became central to the debates at Grafenrheinfeld, Pleinting, and Ohu.

In this way, the story shows considerable continuity, yet transformation since 1950. While not often mentioned in international press conferences or nuclear power summits, where technical matters usually took center stage, landscape planning had been central to the Bavarian nuclear program for thirty years. Officials in charge of landscape

²¹⁵ *Der Spiegel*, “Wir den Dreck,” 36 (June 9, 1982), 35, found at the magazine website: <http://wissen.spiegel.de/wissen/dokument/dokument.html?id=14350710&top=SPIEGEL>, accessed Jan. 16, 2009.

²¹⁶ *Der Spiegel*, “Wir den Dreck,” 36 (June 9, 1982), 35, found at the magazine website: <http://wissen.spiegel.de/wissen/dokument/dokument.html?id=14350710&top=SPIEGEL>, accessed Jan. 16, 2009.

planning had long developed nuclear power within the hydrospheric and spatial systems, which in their opinion most efficiently used the limited space. By 1980, however, it was clear these negotiations were breaking apart, as Bavaria just did not present anymore available land. Events across the Federal Republic, particularly the new West German-wide requirement for waste storage to be included in atomic permits, naturally slowed Bavarian success. Contraction of energy growth, a trend that continued until the early eighties, also contributed to this climate. But primarily it was the sheer intricacy of landscape planning that ended the program.

Conclusion: Landscape Planning and Nuclear Power

By 1980, the landscape (and the perceptions of landscape) of Bavaria had undergone evident qualitative change. Since the 1950's, Bavaria had developed from a largely agricultural region, with industry restricted to small, limited areas, into a high-tech region, the West German leader in the most relevant industries, including aerospace, vehicular travel, and nuclear power. In the nineteen-eighties, Bavarian ambitions turned towards the microelectronic industry, trying to develop a German 'Silicon Valley.' Within the energy sector, hydroelectric dams, oil refineries, gas wells, and high voltage power lines crisscrossed the landscape, rendering Bavaria likely unrecognizable to someone who had visited previous to World War II. Of course, the three nuclear power plants sites, with their massive 140 meter parabolic towers billowing steam plumes that partially blocked the sunshine of the small towns of Gundremmingen, Ohu, and Grafenrheinfeld, would have been the most visible and controversial additions to the landscape. But additionally, no less noticeable would have been the growth of major Bavarian cities and recreational parks, zoned since 1945 as an attempt to strictly organize space, so as best to develop an artificial equilibrium between nature and society.

As I have suggested throughout this dissertation, journalists, regional officials, local business interests, and ordinary Bavarians were an integral part of landscape planning from the beginning in the nuclear industry, perhaps more so than other industries of the time. While naturally the state ministries and prominent scientists in Munich directed the character of nuclear site debates, offering their expert opinions in Landtag debates, newspaper interviews, and administrative forums, the input from these

outside sources was not just considered oppositional, but also welcomed. In this way, the three major case studies of nuclear planning (as well as the more minor episodes) in the three decades that I have described—Garching, Ebersberg Forest, and Grafenrheinfeld—show remarkable continuity. In all three, local and regional protests about landscape planning derived from a variety of sources, but focused on cultural and environmental uses typical of the respective decade. These criticisms and doubts were expressed differently, but ultimately—with differing degrees of success—were incorporated into the overall state scheme.

Aside from the dramatic transformation of the landscape, looking back from 1980, three other distinct features of Bavarian society demonstrated considerable change. First was the changing public discourse on the feasibility of nuclear power in the local landscape. In the nineteen-fifties, doubts about the research facilities in Garching centered on two elements—the disruption of local culture and climate, and the anxieties about the Cold War. Of greatest importance in local culture were ‘traditional’ Bavarian ventures, like brewing, tourism, agriculture, and the English Garden. However, it was at the juncture between the local climate phenomenon, the *Föhn*, and the international fears of the Cold War, that we witness the curious growth of global thinking about androgenic climate alteration, anticipating the debates of the environmental movement. Lone conservative figures like Josef Baumgartner, from a federalist’s worldview, foresaw quasi-universalist criticisms about reprocessing and nuclear plant placement. Most Bavarians, however, perceived the research station in Garching as a localized radioactive threat to the Greater Munich Metropolis; a facility that could be placed potentially

anywhere, if it met specific safety criteria. Still, these requirements implicitly were so demanding that virtually no location in Germany would be without controversy.

In the sixties at sites like Gundremmingen and Ebersberg Forest, Cold War anxieties, fears of losing the *Heimat*, worries about the microclimate, and concerns about the threat of radioactive contamination remained pronounced. After the Economic Miracle, however, nuclear planning had increasingly to incorporate two new features into landscape organization—hydrology and leisure. The growth of large metropolises and industrial belts put more intensive pressure on limited water supplies, which amplified competition from public, state, and business interests over the two major river systems in Bavaria, the Main and the Danube. As nuclear facilities grew in scale using more cooling water, officials had to either find new tenable locations or upgrade the technology in order to reduce water intake. At the same time, the growing belief that urbanites required recreational space for healthy living required planners to add nature parks and walking paths to local topography designs. The combination of balancing industry, leisure parks, and suburbs led many Bavarians to fear that there was little available landscape for construction of further (albeit necessary) energy production—especially nuclear power.

With the introduction of large cooling towers in the seventies, the visible magnitude of the concrete structure and the steam cloud confirmed any anxieties developed in the last twenty years about the reshaping of the landscape. These cooling towers dominated the horizon, and the humidity discharge added a new dimension to long-held fears of localized climate change. Local residents and officials in charge of conservation—such as those at Pleinting—worried that the increased atmospheric moisture would damage crops and disrupt recreation. Thus, state and regional planners

unsuccessfully sought to incorporate new thermal technology, such as urban heating systems for the City of Munich. Meanwhile, the technology of reprocessing—only anticipated in the fifties—was becoming a possible reality by 1976, and those worries subtly expressed twenty years earlier became full critiques. This new focus on reprocessing after 1976 was probably the most substantial shift in discourse witnessed in twenty-five years. While cooling towers represented largely an argumentative change in scale, disapproval towards fissionable recycling was the most complete shift in discursive type.

The second theme in this dissertation is the general migration of skepticism towards nuclear energy from political right to left. This shift was instigated above all by the transformation of Bavaria from a relatively poor agricultural state to a high-tech, urban, and affluent society. While doubts about the research reactor in Garching were expressed by numerous interest groups—including businessmen and officials in charge of conservation—the farmers and federalists featured most prominently among the skeptics. This was not because they were inherently technophobic per se—they welcomed new technology if it met specific cultural and environmental criteria—but rather, was a product of both the size of the agricultural population and the placement of the reactor in the countryside. In 1955, Garching was a farming village, surrounded by cabbage fields on both banks of the Isar. It was farmers then, who were the most threatened by the radioactive emissions and effluents. When radiation endangered the urban populace, as was the case with the thermonuclear bomb, then they too would write their representatives and newspapers in complaint.

By the mid-sixties, this relationship began to change. Demographics of course dictated that there were fewer peasants and more urban residents. But it was also the fact that urban and industrial centers spread out into the countryside, not in haphazard fashion, but nonetheless in a meaningful way. As the expansion of an affluent consumer society pressed up against the ‘open’ landscape, urban, agricultural, industrial, and scientific interests collided. Even though we see a significant continuation of agrarian and older conservation interests participating in the Ebersberg Forest dispute, we witness more involvement from recreation seeking urbanites residing in Munich. As industry and cities used up the precious water reserves, metropolises like Nuremburg lobbied to protect its municipal water supply. In both cases, we see not only small villages becoming concerned, but also large cities and suburbs. This development pushed previous proponents of nuclear power, for instance Hoegner, into mild opposition—supporting technology, opposing the location. Larger technology systems, which affected more territory (like the particle accelerator), helped transform traditional preservation associations, like the Nature Preservation League, into organizations devoted to protecting entire integrated landscapes. Furthermore, the phrase ‘protection of life,’ first expressed unsystematically by ordinary Bavarians about nuclear technology in the fifties, received further credence with a supra-regional organization, the League to Protect Life.

After the affluence of the sixties, three distinct groups, collectively considered the New Left, arose in rejection of—or perhaps because of—the consumer society. Out of the growing number of urban middle class professionals developed the citizens’ initiatives. These networks, which as this analysis demonstrates were not as innovative

as has been previously argued, formed when the growth of modern society invaded members' urban and suburban local space. A perfect example was the various associations dedicated to planning Munich's streets and energy grids, which formed wherever the autobahn construction threatened existing buildings. No group had benefited more from the Economic Miracle—until it threatened landscape, with which it had a cultural or social bind. When this happened, they adopted new environmentalist's jargon to replace the seemingly dated nature preservation terminology. The second new group was the clergy, who envisioned themselves as fashioning a new theology of stewardship of nature. While the clergy in the fifties largely supported nuclear power (unlike many of the laity) and protested the military, local priests in the seventies argued that nuclear plants and reprocessing were a threat to life. Naturally, the final wing of the New Left derived from the students and youth. Armed with a Marxist or 'alternative' critique of society, they saw nuclear power as inherently capitalist in design, and warned that all facilities should be treated similarly. Of the three new groupings, it was these youth that had the most difficulty in maintaining the tenuous alliance with the traditional conservation associations and farmers. While the traditional groups remained strong in Grafenrheinfeld for instance, the new methods of radical extra-parliamentary dissent were disconcerting and led to mutual uneasiness and open resentment among the anti-nuclear movement by 1976.

The third topic presented in this dissertation was the growth of active participation in the direct decision-making of the body public. In the nineteen-fifties conservatives like Josef Baumgartner and businessmen like Otto Perutz, perhaps weary of the radicalism from the interwar era, relayed their skepticism of nuclear power by subdued

means, writing letters, going through bureaucratic channels, and filing complaints through representatives. Never in the fifties do we witness demonstrations or civil lawsuits against nuclear power. These actions were in direct contrast to the extra-parliamentary dissent of the coinciding and much more visible anti-rearmament movement. Nonetheless, one might argue the subtle forms of participation were more instrumental in framing the existing landscape policy—as was the case in the location of the research reactor—than the ban-the-bomb movement, which was more spectacular, but unable to persuade the Federal Government against rearmament.

During the sixties, we witness the growth of three more innovative techniques to express discontent: the petition, localized marches, and the civil lawsuit. These new means of expression mixed with the older forms of letter writing and bureaucratic procedure, and produced surprising results in the public participation of landscape planning. During this time period, conservatives challenged the transparency of decision-making on individual issues, but rarely on entire policy. For example, during the Ebersberg Forest affair, hikers disputed the interpretation of the constitution and demanded open, democratic debates on the placement of the particle accelerator. At the same time, hunting associations and bird watchers paraded around with placards at local Carnival festivals. However, this vivid landscape protest was not the norm. For overarching landscape planning, official administrative organs, in which local officials expressed doubts and criticisms based upon their interpretation of public demand, remained the standard. Another example comes from the Gundremmigen reactor, where farmers threatened to march to Munich, but when some of their demands were met, remained content with petition writing.

As has been described previously in countless studies, during the seventies the local initiatives employed all means available to shape landscape policy. This included mass demonstrations, civil unrest, petition drives, and legal injunctions against nuclear plant construction—all attempts to develop transparency to the point of almost direct democracy in all landscape planning. Supra-regional leftist youth organizations often went a step further, resorting to vandalism, violent confrontation, and civil disobedience. In Bavaria, this met mixed results. Planned reactors at Pleinting, near Augsburg, and Groß-Welzheim were permanently delayed. In the case of Grafenrheinfeld, where all three techniques were regularly employed, protesters were unable to halt construction. The same could be said about construction sites where reactors had already been built, such as Isar and Gundremmigen. Here, it was easy for the Bavarian government to piggy-back its original nuclear plants, because the issue was not the reactors per se, but the specific location.

In addition to studying the history of the Bavarian nuclear power industry, this dissertation evaluated four other broader themes about the Federal Republic. First, it examined the extent that ordinary Germans conceptualized and shaped the nuclear landscape. Whether it was forcing subtle modifications to reactor design (the addition of emissions filters for instance), cultivating aesthetically pleasing landscape features (like improving the surrounding flora), or by rejecting landscape planning altogether (such as a particularly popular forest or swimming hole), Germans continuously helped frame the landscape policy in which nuclear facilities would reside. Nuclear facilities were not just technical projects limited to scientific discussion, but also, because of their real and imagined effects on the regional environment, prominent features in landscape

conceptualization. Long before the enormous cooling towers rose up to the sky like atomic cathedrals, interest groups, officials, and ordinary Germans sought to alter the placement of even the smallest reactors. In a densely populated region like Bavaria, made the more so by the Eastern refugees, all spaces were socially charged with meaning. Thus, while Germans had lesser input into reactor technology, theoretical physics, or security parameters, they could debate the proper use of a lake area, riparian valley, soccer field, river, open lot, agricultural pasture, or wooded hillside. These small plots of land, as well as their accompanying atmosphere and climate, were more meaningful for the common German than theoretical debates about the fuel cycle, particle physics, or cheap energy. Through this process of location negotiation, landscape policy and nuclear industry was constantly altered, modified, and rethought.

Second, this work discussed the role of civil society, that is the intermediary institutions between the state and the populace, in the development of the nuclear industry. In the nineteen-seventies, Robert Jungk's *Nuclear State* declared that the utilities, scientists, and governments, in reaction to the coal crisis in the fifties and the Oil Shock in the seventies, had formed a nontransparent alliance to construct a vast array of nuclear power plants at the expense of the populace. This coalition was enabled by the Atomic Commission, which was comprised primarily of these three lobbies, and pushed its agenda through with little participation from the public. Jungk's interpretation is debatable when considering technical, economic, or scientific matters, which only a few experts readily understood. In spite of this technical gap, however, the populace willingly interacted in the shaping of the landscape, a vital and undervalued aspect of the nuclear program. While this participation was not constant—it was only apparent when

theoretical facilities became a reality—it was consistent, as every project received some input from regional planners, local citizens, and non-utility business interests. Even though this contribution began with the specific site, it often went further, developing into more comprehensive landscape planning, designed to best use all available space. Inclusion in the process, however, did not of course ensure success on all fronts; nor did lack of achievement necessarily indicate exclusion, as critiques have assumed ever since.

This dissertation suggests that we should rethink the general interpretation that suggests civil society slowly broadened in the Federal Republic, particularly after 1968. There has been a tendency to define civil society narrowly, limiting the term's application to those extraordinary (often leftist) extra-parliamentary demonstrations or associations obviously visible to the television camera. With this circular definition of civil society, naturally we come to the conclusion that the broad demonstrations of the nineteen-seventies exhibited a growth in civic participation in the government. However, this dissertation suggests that civic participation can also come in more subtle forms. Recent environmental historians, like Engle and Chaney, argue that we underestimate the influence of conservationist efforts and organizations in the fifties. Likewise, Deutinger clearly also emphasizes the role of local politicians and mayors in the construction of nuclear test facilities. Studies that have focused too heavily on the leading politicians and the central ministries in either Bonn or Munich have presented us with an overly monolithic view of the state; this dissertation also submits that the Bavarian regional bureaucracies, interdepartmental disputes, and oppositional politicians served as intermediaries for subtle public protests, interjecting concerns about the hydrosphere, flora, or the atmosphere, and earlier than suggested by Bergmeier. While not mobilized

to participate in civic unrest or mass associations, this study also shows that conservative citizens of Bavaria still expressed themselves directly to politicians, bureaucracies, and newspapers and shaped landscape policy. It was a combination of the efforts of conservation associations, bureaucracies, politicians, business interests, and ordinary citizens that made up this more subtle form of civic participation. This undercurrent of skepticism sought participation within the existing system, rather than to establish an alternative or oppositional structure, but nonetheless had its effectiveness.

Third, this dissertation considers the relationship between modernization and environmentalism. In view of the prominence of the landscape motif within the nuclear debates, this study suggests that the growth of modernization and environmentalism were intertwined. Rarely did Germans consider modernizing technology and nature to be intrinsically separate or mutually exclusive concepts. Rather, even the most conservative officials sought technocratic solutions for environmental problems, through the cultivation of landscape, usually for anthropocentric reasons. In fact, Germans often preferred utilitarian nature, such as a geometric forest modified throughout history by humans, because it offered better possibilities for recreation and *Heimat* preservation. Before 1980, there were few appeals to virgin nature, or calls to develop ecocentric models. Instead, both the government and public wanted to perfect landscape organization, finding the most suitable and efficient means of involving all interests on a stressed landscape. Most interests sought technical means to overcome the environmental deficiencies of nuclear power, whether it was water diversion or cooling systems for the hydrosphere, or a radiation emission control system for the atmosphere.

For the German populace and the Bavarian bureaucracy, nuclearization always implied landscape planning. Since the fifties, it had been an unspoken rule that officials had to overcome the hydrospheric, climatological, atmospheric, lithospheric, and cultural problems of nuclear power. With the introduction of emission filters and cooling towers, engineers had some success in doing so, allowing advocates to claim nuclear power as a relatively environmental friendly producer of energy. Unlike many other technologies, however, nuclear designers have yet to overcome its signature environmental problem—radioactive wastes. Ultimately, the lack of a technocratic fix for nuclear waste disposal led to nuclear power's undoing in the Federal Republic. Locational issues, while posing significant problems during the issuing of atomic permits, could be partially surmounted by repeatedly constructing on the same site. The so-called final solution for wastes was never found, breaking the unspoken rule, resulting in the discontinuation of nuclear power in the nineteen-eighties, after that generation of reactors was completed.

Finally, this study searched for the origins of modern environmentalism. There has been an ongoing debate about the birth of new environmentalism, with some suggesting that it was a product of an overwhelming pollution crisis that occurred around 1970, while others highlight the rise of the new social movements. More so than any state in the Federal Republic, Bavaria underwent a vast transformation of the landscape in only one generation. The roots of Bavarian environmentalism lay within this sudden shift of perception. With the first Industrial Revolution, pollution, urban, and industrial expansion were relatively limited, especially in Bavaria. Thus, only specific scenic locations, such as a dam that altered a culturally symbolic river, were put under the strain of expansion. This threatened the interests of farmers, hunters, and bird watchers, and

those federalist politicians and nature preservationist who represented them. As the landscape burdens of the consumer economy quite suddenly pushed into affluent suburban and populated districts of Bavaria, giving urban residents a similarly anxious feeling of constriction—a sense that their culturally meaningful landscape was disappearing—then they too joined the environmental movement. Perhaps unlike any other technology of its day, nuclear power had the ability to generate regional opposition, because the hydrogen bomb and nuclear facilities threatened not only vast open landscape, but also the major cities of Bavaria. Instead of endangering the interests of just a few hundred individuals, the livelihood and interests of thousands were affected, in the densely populated Bavarian region. This trend broadened when, in the era of consumption, urban residents and conservationists collaborated to develop the nature park system, which widened the urban anthropocentric use of nature into the forestland.

In the end, the Bavarian Model of nuclear modernization was the process of combining elements of local landscape and culture with modern technology planning. This procedure had been primarily an administrative negotiation over landscape between the Bavarian populace, the officials in charge, and the numerous interests and organizations that became involved. In spite of Franz Josef Strauss' championing of nuclear power in the nineteen-eighties, this model had broken down by 1980, as officials could no longer fit nuclear plants into the crowded landscape, without causing a virulent backlash. This suggests that Bavaria was only partially successful in implementing both nuclear modernization and nuclear landscape planning, as the actual product underwhelmed when compared to the earlier ambitious goals. While modernization and environment were inseparable concepts, they could rub against each other, causing

friction. After 1980, this tenuous relationship was torn asunder with the Wackersdorf controversy. Plutonium reprocessing went beyond regional landscape issues, posing an immense leap in danger, and involved the entire extra-regional opposition. Thus, it stepped outside of the framework of landscape negotiation established over the course of the last thirty years. Perhaps, in another decade when the relevant documents become available, we can continue this story up to the Reunification.

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VITA

Kyle Miller was born in Blackwell, Oklahoma on January 24, 1977. Raised in rural Oklahoma, he received a B.A. in History from Oklahoma State University in 2000. At the University of Missouri in Columbia, he was awarded a M.A. in History in 2002 and a Ph.D. in 2009. The research for his dissertation was conducted at the Bavarian State Archives and the *Deutsches Museum* courtesy of grants from the German Academic Exchange Program (DAAD) and the Department of History, 2006-2007.