Journal of the History of Economic Thought,
Volume 42, Number 3, September 2020

WAR AFTER WAR: WILHELM KRELLE, 1916–2004

BY
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Wilhelm Krelle (1916–2004) had two careers: one before 1945 as an officer in the German army (Wehrmacht), and a second after 1945 as an economist in West Germany. After retirement, he was honored as the economist who brought modern modeling techniques, Lawrence Klein's macroeconometrics in particular, from the US to West Germany. After his engagement in the reform of East German economics, however, he was discredited as his early career became public. This essay reconstructs Krelle's career in his attempt and struggle to maintain moral integrity in and between the various domains of his troubled life as officer, economist, political adviser, father, and husband.

"*Suffering ceases to be suffering at the moment it finds a meaning, such as the meaning of a sacrifice.*"

—Viktor Frankl [1945] 2006

I. TOTAL WAR

Germany, October 1944. The National Socialist movement had reached its ultimate delirium. On all fronts, in the East and in the West and in many cities, more and more troops were being called up and summoned to fight for the final victory. As the losses mounted, the pressure to mobilize all remaining resources intensified. Social differences no longer mattered. Civilians and soldiers, lower class and upper class, the old and the young, men in battle and women on the home front—everyone available was drawn into

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ISSN 1053-8372 print; ISSN 1469-9656 online/20/03000307-334 © The History of Economics Society, 2020
doi:10.1017/S1053837219000464

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

the ultimate battle "until the last man," an absorption that brought good and evil, for everyone back then and still today when judging morally, as close as never before.

And one of the perceived differences that was erased in these months was that between the *Wehrmacht*, the Defense Force, and the *Schutzstaffel* (SS), the Protection Squadron. Previously, they had a different public image: the *Wehrmacht*, though sworn to Hitler's cause, drew its spirit from the *Reichswehr*, the Imperial Defense that had fought for the German Reich in WWI—the honorable losses of which WWII was to rectify. The SS, instead, initially Hitler's guards, was considered the military core of the National Socialist movement; it was united by racial doctrines, fought for the unique cause of the Third Reich, and was ready to commit the war crimes for which Nazi Germany became known.[1] But as more and more battles were lost, and as more and more soldiers fell, the thinner the line became that separated these two armies. While, at the beginning of the war, SS recruits were voluntary and exclusively Aryan, during the last months of the war, *Wehrmacht* soldiers were forcefully recruited into the SS. And this is what happened to Wilhelm Krelle.

Pause. Whatever excites the intellectual curiosity of the reader of this journal, it stands back when contemplating these events. We are dealing with a moment of historical singularity, with extreme experiences that touch upon the meaning of being human. A witness of these experiences is, first and foremost, a challenge to human understanding. The horrors of war in the first half of the twentieth century challenged the understanding of those who lived through these moments of extremes, as it did for the generations who had grown up with those who so often failed in their attempts in articulating them. This heightens the urgency of our historical consciousness—*our*, because whatever side of the front, the war, and thus the trauma, was the same. In other words, because of the singularity of these events, they continue living in what followed 1945 to such an extent that contemporary history amounts to little more than the symptom of a trauma—and this includes the history of economic thought!

It is commonplace for readers of this journal to assume that WWII and the history of economics are interrelated. However, this relationship has too often been considered as a matter of institutions, in particular the US military-industrial complex.[2] But war is first of all violence, and requires to be understood from the point of view of those suffering and committing violence. Failing to do so, the established narratives treat the historical reality of the mid-twentieth century but as a mere context for the emergence of economic ideas and techniques, and cannot answer a more pressing question: How could economics, as we know it today, emerge in response to the extreme experiences of the twentieth century? What moral stricture gives coherence to those who lived through both WWII *and* contemporary economics?

Wilhelm Krelle had two careers: one before 1945 as an officer in the German army, and a second after 1945 as a neo-Keynesian economist in West Germany. His

[1]This difference was a perceived difference. The *Wehrmacht*, too, has committed serious war crimes (see Hartmann et al. 2005).

[2]See Mirowski (2002), Klein (forthcoming), and the many other works inspired by them. The rupture that WWII represents in the history of economics is also present in the émigré literature (e.g., Hagemann 2017); and postwar Americanization literature (fundamentally Coats 1996; for the German context, Hesse 2012; and for France and Belgium, Düppe 2017b). The present article presents a different but complementary approach to the topics dealt in this literature.

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

personality was shaped by Prussian virtues, a personality that could flourish in Hitler's army as it could flourish in postwar macroeconomics. Living through very different regimes of values, he tried to maintain moral integrity in-between and within them. This article reconstructs Krelle's career in his attempt and struggle to maintain biographical cohesion in and between the various domains of his troubled life as a Protestant, as an officer, as a neo-Keynesian economist, as a political adviser, as the driving force of a transformation of the economics department in Bonn, and as a father of four children—an ambitious life in search for the exceptional in many battles of different kinds, in sacrifice for his family, his department, his discipline, his nation. It is Krelle who attempts to establish coherence between these domains; it is the aim of this article to describe these attempts; and it may be up to the reader to judge their success.[3]

II. THE BATTLE IN SS UNIFORM

Krelle, born in Magdeburg in 1916, slim, physically fit, and with an energetic appearance, was twenty-seven years old when he was asked to join the SS. He had just completed the training program for generals. He could look back at an impressive career.[4]

After school and a disappointing period in the Hitler Youth, he joined the *Wehrmacht* as an ensign in the engineer battalion in April 1935. He soon became lieutenant, and shortly before the invasion of Poland, in April 1939, higher lieutenant. In Poland, though only in an engineering troop, he captured a bridge, which won him a first decoration, the Iron Cross Class I (out of four classes). In 1941, as a company commander of the 21st tank division in Greece, he was wounded in a bunker attack and received the Iron Cross Class II as well as Hitler's Deed of Honor. In February 1942, he was promoted to captain (*Hauptmann*), and became the commander of an engineering and then a tank battalion with Rommel in the African corps. Again, he was seriously wounded. While

[3]Next to memories of Krelle's family members and former colleagues, the main sources of this article are unpublished diaries, family letters, and memoirs by Krelle himself (described at the beginning of each section). I use these sources for the sole purpose of understanding his career from a first-person perspective (rather than as a source of evidence for historical facts beyond his own perspective). As these sources stem from different periods, their resemblance and difference are apt to describe his continuous inner struggle over memory, guilt, and moral integrity. Obviously, memory gap and intention play a role, and, in fact, tell us of this struggle. What did he forget? What could he not forget? What did he make public; what did he rather keep private? Whenever the history of facts seems necessary to put these sources into context, I do refer to additional sources. For a complete historiographical and methodological discussion of what I call "lived epistemology," of which this article is an example, and in particular the role of the personal in the contemporary history of economics, see Düppe (2019).

[4]This section is based on Wilhelm Krelle (1993b), *Erinnerungen*, Teil I 1916–1941 (Memoir I); and Teil II 1941–1945 (Memoir II), two bounded typescripts that Krelle wrote in 1993 after being diagnosed with cancer, and before his SS past became public. They contain also two typescripts detailing specific battles dating from the 1960s, as well as copies of original handwritten letters from the war in an appendix. That is, Krelle worked through, and thus modified, war memories at several points of his life. While his memories of the Weimar Republic describing his nationalism in response to the opprobrium of the lost war were indeed published (1993a), he gave copies of his war memoirs only to his children. There is no evidence that he tried to publish them, yet he wrote to his nephew that the "manuscript should be as illustrative as possible, such that someone will read it" (Krelle to Christof Huth, 30.5.1993).

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recuperating in Frankfurt, he took the occasion to attend several lectures at the university on the history of Rome and the ethics of Immanuel Kant. In January 1944, he was ordered to the general staff training. He then received the order to join as 3rd general staff officer of the newly formed 13th SS-Corps under the command of General Hermann Priess. The staff was in charge of tens of thousands of soldiers on the Western Front.

Krelle was proud of his career and appreciated the career opportunities that the war provided. On February 25, 1945, he reported to his comrades from the general staff training who, like him, had been trained to uphold the belief in the final victory. He was not the only *Wehrmacht* officer who had been recruited to an SS corps. He expressed concerns about his rank, about the lack of opportunities to prove one's worth, and about the lack of clarity regarding the difference between the SS and the army. Note that letters were censored.

> There is not much to tell about me.... Early in August 1944, I received the draft order to report to the deputy general command in Breslau, where I learned that I had been assigned to a newly formed SS corps.… Since early January, I have been in an SS Panzer Grenadier Division and get along well with my young and fresh Division commander. It is a pity that there will be no more wide-ranging attacks, and thus no more real use of the division. We have a front almost 30 km wide! So we will be glad if we can hold the position against the superior enemy attacks.... The status of our service (whether Army or SS) is still unclear. All officers of the SS corps were ordered to use the SS ranks, but we are still led by the Army Personnel Office. But in this phase of the war, this might not matter. (Memoir I, appendix)

However, it did matter to him. He later recalled an inner struggle to be associated with the SS. Krelle was a very conscientious and righteous soldier: "The war is bitter and hard," he wrote in October 1945 to his wife, "hopefully, I will always find the right path. And if not, then please know that I always wanted to do the best" (Memoir II, p. 89). In fact, he questioned the order to join the SS. For him, the difference between the *Wehrmacht* and the SS was of a moral kind—the difference between an orderly Prussian institution and a corrupt party system, between German nationalism and Aryan racism, between the reason of military strategy and the mania of political power, and in particular between an institution that draws from Protestant values and atheism.[5] In retrospect, in 1993, he recalled a conversation with his wife Alix:

> In consternation, Ali and I sat in our apartment and discussed the situation. Should I ask the Army Office for a different post? ... After a long discussion, two reasons kept me from doing so. First, I believed that I'm in God's hands. If he thinks that such a strange task is right for me, I cannot know better. His will must be done.... The second reason, however, was probably more decisive—in any case, I recall my arguments with Ali very precisely. During the war, … I had to give commands that put soldiers in critical situations that were at least as unpleasant as the command I got.... Now that I'm in such a situation and have received an unpleasant order, should I then try to evade it? (Memoir II, p. 82)

[5]When, in 1995, a large exhibition toured in Germany showing the war crimes by the *Wehrmacht*, Krelle did not feel concerned—"for actual crimes are those responsible who have commanded and executed them, but no one else," Heide Krelle recalled him saying (personal conversation).

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These two reasons are worth comment. First, Krelle was deeply Protestant. His maternal grandfather was a Protestant minister, and throughout his life he tried to view himself and his activities in a Christian light. In Prussian culture, faith in God and emperor, nationalism, militarism, obedience, sacrifice, and hard work for the common good were all closely knit together. Being dutiful was to worship, and to show being worthy of, God. And so did his Protestant belief help him to make sense of the war and, in particular, help him to accept the fear of death when taking cover in trenches under artillery attack or moving under hostile fire. He had the 15th Gospel of John in mind: "Greater love has no one than this: to lay down one's life for one's friends" (ibid., p. 68). Rather than being driven by hate, war, he believed, was God's way of showing who, as individuals or nations, had a further task on earth. If he were killed, his life would be fulfilled by dying for his country; if he survived, it would be his duty to meet his further task in the light of all those who had given their lives. Such construed notion of religious faith might explain his letter to his parents on August 29, 1944: "Do not worry that I became a different person by wearing a different uniform. I believe that, also in the SS, I can act for the good in accordance with my religious principles" (ibid., p. 86).

After he accepted the post with the new SS corps, General Priess asked him to resign from the army and become a formal member of the SS. While his Protestant faith made him accept the order to transfer to the SS, the same faith made him refuse formally signing into the SS. He recalled long discussions with Priess about the existence of God and his role in the war. He recalls that he did not share the anti-Semitism of the party because he thought that "the hate against what is Jewish also affects Christianity" (Memoir II, p. 93). Having declined in writing on October 29, it might have influenced Priess's decision not to recruit him for the Battle of the Bulge in December 1944, the last German offensive in France that Krelle would have loved to join—fortunately, because he might have been held responsible for the so-called Malmedy Massacre (see Remy 2017). Nearly 100 US prisoners of war were executed, for which Priess would later be convicted. Instead, on January 4, 1945, Krelle was transferred as first general staff officer—partaking in and translating the strategic decisions of the commanding general—to the 17th SS-Panzergrenadier Division at the West Front (nicknamed Götz von Berlichingen). At the same time, he was promoted to major, the equivalent of the *SS Sturmbannführer*. He commanded around 12,000 soldiers, who had to fight "until the last man" in order to hold the last line separating the enemy from German territory, the Siegfried Line. The division included ethnic Germans from Croatia and the Black Sea who would cross the line in the hope to be "rescued" by the enemy, just as one of his commanders, Hans Lingner, did. Heroic willingness to die in battle and cowardly suicide became indistinguishable. Records report that less than 1,000 out of the 12,000 soldiers in his division survived the loss of the Siegfried Line.[6]

When the Siegfried Line was abandoned in January, and his reinforced division moved southeast into German territory, isolated war crimes are recorded—shootings of lost concentration camp prisoners and of civilians who prepared white flags for the

[6]For a military history of the 17th division, see Spiwoks and Stöber (1976), and, more recent and more general in English, Citino (2017).

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

arrival of US forces.[7] Krelle, in charge of more than 10,000 soldiers, later claimed that he was not aware of them (in Förster 2004). In contrast, he thought that the courage of his soldiers deserved moral respect by the international community: "The whole world has to respect the German soldiers who in the fifth year of war, outnumbered in weapons, equipment and soldiers, always do their duty and never give up," he wrote to his wife on October 9, 1944 (Memoir II, p. 72).

This leads to the second reason for which Krelle accepted wearing an SS uniform. Being an officer requires absolute *obedience* to orders—that is, to act without questioning their meaning, without feeling responsible for the overall political goal, and to accept casualties. In Africa, as a commander, he sent eleven soldiers to a meaningless death, and at the West Front, more than 10,000 soldiers died under his command.[8] While he would say about the latter losses that he prevented more casualties from occurring, the former would gnaw at his conscience for years to come.

> One cannot give a soldier at the front or a lower officer the right to decide case by case if a command is "good". ... Otherwise you would risk the cohesion of the troops: no one could rely on one another. However, after all, everyone will be responsible for what he has done, if he had insight into all of the activities or not. And if he is not prosecuted, so remains one's own conscience as a prosecutor. (Memoir I, p. 89)

Absolute obedience, the acceptance of casualties, the suppression of one's doubts, and the irrational fact that others die next to him while he survives clearly require strategies to deal with feelings of *guilt.* Krelle's most important strategy is deeply rooted in Prussian Protestantism, present throughout his life: *hard work.* It is by means of utmost obligation, utmost effort, utmost strain—that is, by means of a sacrifice—that he could make up for those who sacrificed their lives. "I am glad, my dearest," he wrote to his wife on December 6, 1944, "that I can relieve the guilt for all soldiers on the front lines by hard work" (Memoir II, p. 96). Hard work, for Krelle, was both a cure for guilt and a means of keeping on.

Next to work, a second source for psychological stability in battle was the intense love that he shared with his wife, Alix Scholz. They met after the war had already started and married in May 1944, not knowing how the war would end. Alix came from a fine family, was brash and free-spirited, outspoken, and politically opinionated. Krelle loved her effervescence. The wedding was problematic because Ali's father had committed suicide in 1936, which could have been grounds for the authorities to prohibit the marriage. The correspondence between Alix in Berlin and Wilhelm at the front is full of references to art and literature. Through the ideals of love as described by Plato, Goethe, and Mörike, they deepened their intimate and profound connection, and created an alternative world that protected them from the horrors of war: "The war, the omnipresence of death and thus solitude, perhaps despair, surely the breaking down of all hopes for the future, gave our love a depth, related to its concealed suffering, that nobody today

[7]See Rüter and de Mildt (2010). Krelle often reported that the response to so-called *Freischärler*, irregular civilian attacks against the military, had been an issue discussed among officers since the invasion of Poland. Should they be treated as civilians or as military? (Memoir II, p. 48).

[8]The African episode took place in El Ksiba. The deaths were related to a lack of coordination with the artillery. The casualties, eleven killed and thirty-four wounded, were meaningless because the British gave up the emplacement anyway (Memoir II).

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living in secure circumstances can feel or understand" (Memoir II, p. 98). Their love, though built up in absence during the war, helped them endure the many shared struggles after the war.

But the underlying motivation for accepting the delirium of war in the first place was a deep desire that equally remained present throughout Krelle's entire life: the desire to achieve something extraordinary and noble. His nationalism was a manifestation of the wish to enter historical memory. When thinking of Germany, he thought of the victories of eighteenth-century Frederick the Great; his military ambitions were inspired by reading Ernst Jünger's *Storm of Steel* ([1920] 2004); and he compared himself to the early nineteenth-century general and military writer Carl von Clausewitz. On Christmas Day, 1943, he wrote to Alix: "When the New Year begins, we will toast with a full glass of champagne and vow to never be frivolous (*kleinmütig*), never to be frightened, and even if it looks bad to always believe in our fatherland and our future" (Memoir II, p. 49). Reading, at the front line, about the life of Johann Sebastian Bach, he wrote to his wife on September 29, 1944: "I hope that, like Bach, I can bring about something that goes beyond the mere demands of daily life" (ibid., p. 106). Krelle appreciated the opportunity that war offered because it meant an absolute break with the ordinary and the daily, and it gave meaning even to what was otherwise so pointless: death. War elevates and intensifies meaning. This was what he enjoyed. In fact, despite the idea of sacrificing oneself, this exceptionalism was a manifestation of an elevated sense of his self, or even of vanity, as his daughter Heide called it (personal conversation). This would be apparent in all other battles in his life.

Krelle's desire for the noble and the exceptional, however, was in turn a fear of weakness, a fear of failing at the simple task of daily life. When writing of his youth, he projected this weakness on the opprobrium of the Weimar Republic (2003). But it appears to have an origin in his family, someone he had been ashamed of during his childhood: his father. Willy Krelle was a bank clerk. He was bullied by his boss, and had a hard time during the Great Depression deciding to whom to grant or to deny credit. Always in danger of losing his job, he suffered from stomach ulcers and pneumonia. The entire family continuously worried about his health and rank, and little Wilhelm despised him for that. "Imagine that! He failed because he was not able to deny credit during the crisis," Krelle's son-in-law recalled his saying about Willy Krelle.

In early May 1945, his tank division ended up at the Austrian border. Krelle was ordered to hand over the entire division to the US army. Just before that, he was promoted to *SS-Obersturmbannführer,* the equivalent of lieutenant colonel (*Oberstleutnant*). This must have been related to the fact that his commander, Georg Bochmann, refused to hand over the division and decided to flee. Later, Krelle would question the legal validity of this promotion since at the end of his faithful career, he held a rather high rank, the same as, for example, Adolf Eichmann. Though this is an unjust comparison since Eichmann held that rank for most of the time of the Nazi regime and had been strategically passed over for promotions, would this be known by those who would decide on Krelle's further fate after the war? Fearing capture, the nightmare of all officers, he managed to hand over the division in front of TV cameras to the American army and yet flee. After a three-week harrowing journey from the Bavarian Alps to Saxony, he arrived with jaundice on May 31 in his family's village, Schönebeck. There he saw his two-month-old son, Rainer, for the first time.

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The German surrender in May 1945 meant multiple disappointments for Krelle: that his sacrifices (and those of so many others for which he had to make up) were pointless; that nobody was celebrating his courage; and, worst, that the National Socialist regime had not fought for the noble goals for which he had fought—as the full truth of what many knew from rumors was revealed: the Holocaust. And since the SS would become a symbol not only of so many war crimes but also of the genocide, Krelle, poised to be a hero before the end of the war, faced being a pariah after the war. Note, however, that the less he identified with the crimes that became public, the less he had to question his noble motivations described in this chapter. Having survived the war, God must have a further task for him on earth. And he had to take on this task in obligation towards all those he had sent to death and who died beside him in the trenches. And this task, he would soon understand, would be to *modernize German economics in the image of the United States.* God's ways are inscrutable.

III. THE POSTWAR STRUGGLE

Back home, worried about being arrested when registering with the police for new documents, Krelle called himself a "businessman"—referring to an internship he took in 1935 at a bank—and thus got a new identity card. When the family understood that they now lived under Soviet occupation, his sister Erika decided to go west to Tubingen, where her husband had family. Krelle, who might have anticipated more serious controls of his identity when registering with the Soviet forces, decided to follow his sister. His parents joined them, but his second sister, Gisela, stayed. After another odyssey, the young family arrived in Tubingen on August 3, 1945.[9]

How to make a living? Housing, heating, and the health of little Rainer were his first concerns, and there was no immediate employment opportunity. In his search for a new profession, the university offered the best alternative. He chose, rather than history and philosophy as in 1944, the most promising degrees in terms of future income and study time: physics and economics. However, universities were bound to investigate the histories of any applicants. "October 15, the university reopened. We were anxiously awaiting if the admission would be accepted after the questionnaires had been filled out. But initially it went all right" (Chronicle 1945). In addition to physics, mathematics, and public finance, Krelle was introduced to mathematical economics by Hans Möller, Heinrich von Stackelberg's former assistant. Stackelberg was unique for being both an ardent Nazi until the early 1940s *and* an ardent neoclassical economist. The imprint of Stackelberg's economics would be visible in Krelle's work until the end of his career.[10]

But he could not go deeper into these studies. In the spring term 1946, the questionnaires had to be filled out anew. This time the committee decided *not* to grant admission to Krelle. He knocked on the doors of all committee members, explaining the

[9]For every year since 1945, Krelle wrote a family chronicle, an important source for this section (personal archive, Heide Krelle). It documents shared events of the family (such as travels, hikes, and cultural visits, illustrated with small drawings of landscapes, buildings, and people) as much as it is a tool for seeing things in a positive way.

[10]See Starbatty and Strecker (2016) for Möller's lectures. For Stackelberg's influence on Krelle, see Krelle (1993a). On Stackelberg himself, see Kloten and Möller (1992). For the history of economics in Tubingen, and also in Heidelberg and Freiburg, relevant to Krelle's career, see Brintzinger (1996).

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circumstances of the ending war that led to his high SS rank. He got a verbal acceptance, but when the rector was replaced, his admission was declined. Thus, in early May, he cycled 150 kilometers southwest and tried his luck at the University of Freiburg. He took no risks and changed his military title in the application documents; he now was no longer *Oberstleutnant*, but merely *Leutnant* (Heide Krelle, Gabriele Schumacher, personal conversations). It worked. In summer term 1946, he enrolled in physics and economics in Freiburg. He learned to be discreet about his past.

Separated from his family, he studied with utmost determination, driven by the pressure of earning an income for his family, by the awareness of having to catch up years of education, by the ambition to become an achieving member of the new society, and by the humiliation from being supported by his father's money. He passed about twice the number of classes of an average student. In addition to mathematics and physics, public finance and business economics, he also heard lectures by Walter Eucken, Constantin von Dietze, and Clemens Bauer. These were the thinkers of the so-called Beckerath circle who, in the last years of the war, developed ideas for the postwar economy, ideas that pushed West Germany into what came to be known as a social market economy.[11] Having grown up in the German historical school, these economists were, in contrast to Hans Möller in Tubingen, fully non-technical. Though Krelle wrote his PhD thesis under the supervision of Eucken (after finishing his diploma studies in only three academic terms), ordoliberalism made little impression on him. His thesis was on Say's Law, which shows his early attraction to Keynesian thought. He finished the thesis in nine months, submitting it the day before Christmas 1947, when he turned thirty-one (Krelle 1947). Eucken could not help him develop his interest, but he was well connected with Erich Preiser in Heidelberg, next to Erich Schneider one of Germany's leading theoretical minds in Keynesian economics. Through this connection, Krelle's future took shape. By October 1947, he had known that starting May 1948 he would begin as an assistant to Preiser.[12] Before moving to Heidelberg, he graduated in physics, where his grades were not good enough for a career.

Only three years after the war, Krelle had made it. He had a regular income and a new profession as a civil servant at the university. At Christmas 1948 the family was united for the first time in their own home; his second child, Axel, born in January 1949, was on his way, followed by his first daughter, Heide, three years later in January 1952. As secure as his situation seemed, his mind would not calm down. Driven by the duty to seek higher, material security was occasion for renewed ambition, for aiming at higher goals, for becoming a better human being. His resolution for 1951 that he promised to his wife reads like this:

> Again, we have made good progress, internally and externally. But let us take the resolution to live even more "essentially", not to come to a halt at external matters and to

[11]Regarding the Beckerath circle, see in detail the documentation in Blumenberg-Lampe (1986), and, in English, Rieter and Schmolz (1993). Regarding their relationship with National Socialism, see the recent account of Köhler and Nientiedt (2017).

[12]For a full biography of Preiser, see the extensive study by Blesgen (2000); for Krelle's own appraisal of Preiser, see Krelle (1968, 1981). Preiser's influence on Krelle was certainly stronger than that of his PhD director Eucken; he appreciated not only the technical and political elements of his neo-Keynesian economics but also his Christian background (see below).

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> work on ourselves, so that we become righteous human beings. Both of us could do it if we only put enough effort. That's what we want to promise to ourselves for the New Year, don't we? (Chronicle 1950, 30.12.1950)

For him, the occasion to work on himself was to foster his academic career; for his wife, it was to be a mother and housewife.

IV. THE BATTLE OF EQUATIONS I

In November 1951, Krelle defended his habilitation with Erich Preiser, and his academic rank changed from Assistant to *Privatdozent.* His thesis was published as a book in 1953 and was entitled *Theorie wirtschaftlicher Verhaltensweisen* (Theory of Economic Behavior) (Krelle 1953). It is a book à la John Hick's *Value and Capital,* starting with a theory of choice, applied to consumers and producers, combined in a general equilibrium, which was supposed to be the foundation for macroeconomic research.[13] Technically and conceptually, it lagged behind the international literature, access to which was difficult in postwar Germany. But Krelle tried to catch up. His early other publications included a review of Paul Samuelson's *Foundations of Economic Analysis* that would be foundational for his further work (Krelle 1951a). He clearly appreciated the engineering approach to economics, which met his preference for simple mechanical reasoning, which in turn resonated well with his Prussian mode of viewing moral and political life as a matter of rules, protocols, and duty rather than sentiments and affections. Thus, the kind of economics he bet on was clear: US economics of a neo-Keynesian kind. A research trip suggested itself. He applied for and won a Rockefeller fellowship for the 1953–54 academic year. The past remained present: before embarking on the *Queen Mary*, on his way, in Belgium, he visited the battlefields of WWI as well as those he himself knew from 1940.[14]

Krelle spent most of the Rockefeller year at Harvard and MIT, then visited Michigan and Chicago for some weeks, followed by a touristic trip with his wife and a summer in Los Angeles at UCLA and the RAND Corporation. He thus visited the most important of those institutions associated with the transformation of the discipline of US economics during the 1950s, when several branches of technical social science research became channeled into a new "neoclassical" hegemony (see Düppe and Weintraub 2014). Taking part in this arrival of a new economics must have brought about the impression that it was here that things happened, and that Germany was sorely behind. This impression was reinforced by the presence of those German-speaking emigrants who in the 1920s advanced economic theory and now made great careers in the US (such as Jacob Marschak, Gottfried Haberler, Oskar Morgenstern, and Joseph Schumpeter).

[13]Regarding Hicks's notion of micro-foundation and its difference to the later research program, see the classic Weintraub (1977).

[14]In addition to his publications in economics, in 1951, he also wrote a non-technical pamphlet concerning the question of the rearmament of West Germany, called *Militarism.* He argued for the importance of the army, though limited to defense; the virtue of obedience, though limited to "strict" rather than "absolute" obedience —as if his professional ethos as officer had always fitted better a democratic society! Regarding the contested Oder-Neisse border between Poland and Germany, Krelle, like many, still considered the possibility of WWIII, which would correct the injustice of WWII, just as WWII was to correct the injustice of WWI.

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

Krelle socialized easily in Cambridge. In his first report to the Rockefeller Foundation that he kept with the family chronicle, Krelle noted that facilities were better, that financial pressure on students was lower (still due to the GI bill), that relationships with professors were closer, but also that students had fewer choices over classes, that the academic quality of undergraduate classes was lower, and that conformism in American society was greater (October 7, 1954). The quality of graduate classes, he wrote, was incomparably higher than in Germany. He singled out Walter Chipman's econometrics classes and Paul Samuelson's graduate seminar at MIT, where he was introduced into the flourishing discussions on growth theory. Yet, there were also seminar debates that seemed to go above his head—as the Patinkin controversy regarding his PhD topic, Say's Law (Patinkin 1951). "The whole discussion … is rather sophisticated and I do not feel very satisfied with the outcoming [sic]" (Report, November 10). But most importantly for his further career, he got into the input-output analysis approach popularized by Wassily Leontief. With his interest in neo-Keynesian economics and econometrics, he was right at the front of the most popular branch of technical economics at the time. He tried to "dynamize" input-output analysis in a Keynesian fashion—that is, include monetary questions and business cycles, and then apply it to growth (ibid.). He wrote a draft of a paper and presented it in both Leontief's and Haberler's seminars.

Having tasted what promised to him to be the future of economics, ordoliberal economics back in Germany appeared to him as a forlorn form of thought. The intention to become the missionary in Germany of what he learned in the US took shape. In his report, he anticipated the battle he had to fight:

> When I am back in Germany, it will be my first duty to try to put these things further there. But tradition is not very favorable for that. Economics in Germany descends from history and political science. Therefore the accent lies more on the philosophical and ideological side of the economic problem and the pure pragmatism as best represented by statistics and econometrics is often regarded with suspicion. (ibid.)

In early April, he left to go to the University of Michigan, where he met a key contact for his future, Lawrence Klein, some years younger than Krelle but already the leading figure in Keynesian macroeconometrics.[15] As Klein later recalls in a recommendation letter: "I was impressed by his knowledge of modern economics at the time of his American visit and by the enthusiasm with which he embraced the subject" (Faculty Archive [FA] Bonn, "Krelle," 8.5.1986).[16] In June he moved on to the Cowles Commission in Chicago, perhaps the most vibrant site of the transformation of economics during these years. Among others, he met with another young German research fellow who had been, like him, a PhD student of Eucken in Freiburg: Martin Beckmann, now at the very front line of programming techniques (Koopmans and Beckmann 1957; see Hesse 2010, p. 244). Spending August in Los Angeles, he expanded his network further at the Institute of Numerical Analysis and also at the RAND Corporation. He met John

[15]He also had conversations with Richard Musgrave on public finance and George Katona on consumer psychology, and he was impressed by the "exceptional personality" of Kenneth Boulding, he wrote in his report (Chronicle 1954). And he became friends with the Austrian-born economist Wolfgang Stolper, a friendship that would lead to a positive review of Krelle's habilitation (Stolper 1955).

[16]University Bonn, Faculty of Law and Economics, archive, Institut für Deutsche und Rheinische Rechtsgeschichte, Adenauerallee 24-42, in the following: FA.

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

von Neumann, George Dantzig, Harry Markowitz, and Lloyd Shapley, *the* mathematicians and economists working on programming techniques. Oskar Morgenstern noted in his diary about Krelle's visit: "Dr. W. Krelle (and his wife) showed up (at RAND). He stays for four weeks and wants to see me often. He studies the Games and understands that his habilitation is totally outdated. But his knowledge of the literature, etc. is rather patchy."[17]

Although he was lagging behind the front line of research in the US, the opposite was true in Germany. Some days after returning to Heidelberg in September 1954, fueled with new ideas, he reconnected with what would become his new intellectual home base: the Comity for Theory of the German Economic Association, the *Verein für Socialpolitik* (see Schefold 2004). It was there that he would find an audience, allies, followers, recognition, and a place to move things ahead. Krelle was younger than those who remained of the pre-war generation and older than those who began studying, like him, in the postwar years.[18] Compared with the older generation of German theoreticians, he was technically far ahead; and for the younger generation, he became an example of rigor and discipline, as Rudolf Richter recalls (e-mail correspondence, August 2016). Krelle knew personally those economists whose works others struggled to barely understand.

Even if Krelle's profile was to represent US standards, the region where he applied data and intervened in political debates, and specifically his preferred language of publication, was German. This is one reason why he is well known in, but little outside, Germany. Throughout his career, he published mostly in the three most-read German journals: the journal of the German Economic Association, *Schriften des Vereins für Socialpolitik*; the oldest German journal, founded in 1844, *Zeitschrift für die gesamte Staatswissenschaft*; and the *Jahrbücher für Nationalökonomie und Statistik*, founded in 1862 and co-edited by Erich Preiser. These were general economics journals publishing across the entire field. He thus published in the same journals as other economists critical of both Keynesianism and its technical level. Confrontation was unavoidable. The president of the German Economic Association asked Krelle to remove several graphs and formulas from one of his first manuscript submissions (Schefold 2004). Krelle engaged in the confrontation. Since early on, he had written methodological pamphlets; next to the physics-like exactness, he argued for ideological neutrality lacking in literary economics, against the legitimacy of critiques who do not understand mathematics, *and* for a peaceful co-existence of several approaches (Krelle 1949, 1952, 1957, 1960).

Economists were not the only group interested in Krelle's American experiences. In October 1954, he was invited to talk at the *Gesellschaft für Wehrkunde*, the society for 'military education' (founded by the CIA in order to prepare for the integration of a possibly remilitarized Germany in the West). In May 1955, he spoke about his travels also at the local group of the German Africa Corps, of whose board he was a member. In this group, memories were shared, facts gathered, orders re-evaluated. The past continued working within him, and he sought preservation and understanding, if not recognition, for what he did. In 1959, he wrote a novel about the tragic bunker attack at El Ksiba, using fictional names (Memoir II, p. 26ff.). He sought a literary form, describing

[17]Diary, July 18, 1954, Oskar Morgenstern Papers (OM). Rubinstein Library, Duke University.
[18]Andreas Predöhl, Erich Gutenberg, Erich Schneider, and Walter Adolf Jöhr were members of the older generation; Rudolf Richter, Alfred Eugen Ott, Karl Brandt, Rudolf Henn, Gottfried Bombach, Carl Christian von Weizsäcker, and Jürgen Kromphardt were those of the younger generation.

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

the unreal world of the desert, the morale of his troops, the conflicts of leadership, and the moral tragedy of the attack that, once successful, turned out to be strategically irrelevant. Questions of the responsibility of leadership and obedience to orders but also bravery and honor in combat continued to occupy him, all the more since these issues became absent from the public mind. It appears he did not send it out to a publisher.

In Heidelberg, he became the driving force of the Institute for Econometric Research (*Institut für ökonometrische Forschung*), founded in October 1954. He now put to work what he had learned in the US: he created one of the first input-output national accounts for Germany.[19] The institute provided tools and results for the national accounts of the statistics office (Krelle 1959). This was the beginning of a research program that Krelle pursued until retirement. Data analysis in national accounting was a matter of diligence, routine, and discipline, which fitted well his Protestant work spirit and, among his younger collaborators, evoked comparison with his known military background. He was called the *iron* Wilhelm, and also the *jet fighter*, working fourteen hours a day at a minimum and doing headstands to fight tiredness, as witnessed by his younger colleague Ernst Helmstädter (1987, p. 105f.).

His efforts paid off. In 1956, he received an offer as extraordinary professor for econometrics and theoretical economics at the University of Commerce (*Handelshochschule*) in St. Gallen, Switzerland. The decision was not easy, as the family had to leave Germany: "Don't we lose the connection to our country, which we do not want to leave and to which we intimately belong?" (Chronicle 1956). He accepted the call. There, he introduced operations research, not only as a field of study but also applied to airport optimization at Swiss Air (see Krelle and Künzi 1958, 1962). His engineering approach to questions of economic organization and policy took material shape when he built a mechanical simulator of the economy, not unlike the Phillips machine, for the World Exhibition in Brussels in 1958 (Krelle and Weber 1958).[20]

Switzerland was a memorable place for the family. In December 1955, their fourth and final child, Gabriele, was born. Everyone was in good health, the children were flourishing, and the Alpstein Mountain was close. Krelle was an avid alpinist, a passion shared by his children. The family was very active to the point that they could appear quirky to outsiders. Despite being stingy regarding housekeeping allowances or dispenses for the children's clothes, Krelle loved extraordinary leisure activities. Later, on Christmas eves, the family would go again and again through the photos taken during the years in St. Gallen (Heide Krelle, personal conversation). A first fright came from Axel, his second son. While the parents were traveling, baby Axel became sick, and the sitter took him to a doctor who diagnosed an ear inflammation. It turned out to be a brain fever. Without penicillin and with the late diagnosis, the fever had long-term effects. That happened in 1950, and in Switzerland it was clear that Axel would not develop as other children did. He had difficulties focusing and was plagued by severe headaches and epileptic seizures. Conscious of his disability but still aspiring to the values of his father, Axel was tormented by knowing that he would never become an achiever. He would require help for the rest of his life.

[19]For other attempts, see Krengel (1979) and Nützenadel (2005).

[20]There is no indication that this project was inspired by the preceding Newlyn-Phillips machine (see Morgan 2012; see also Düppe 2019).

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

V. SCIENCE WAR I

After three years in Switzerland, in 1958, Krelle received an offer from the University of Bonn. This time the decision was not difficult. In Bonn, the family would no longer be strangers, and he would have a "chance to have greater influence" (Chronicle 1958). He might have seen the opportunity to turn Bonn into a modern, US-oriented economics department. When he signed into the Army Supply Office in Bonn, he registered with his actual last rank of *Oberstleutnant a.D.* There was nothing to hide anymore, as no one was interested anymore.

Bonn's economics department was a stronghold of ordoliberalism. Krelle replaced the prominent Erwin von Beckerath, a central visionary of West Germany's social market economy. Beckerath's chair was the chair for economic theory, the meaning of which was wide open in the early 1960s—descriptive theory in the sense of the historical school, conceptual theory in the sense of ordoliberalism, and technical theory in the sense of Keynesian economics. Beckerath being retired, Fritz W. Meyer and M. Ernst Kamp remained as the representatives of ordoliberal thought. In two decades, however, Bonn would become a stronghold of technical economics and the first department in Germany from which literary, non-model-based economics would disappear completely. The increasing number of students in the 1960s certainly gave occasion to more specialization, but without Krelle's active hiring strategy in an increasingly competitive market for academic economists and without his personal network, the change would not have happened the same way.[21] The battle took place on two fronts: he had to convince the established literary economists that the new hires he proposed could pass as economists, and he had to convince the hires who came mostly from mathematics departments that they fit into an economics department. His overall argument was to favor "research quality" as if there was only one standard that could be applied to all fields, literary and technical economics. As in other battles he fought, he played down the conflict between standards of quality to the point that what in fact was an imperial undertaking appeared as a competition between equals.

The first three hires were decisive: a new chair in statistics and in sociology, and a new hire in business economics. Krelle, as a young dean, age forty-two, orchestrated all three hires. After consulting Erich Gutenberg in Cologne, an old member of the Comity for Theory, Krelle could place Gutenberg's pupil and son-in-law, Horst Albach, in the chair for business economics. Albach quickly became familiar with the methods of operations research, as well as friends with Krelle. The close connection between business economics and general economics, excluding traditional business studies, contributed significantly to the economics brand in Bonn. For the chair of statistics, Krelle tried to persuade a German-speaking econometrician from the US to return to Germany. Gerhard Tintner, a student of Oskar Morgenstern since 1938 at the Cowles Commission, was listed first; Martin Beckmann, by now at Brown University, was listed second; and Krelle's colleague from St. Gallen, Hans Paul Künzi, was listed third. After Tintner declined, Krelle tried to convince Beckmann, who expressed concerns that he was not enough of a statistician: "My main concern is that I am not a statistician and do not even

[21]For this section, see Hesse (2010, ch. 5, pp. 193–225), using the same archival sources of the faculty in Bonn, comparing Bonn's policy with the changes in Frankfurt and Tubingen.

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

have formal training in it" (FA, "Sociology," August 9, 1960). After Krelle promised a separate institute for operations research and allowed him to continue his post at Brown, Beckmann accepted. Beckmann's research on optimization problems in transportation (Koopmans and Beckmann 1957) fitted well with Albach's and Krelle's tool box (Albach 1962): linear (and non-linear) programming brought together the new triumvirate of Krelle, Albach, and Beckmann, a critical partnership of young, like-minded, research-oriented economists. Jointly, they founded the German Society for Operations Research in order to draw other departments into their new economics (see Krelle 1987).

While they were importing new expertise into economics, other traditional elements of economics began to move to other departments. Notably, a chair for political science and another for social and economic history were created in the philosophy faculty. In a strategic fashion, Krelle argued that the same should *not* happen to the chair of sociology. This segregation, he wrote to the rector, would be a "detriment" to both sociology and economics (FA, "Sociology,"; see Hesse 2010, p. 243). This commitment to sociology, rather than an expression of genuine pluralism, was an effective valve for his claim to freedom of choice in other positions. After a systematic search, they hired Gottfried Eisermann, a specialist in Vilfredo Pareto's sociology, who, however, would play no role whatsoever in the department. "He was a foreign body, isolated and frustrated" (Schönfeld, personal conversation). He could not alter the further separation of sociology and political science, which founded their own institutes in the faculty of philosophy in the course of the 1970s. The segregation of economics in the social sciences became an irreversible reality.

In 1962, the ministry approved of a second chair for economic theory, which opened up the divisions between the old literary and the new technical style of economics. After lengthy discussion, the committee put Beckerath's former assistant and Eucken's successor in Freiburg, Heinz Müller, and Krelle's successor as an assistant to Preiser in Heidelberg, Alfred Eugen Ott, both on the first place of the hiring list. This caused the literary league—Meyer, Kamp, Eisermann, and the retired Beckerath—to submit a "special vote" (*Sondervotum*) against the decision (FA, "New Chairs 1963"; see also Hesse 2010, p. 246f.). They opposed the "institutional-legal approach" to the "mathematical-quantitative approach" to economic theory and asked for a balance between the two. The latter, they argued, lacked policy relevance, which required "a close and, to date, not yet smooth cooperation of economists with scholars in law, sociology and other humanities" (FA, "New Chairs 1963"). They asked for a candidate who covered "those fields of applied economic theory, which are not covered by the modern approach of mathematical research" (ibid.). Krelle's reply contains almost every aspect of his hiring strategy, including the reference to the ideological motivation of the opponents:

> [The opponents] basically say that Müller, in contrast to Ott, represents neoliberal economic policy.... The fact that one's theoretical work serves one or the other political position, however, is as irrelevant, to quote Stackelberg, as the question to print one's books in *Antiqua* or in *Fraktur*. In economic theory, the normative aspects are largely absent. It's only a matter of right or wrong.... In this respect, German theoretical economics lost its connection with the international development. (ibid.)

Krelle, again in a highly conflicted situation, played on the difference between political mania and scientific reason, downplaying the actual confrontation. The echo

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of his reasoning about the difference between the *Wehrmacht* and SS is apparent. Just as science asks not to be political for the sake of objectivity, the military asks not to be political for the sake of obedience. Since the rector of the university felt unable to decide whom to hire, the committee was changed, followed by three years of repeatedly failed hiring attempts. Ultimately, the faculty agreed on an in-house hire: Krelle's assistant, and former colleague as assistant of Preiser in Heidelberg, Ernst Helmstädter.

The further hires in the 1960s were more peaceful, showing pragmatic respect between the two powers of the department. When, at the end of the 1960s, Werner Hildenbrand and Peter Schönfeld were hired, about a decade after Krelle's appointment, they no longer felt anything of the science war of the 1960s.[22] The ordoliberal economists passively "lived towards their retirement" (Schönfeld, personal conversation). "I stood in the shadow of Krelle, and had nothing to do with those [old economists]. There were no more fights … Albach, Krelle and Beckmann had prepared the terrain. The others had no more say; they did not dare to utter anything at faculty meetings" (Hildenbrand, personal conversation).

VI. BATTLES FOR RATIONALITY

Apart from his department policy, Krelle took over the task of adding his share as an economist to Germany's national cause. During the 1960s, he popularized what we now know as "hydraulic Keynesianism" leading up to the politics of Karl Schiller, the social democrats' minister of economic affairs.[23] Out of his work in national accounting sprung an interest in the field of growth theory (Krelle 1965, 1985), followed by an interest in wealth and income distribution (Krelle 1962). His 1968 study, often summarized with the slogan "1.7% of the Germans own 70% of the productive capital," was widely discussed, and brought him the perceived image of a left-wing economist (Krelle et al. 1968).[24] This also opened the door for him to political and business consulting. In 1973, he became a member of the *wissenschaftliche Beirat beim Bundesministerium für Wirtschaft*, the group of leading economists consulting for the government in economic policy.[25] For the 1960s generation of students in economics, he came to be known for his textbook on price theory and its Krelle duopoly solution.

He also became active in questions of the so-called co-determination of workers in entrepreneurial decisions of big companies, on which he advised the government. He argued for the "corporate rent shareholding of employees," (Krelle 1968). In the same

[22]Both hires came from the Center for Operations Research and Econometrics (CORE), which warranted "quality" of research, according to Krelle's standard. CORE describes a similar change for Belgium and France as Bonn does for Germany (see Düppe 2017b).

[23]For a full list of his hundreds of publications, see Plinke (1997); for a general survey of Krelle's work in economics, see Albach, in Plinke (1997). For the German way to Keynesianism in general, see the recent article by Hagemann (2019).

[24]As recalled by Harald Hagemann. On Preiser's distribution theory, see Schmidt (1998). Krelle was placed first in the ranking of candidates to replace Erich Schneider as director of the Institute for World Economy, but the conservative government had given the offer to the second-listed Herbert Giersch (Harald Hagemann, personal comments).

[25]This was late, considering the fact that he had been known as a first-rank economist also before. The Beirat discussed his admission already in 1960, then still chaired by von Beckerath, and concluded that "his idea of economic policy still tended to be unrealistic" (cited in Hesse 2010, p. 407).

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vein, he was active as a consulting member of the board of directors of the Krupp consortium (1972 to 1990). There, he argued against the labor unions and their autonomy in wage bargaining. He took part in the decision to close down plants—the *Hüttenwerke Rheinhausen*. "As bitter as it was, it [the decision] was not difficult for me. It was clear that this had to be done in order to save the whole [enterprise]. … If you can only survive by the amputation of one limb, one has to decide for the surgery, as deplorable as the loss might be" (family letter, December 17, 1988).[26] When Krelle was in a field hospital in April 1941 after the attack in Greece, he refused to have his leg amputated, as he did not trust the medical doctor. He simply left the hospital, and, luckily, the leg healed over the next several months (Memoir I, p. 127).

He represented the same rationality in two other contexts: in the military and in the Protestant church. While he refused to take part in military consulting in the immediate postwar period, between 1970 and 1972 he advised the government in an army reform (*Wehrstrukturkommission*). The engagement with the church was steadier. For the general public, Krelle was known as a Christian economist representing the values of justice and rationality. His work distribution was motivated not only by Joan Robinson's Keynes, Erich Preiser, but also the Bible. He was a member of the chamber for social order (1963 to 1985) and of the Synod (1973 to 1985), both of the Protestant church. Regarding peace and disarmament, he argued for the possibility of a defensive war. He read the Bible as "an economic guide," as he called it in a later publication (Krelle 1984b). Against the irrationality of Christian charity, he argued for rational measures for redistribution in the sense of Christian social ethics. Personally, though stingy in family expenses, he donated regularly.

In the neoclassical spirit, Krelle fought for the idea of bringing rationality to *all* policy domains, be it economic policy, military policy, or the social policy of the church. He viewed the economic policy of Germany as a locus of competition between nations, in which one can gain advantages by a heightened sense of rationality and evidence-based fine-tuning. In all domains, he wished to establish equality of opportunities, such that competition was fair, the best would win, and the weak would lose—as people without ambition did not deserve to profit from the common good. He argued, for example, for higher inheritance taxes such that "a Krupp-inheritor could no longer lead the sweet life of a slacker and playboy" (quoted in Bongard 1969, p. 94). The rationality he represented as a neo-Keynesian economist was thus less nourished by the sentiments one could observe in the US—Cold War fear—but was a rationality that echoed Prussian virtues of discipline and the rule-based structure of the military (see Erickson et al. 2013).

While his sense of rationality brought him considerable success in his professional life, at home in his family, during the 1960s, he faced the limits of rational life: mental illness. His wife was diagnosed with an "endogenous depression," as it was called in those days. "The two years of 1960 and 1961 put a strain on us: Ali often became sick; the depressions returned again and again after short breaks—fortunately interrupted by periods in which she was well and we could all breathe again. Hopefully we can now hope for a real recovery, so as to have back again the old, joyful Alix!" (Chronicle 1961). But this recovery did not happen. Doctors thought that the cause was hyperthyroidism,

[26]Krelle wrote yearly summaries to the entire large family at the end of the year (1978 to 2004); personal archive Christof Huth, with thanks to Gabriele Schumacher (born Krelle).

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

and the medication that was prescribed at the time, Lithium, helped only little and had strong side effects. It was a life of ups and downs. When she was in a depressive phase, Krelle would invite guests to cheer her up, though the social burden to represent the professor's wife might have worsened the situation. In one of her manic phases, she sold the furniture and art pieces, which, at Krelle's return, had to be bought back again. Notwithstanding, he remained supportive and was never ashamed of his wife. Their love was deeper than the circumstances of life. Difficulties only reinforced his will to accomplish, also as a husband.

His children did not all inherit his will to accomplish. While Gabriele was an ambitious gymnast taking part in national competitions, his oldest son, Rainer, was rather rebellious against his über-father. Smoking, wearing his hair long, drinking with friends in his basement room, he performed poorly at school. However, despite lacking the ambition of his father and having open conflicts at home, he and his father were best comrades when hiking in the Alps. After school and two years of military service, to the surprise of all, Rainer decided to study economics in Bonn. Before doing so, in April 1968, he went on a hike with two friends to climb the Ortler, the highest mountain in the eastern Alps. He and his father had already attempted the same hike twice. Arriving late at a cabin—a snowstorm was predicted—the three friends went out against the warning of the host. None of them returned. Three days later, skimming the newspapers during breakfast, Krelle read of three German alpinists missing at the Ortler. He went straight there to organize search troops. The bodies of the two friends were found, but not Rainer's. His remains are still in the ice of the Cevedale glacier. Two years later, Krelle declared Rainer dead.

The shock left no words. For about five years, his daughter recalled, Krelle was "emotionally invisible" to anyone around him. He shut down. During the war, when he was lying in the trenches under artillery attack, there was a rule that nobody was supposed to say more than what was absolutely necessary; psychologically, everyone had to deal with the situation on his own. Even five years after, people would tell him that it was time to take off his black tie. What could he do? As before, so again now, work was the only therapy to enable him to live through his grief. He became a workaholic. Neglecting himself, he "whipped himself further" (Heide Krelle, personal conversation). Just as hard work was a way to cope with the millions of deaths during the war, so was now his work an escape from the terrible situation at home. "My father has fled.... Work helped, but the balance between private life and professional life was gone" (Heide Krelle, personal conversation). Krelle's discipline at work had its roots not only in the nationalist motive of getting Germany back on track—after the opprobrium of 1945—but also was an escape from an intolerable family loss. Professionally, therefore, the 1970s would be a great success.

VII. BATTLE OF EQUATIONS II

Krelle's macro-econometric model grew and grew. It entailed thirty-five definitional equations, twenty-seven behavioral equations, and seven extrapolation equations, which were handled with the use of an IBM 7090, the best computer one could get at the time. The "colossal painting" of the economy, as he called it, became known as the "Bonn model" and was in competition with the Tubingen Model of the Institute for Applied Economic Research (in Nützenadel 2005, p. 117). They produced mid-term predictions

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

of four to five years, considering also structural shifts in the economy. His model was successful for being used as a basis for decisions made by the German Council of Economic Experts (Krelle 1984a). In 1975 Krelle became president of the German Economic Association.

His work on the Bonn model paid off also on an international level. Starting in 1968, Krelle began to collaborate with Lawrence Klein on the so-called Project LINK. The project aimed at nothing less than a model of the global economy producing global forecasts (see Klein 1976; Krelle and Klein 1983). Crossing all ideologies, Project LINK started with thirteen OECD countries, some developing and socialist countries, and grew into a model encompassing all of the industrial countries, all major socialist countries, and all major developing countries (Klein 1976, p. 436). It was the largest econometric data system in the history of national accounting—neo-Keynesian social physics at its best. "Krelle was a founding member and inspirational factor in the development of this project (LINK)," Klein would later witness in a recommendation letter (FA, "Krelle," 8.5.1986).

The prominence of Project LINK attracted substantial funding from the German Science Foundation, in 1970, for the so-called Collaborative Research Center (Sonderforschungsbereich, SFB 21), Econometrics and Operations Research, the first of its kind in German economics (Krelle 1986). It was a clear manifestation of the success of Krelle's research orientation at the department. All technical economists, and none of the literary economists, were involved. Thanks to the increased resources, Bonn's economics department soon became known as the hub of high-end research. Notably with the research areas of Werner Hildenbrand and Carl Christian von Weizsäcker, Krelle had brought colleagues to Bonn who soon took over his scientific leadership.[27]

One would expect that shared resources and the technical integration of the department resulted in intellectual cooperation. Krelle certainly hoped that Project LINK might become a joint effort of the entire department, as he considered forecasts to be the shared goal among all branches of economics. However, his model hardly inspired his younger colleagues, who were mostly skeptical of macroeconometric modeling because of its lacking theoretical depth and overstated optimism regarding forecasts. Krelle soon had to recognize how highly specialized and little unified technical economics was. As a missionary for US economics, his commitment to the German institutions disconnected his work from the US to the extent that it soon went out of vogue for its main emphasis on national accounting and policy. Passed were the years when linear programming combined econometrics, operations research, and economic theory, which all developed their own intellectual cultures. Thus, Krelle had to change the title of the SFB 21 to "economic forecasts, decision-making and equilibrium models," referring to the

[27]Hildenbrand was the German representative of axiomatic general equilibrium theory à la Gérard Debreu (who received an honorary doctorate from Bonn in 1974). One of the characteristics of this neo-Walrasian research program, however, was to be highly skeptical of econometric analysis à la Lawrence Klein. Hildenbrand's group was purely theoretical, preferring questions of mathematical structure to those of empirical applicability. Weizsäcker, son of the famous physicist philosopher Carl Friedrich von Weizsäcker, was internationally known because of his PhD thesis on the optimal investment rate in growth theory. Previously a visiting professor at MIT, in Bonn he dealt with competition policies using theories of natural monopoly, applied in policy in the monopoly commission (see Düppe 2018; Nutzinger 2003).

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

juxtaposition of his Project LINK, of Hildenbrand's chair in axiomatic equilibrium theory, and of Albach's and Bernhard Korte's chairs examining business decisions. SFB 21 was fully technical, but it was a collection of research groups without dialogue. One activity that could have brought them closer were the multi-day hikes of more than ninety kilometers organized by Krelle. But apart from those at Albach's chair, few joined in this kind of challenge.

Even if hardly anyone took up Krelle's research, he was respected as the father figure of the department. His Prussian virtues of service to a higher cause, fairness, patriotism, selflessness, and full commitment to one's task were appreciated. "He was a real father figure, and he was able to bind people personally" (Hildenbrand, personal conversation). His students, and those of his colleagues, would populate German economics departments, initiating structural changes in the discipline from which his entire network profited. Thus, he received honorary doctorates from several German-speaking universities that followed Bonn's lead. All of his colleagues knew of his past in the military, but nobody asked him about it. Though others, specifically after 1968, did put their fathers on the spot, such questions were not broached to Krelle. "It was known that he was a soldier, since he had studied rather late. He was with Rommel in Africa, he never concealed that.... But what he had exactly done, I did not know. One would never have dared to ask.… Today, I can't understand why" (Hildenbrand, personal conversation). At one point in the 1970s, Krelle considered becoming the rector of the university, but hesitated. He thought that university officials might inquire into his past, which could be damaging to the university. As he wrote in 1993, before his past was exposed:

> *Semper aliquit haeret* [something always sticks]. For this reason I have never assumed public offices, such as the rectorate of the University of Bonn. I would have had to explain beforehand to all persons all the details, and ask for forbearance. On the one hand, on my part, I do not need to do this—because given the information I had, I have done nothing wrong during this time—, but on the other hand, I would have harmed the institution that I felt connected to. So I preferred to stay in the second rank. (Memoir II, p. 130)

VIII. SCIENCE WAR II

Half-and-half was the score in the early 1970s of Bonn's economics department: half literary economists, half technical economists. The breakthrough came with the retirement of the ordoliberal Hans Meyer and the replacement of his chair in economic policy. Initially, another new chair for economic policy with a "social-political" orientation was planned, which prefigured a renaissance of the old literary school. But after a process of nearly eight years, as we will see, Krelle succeeded in that technical economists held both chairs, and the department was fully taken over (FA, "Economic Policy").

In May 1972, the two positions were announced for the first time. No less than five years of four rounds of repeatedly failed hiring attempts of German-based political economists would follow. Apparently no literary economist wished to join the stronghold of scientific rigor in Bonn. In order to put an end to this search, Krelle brought up the idea to move Weizsäcker from his former chair in theory to Meyer's policy chair, making the search into one for a replacement for Weizsäcker's theory chair, who could have been found quite easily. The sign of the changing identity of the discipline could not have been more apparent. Ten years before, Weizsäcker's research was still considered pure theory,

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but now it could be regarded as "theoretical foundations of economic policy." Krelle clearly changed the rules of the game to the extent that economic policy was no longer equated with literary economics, and economic theory no longer with technical economics; all economics would be technical.

This time the difficulty was not to convince the faculty but the students. After collecting signatures for a petition, the students wrote an open letter to the Senate of the university and then directly to the governmental authority in charge, the provincial minister of education. It was a matter, the students wrote, of "balance" between economic policy and economic theory, whereby the "overcrowding" of economic theory would be "cemented" as a normal state (FA, "Economic Policy," 9.1.1977). They succeeded. In August 1977, the minister rejected Weizsäcker's move. He invited three student representatives together with two faculty representatives to talk it over in his minister's office. After that conversation, the faculty's decision was approved and the students were asked to make concrete proposals for the future to improve the situation. Thus, Weizsäcker became a professor of economic policy. As a theoretician to replace Weizsäcker, Martin Hellwig, professor on the associate level, was asked to resign from the hiring committee and apply for the position. Despite the controversial question of whether Hellwig was an in-house placement, he was ranked first. After another student protest, the minister approved, and Hellwig succeeded to Weizsäcker's chair in economic theory.

At the end of the seventies the influence of those who did not support the new line was lost. The department had been taken over. On the occasion of his seventieth birthday, Kamp declined the usual honors of the faculty, explaining to the dean:

> To tell the full truth, my personal absence corresponds to my overall mood these days. This is so because, in Bonn, the development of quantitative methods, which is so important for economics, was so influential and the qualitative methods, which are indispensable to economics, have been so visibly marked down that a personal celebration becomes intolerable to me.… We all know that disagreement, also in science, can be fruitful. In order to work and live with them, tolerance and respect for the other is required. (FA, "Kamp," 14.6.1979)

Such voices being marginalized, Krelle came to be known, beyond the Bonn department, as a modernizer of German economics.[28] The press would later call him the "Nestor"—that is, the guard of the warriors—of economic theory in Germany (FA, "Krelle"; Korte 1986 on seventieth birthday). As he would repeatedly note about his work: "I tried to align German economics with international standards after World War II. I believe that this has been successful, at least in Bonn" (FA, "Krelle," letter to dean, 29.11.1991). However, even today, it is not the case that German economists feel that they indeed have caught up. Krelle's national motive, instead, was generalized as a structural character of a whole discipline. Still today the same feeling of lagging behind

[28]Other German economists of an older generation whom Krelle credited for being "modernizers" were his teacher Erich Preiser, Erich Schneider (1900–1970), and Erich Gutenberg (1897–1984) for business economics) (see Krelle 1981). One might want to add Heinz Sauermann (1905–1981) in Frankfurt where Reinhard Selten was trained, yet their institutional policies in bringing about this change was comparatively less pronounced.

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the US characterizes the careers of economists and the structural decisions in research and teaching (see Colander 2014).

Krelle's efforts and successes might have helped him deal with the sad situation at home, but they did not improve it. He lived side by side with his wife, whose mental health did not stabilize. "If Mommy had not been so sick, I would not have written the one or the other book," he would say later to his children (Gabriele Schumacher, personal conversation). But they remained loving partners. Despite her disease, "we in the family, we always saw her as she really was" (family letter, 1997). Her first attempt to commit suicide was in 1972 and it would not be the last. Several times she was found by her daughter Gabriele. Being in the hospital, she would ask her daughter to smuggle in the pills for another attempt. In 1981, November 7, the eighth attempt at suicide was deadly. Rose-Alix Krelle died "after long, and serious suffering," one could read in the newspaper. Her death was redemption, his daughter Gabriele thought. But in contrast to his understanding attitude regarding her disease, Krelle kept the fact of the suicide as secret as possible.

IX. THE FINAL BATTLE

At the same time as Krelle lost his wife, he was struggling to keep the second anchor of his life: his work. A new law passed that forced him into retirement at age sixty-five, in spring 1982. With the support of the department, he sued the province (his employer) against the law, arguing that he still was the head of SFB 21. He did not win, but he could stay until a replacement was found. Retirement thus did not come until the end of 1984, at age sixty-eight. In the final report of the SFB 21, he wrote: "Closing a long and, as this report shows, successful activity is, of course, also sad.... But as the death of individuals has its good sense within the overall development of a species, so is also the death of institutions … in which science unfolds" (Krelle 1986, p. vii). In this year, 1984, Krelle was replaced by Reinhard Selten, later the first German Nobel laureate in economics.

At a two-day colloquium in December 1984, when the faculty including the two Nobel laureates, Gérard Debreu and Lawrence Klein, celebrated Krelle for his achievements in building up the department, military comparisons abounded. Dean Knütel spoke about a change of "guards" (FA, "Krelle"); and Krelle himself thought of a moment during the war, as he commented on the festivities in the family letter for Christmas 1984: "I felt a bit like in 1941, when I had to give up my company in Africa to become a battalion commander, and my soldiers passed me waving on their vehicles on their way to a new mission, while I sat alone on the officers' chest looking back into the desert and waiting for the pick-up truck" (family letter, 1984). After the celebrations, in response to all the encomiums, however, Krelle did not express the deep, heroic meaning that he assigned to his work. He merely quoted Luke 17, verse 10: "So you also, when you have done everything you were told to do, should say, 'We are unworthy servants; we have only done our duty'" (FA, "Krelle"). Having done "only his duty," Krelle was basking in the success of being regarded as a modernizer of German economics. Those who had been supported by him were so grateful for the structural change he initiated, and the career opportunities this change offered, that they nominated him for an Order of Merit (ibid., letter Korte). He got it. After all the sacrifices he endured during his life, he

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finally received, in 1987, *national* honor: the Federal Cross of Merit for his life work as an economist.

Critical of the communist regime throughout his life, he celebrated the end of it in 1989. After the reunification in 1990, known for having set up a leading department in West Germany, Krelle was asked to reform the economics faculty at Humboldt University in Berlin, which should transition from a faculty ingrained in the socialist state to a competitive research faculty. Beginning in April 1991, Krelle led the committee that decided who would remain at his post (see Düppe 2015, 2017a). The old contracts were turned into temporary contracts, such that the local professors had to reapply and compete with Western economists to regain their old posts.[29] Though it was not Krelle who was responsible for the political goal that the faculty had to adopt Western standards, it was his duty to see that the goal was met. And he did so assiduously and thoroughly. His decisions were firm and determined. In his family letter for 1991, he compared the situation in Eastern Germany with the Silesian hand weaving of the nineteenth century that had to give way to machine weaving, a difficult but necessary social change. Again, the same justice he saw in war and in economic competition applies to science. If the scientific quality of the GDR professors did not meet that of those who received their PhDs from Bonn or Boston, it was just to decide against them—ignoring the fact that Western publications, for example, were censored in the GDR. Again, what was an imperial mission appeared as competition between equals. Hardly anyone out of thirty professors of the old regime made it to the new one (see Düppe 2015). One spoke of a "clear-cutting" (*Kahlschlag*), a "human drama." Hans Schmidt, who lost one of the many mid-rank positions, after a long humiliating legal fight, even committed suicide (see Feldbauer 2006).

The new faculty earned a respectable reputation as a new center of economic research and granted Krelle an honorary doctorate in December 1994. He was praised as someone who "as a human being is an example for all becoming scientists" (quoted in Fink 2011). Not everyone agreed. It is unclear who began the search into Krelle's past, but soon one could read in the press: Krelle was an SS soldier and thus a "Nazi." Military archives proved it. He suspected a planned smear campaign by former GDR professors, though the hunt might have been launched by a former student of the faculty, who asked a private detective to look closer, who in turn found a left-wing journalist, Andreas Förster, from the *Berliner Zeitung* to report about it.[30] Students at Humboldt were sensitive to the issue, continued the search, and asked the university to withdraw the honorary doctorate. The university, in turn, set up a committee that commissioned a military report, which was adopted by the university Senate in June 1996: yes, Krelle was an officer in an SS corps, but most likely was never a member of the SS, and refused requests to leave the *Wehrmacht*. This is what mattered for Krelle, but after the strong press reactions, his name was now associated with the SS officer who kicked out the socialist economists from Humboldt University. Had West Germany done as thorough a

[29]This procedure was called "phasing out" (*Abwicklung*) and required a formal closing and reopening of those faculties that were "ideologically biased": philosophy, law, history, pedagogy, and economics. Next to internal members, the external members of the commission came from his personal network: Martin Hellwig and Jaakko Honko from Helsinki, a regular visitor in Bonn (see Düppe 2017a).

[30]*Berliner Zeitung*, 6.2.1996: "Wilhelm Krelle: 'Ich war nie SS-Mitglied' Schwere Vorwürfe gegen einen Professor."

https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press

job of denazification as many still believed the GDR has done (or as he did with the socialist economists at Humboldt), Krelle could not have had an academic career at all. Not just, many thought.

After all the struggles and sacrifices, his professional achievements seemed to be forgotten. He fought a losing battle to recover his reputation, also legally. The trial against the journalist Andreas Förster from the *Berliner Zeitung* went on for years without success, as did the students' hunt for more evidence and the bad press. All the details of the confusing moments of the end of the war returned in the public press: the transferral to the SS corps, be it willingly or under protest, the war crimes that occurred in his division, and also the orders he signed, though not formulated: "The principle: fanatic fight for every meter of homeland, which will cost the enemy streams of blood ... must be our sacred duty" (February 2, 1945, quoted in *Junge Welt*, 17.02.2007, p. 8).[31] That was not the Krelle whom his students in Bonn knew from classes on distribution theory or the history of economic thought. His response that he helped save lives was difficult to digest for young students. They wrote: "It is part of a shoddy normality in the Federal Republic that even those call themselves part of the resistance who, together with their SS units, committed war crimes until the end of the war. This mocks the victims and those who actually took part in antifascist resistance" (18th Bonner student parliament, in personal archives, Heide Krelle). Trying to remain firm in public, in private Krelle suffered the pangs of guilt from such and similar statements. In 1996, he commented in his letter to the family:

> And now to the unpleasant … smear campaign in the SED press in Berlin against me (in vengeance for the reform at Humboldt University). I was confronted with SS membership, though I was never in the SS.… Well, I have to accept the insults. We fought badly enough for the wrong cause—in ignorance, in self-inflicted ignorance. We must bear that. Only someone who was in this situation can understand the tragedy.

The tragedy comprises both, as the reader might understand after the preceding pages, Krelle's misunderstanding of the nature of the regime he fought for and the misunderstandings of today's generation regarding his attempt at integrity in the delirium of the end of the war. The belief in his and his soldiers' honor separated him from anyone who had not experienced war the same way.

X. BATTLE LOST

Despite the resentment over his public image, in the last years of his life, Krelle did not lower his ambition. He remained active in research, teaching, policy advice, and hiking in the Eifel. He took care of his son Axel until 2003, when his daughter convinced him to give up this duty to an assisted-living facility. He also remained a faithful visitor of the Hirschberg circle, the meetings of his comrades of the military academy in 1944. There, war deeds were still analyzed in the terms in which they were carried out at the time. There, he was understood.

Once a year, on Easter Monday at Rainer's birthday, he went to the Cevedale glacier at the Ortler. "Up there, I am at home, as it were, and if I could once be there with Rainer,

[31] His last promotion in May 1945, though, was unknown to the press.

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that would be beautiful. But for now, I still have tasks on earth" (family letter, 1998). His last task that he set for himself was to write a book on economics and ethics that underlined his moral ambitions as an economist. He packed his ethical concerns into a neoclassical model that he knew from the 1960s—modeling preferences of justice and of norms to be included in a general equilibrium model. In 2001, he wrote to his family, "If there is something good (in the book), our dear God will give me the time to work it out. If not, he will call me soon" (family letter, 2001). The first part was published in 2003. It did not find a large readership, but he continued working on the second part.

His health increasingly worsened. After suffering an embolism, he wrote at the end of 2003: "In the middle of this year, I thought that I would not survive this year—which was not a message of fright to me, but on the contrary, a recognition that I had done enough in this world and can now leave the work to others" (family letter, 2003). In May 2004, new orders that he signed were found in Czech military archives, and the press once more confronted him. "Why can't you stop bothering me with this?" he asked the journalist from the *Berliner Zeitung*. "I had 16,000 men in my division. Do you think that I knew everything that happened there? I was never a member of the SS. And that is what counts.... Why don't you let me die in peace?" (in Förster 2004, p. 3). Bedridden, he spoke of exercises to stay in shape, and continued drafting the second part of his *Economics and Ethics*, which was never finished. When the doctor told him that he had only days to live, he did not show the heroic, accepting attitude that he always had towards death. Being ready to die was a principle of his entire life; it allowed him to take risks and to be courageous in the face of abundant suffering. But when it came to the reality of it, he reacted viciously to the doctor.

His funeral was large, and a sense of tragedy lingered over the celebration, as the SS issue was still on everyone's mind, making the occasion even sadder. After his funeral, his daughter Gabriele was left in charge of her father's estate; she packed away the documents from World War II, afraid that they would reach the public. It turned out that there was no money left for the funeral, and she had to take out a mortgage. In his last years, Krelle had donated much of his money, and adopted godchildren from all over the world claimed to be heirs (Gabriele Krelle, personal conversation). This was what was left at the end his life: misunderstandings—misunderstandings that overshadowed his entire, complex life between the military, science, and family.

Every once in a while his daughters still call the alpine guards at the Ortler. The glacier is melting, and their mother had left a small case made of ivory, filled with personal wishes and a flower of edelweiss. It shall be put into Rainer's grave, once he is found.

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https://doi.org/10.1017/S1053837219000464 Published online by Cambridge University Press