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INDUSTRIAL COLLABORATION
IN NAZI-OCCUPIED EUROPE
Norway in Context

Edited by
Hans Otto Frøland
Mats Ingulstad
Jonas Scherner



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Editors

Industrial Collaboration in Nazi-Occupied Europe

Norway in Context

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Preface

The American polymath Benjamin Franklin once mused that the heaviest debt is that of gratitude. Some of the European central bankers who appear in this book may have been inclined to disagree, since they had to deal with the massive debts imposed on them by Nazi Germany to pay for their own occupation. We, as historians of these matters, tend to agree with Franklin, particularly as we have acquired substantial debts of our own over the course of this undertaking.

Since the first workshop on “Industry in Occupied Europe” in 2012, many people have contributed to shaping this book. We would like to express our gratitude to all the contributing authors for sharing their knowledge and insights. A particular acknowledgment is due to the Norwegian Research Council, which has financed this undertaking through various grants. Funds have been received through the Beyond Borders-scheme as well as the Organisation Todt-project. Similarly, the foundation Sat Sapienti has provided funding at crucial junctures, including for the preparation of the index by Anders Lervold. Additionally, some of the papers were originally written for the History and Strategic Raw Materials (HSRMI) Conference at Strathclyde Business School in 2013, co-organized with Andrew Perchard and Espen Storli, supported by the Economic History Society and the Strathclyde Research and Development Fund. Great thanks are also due to Aimee Dibbens,

Alexandra Morton and Periyamayagam Leoselvakumar, our editors and handlers at Palgrave, both for their assistance and their steely resolve that this book should make it into print. A final thank you to Caitlin Rosenthal who arranged for the stay at the Women's Faculty Club at UC Berkeley, where the shaded terrace proved to be an immensely conducive environment for the preparation of the introduction.

Hans Otto Frøland
Mats Ingulstad
Jonas Scherner

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List of Abbreviations

AAC	Alliance Aluminium Compagnie
AIAG	Aluminium Industrie AG
Alcan	Aluminium Canada Limited
Alcoa	Aluminum Company of America
Baco	British Aluminium Company
BASF	Badische Anilin und Sodafabrik
CCI	Comité Central Industriel
CIT	Committee for Industry and Trade
CO	comités d'organisation
COA	Comité d'organisation de l'automobile
Cosibel	Comptoir de Vente de la Sidérurgie Belge
DAF	Deutsche Arbeitsfront
DM	Dürener Metallwerke
DNN	Det Norske Nitridaktieselskap
Fedechar	<i>Fédération des Associations Charbonnières de Belgique</i>
GBChem	Generalbevollmächtigter für Sonderfragen der Chemischen Erzeugung im Vierjahresplan
GBK	Generalbevollmächtigten für das Kraftfahrwesen
IAC	International Aluminium Company
ICI	Imperial Chemical Industries
INCO	International Nickel Company
JFM	Junkers Flugzeug- und Motorenwerke
KNR	Kristiansand Nickel Refinery

MBF	Militärbefehlshaber in Frankreich
MEW	Ministry of Economic Warfare
MPI	Ministère de la production industrielle
NA	Norddeutsche Affinerie
NACO	Norsk Aluminium Company
NOK	Norske kroner
NS	Nasjonal Samling
NSDAP	Nationalsozialistische Deutsche Arbeiterpartei
OKW	Oberkommando der Wehrmacht
OT	Organisation Todt
RFM	Reichsfinanzministerium
RKKS	Reichskreditkassenscheine
RLM	Reichsluftfahrtministerium
RM	Reichsmark
RWA	Reichsstelle für Wirtschaftsausbau
RWM	Reichwirtschaftsministerium
SNCF	Société Nationale des Chemins de fer Français
Sybelac	Syndicat Belge de l'Acier
Sycobel	Syndicat des Constructeurs Belges
USAAF	US Army Air Force
VAW	Vereinigte Aluminiumwerke
VEV	Vlaams Economisch Verbond
VNV	Vlaamsch Nationaal Verbond
ZAST	Zentralauftragsstelle

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1

Perfecting the Art of Stealing: Nazi Exploitation and Industrial Collaboration in Occupied Western Europe

Hans Otto Frøland, Mats Ingulstad, and Jonas Scherner

Introduction

In October 1941, the Norwegian minister of Culture and Popular Enlightenment, Gulbrand Lunde, gave a lecture in Königsberg, Germany, on the Norwegian contribution to the future development of the European economy. As a convinced National Socialist, Lunde professed to see contours of a new and happier continent taking shape. To this Europe, Norway would contribute its fish, its hydropower, iron ore, copper, nickel and molybdenum, but would also mobilize its racial abilities as a part of the Germanic brotherhood. Lunde suggested that if Norway could be won for these ideas, the peaceful re-construction of a new Europe would be ensured.¹ The speech encapsulates the competing rationales that gave shape to the German occupation of Norway, i.e. the exploitation of its natural resources for German purposes, its integration into a European-wide economic system, but also the necessity of making the Norwegian people work towards a future dominated by Nazi Germany.

¹Gulbrand Lunde, *Kampen for Norge, vol II, Foredrag og Artikler, 1940–1941* (Oslo: Gunnar Stenersens forlag, 1942), 132–7.

The objective of this book is to show how economic exploitation was organized in Norway and other countries in Western Europe, how the Germans facilitated collaboration and exerted control, and how the extractive industries in occupied countries responded. While Norway is the primary objective of investigation, we will proceed on a comparative basis in order to elucidate similarities and differences in both the economic regulation and varying state intervention across extractive sectors, and finally the extent of corporate autonomy and the different firm responses, whether full cooperation, under-production, or outright refusal. By drawing together studies of these five Western European countries, based on extensive archival research, we show how the wartime history of Norway was deeply embedded in a larger European context.

While there are many similarities that emerge in the German exploitation of Western Europe, the occupation of Norway also exhibited some idiosyncrasies. These were shaped by the competing German ideas about its role as a potential allied people and simultaneously as a source of vital raw materials. Before the occupation, Norway was a small, open economy that relied mainly on exports of raw materials and semi-finished goods. After ocean shipping, metals, minerals, chemical products, along with timber, pulp and wood products were the largest earners of foreign exchange, followed by fresh fish and whale-oil tied with other industrial products for last place.² Norway, therefore, could mainly supply natural resource exports to the German *Reich*, like many Southern and Eastern European countries that were ruthlessly pillaged. But like the Western European countries with their more advanced industries, the Norwegian population was not deemed to be among Germany's "natural enemies", but rather an integral part of the Germanic brotherhood. Norway therefore provides a natural prism through which to study the question of whether economic or ideological considerations weighed more heavily in Nazi Germany's planning and policies.

² Statistisk Sentralbyrå, *Langtidslinjer i Norsk Økonomi, 1865–1960*. (SSB: Oslo: Statistisk SentralbyråB, 1966). Composition of exports, at current prices. Selected years 1865–1960, p. 34.

Variations in Exploitation

During the Second World War, the formidable Norwegian Labor politician Haakon Lie observed that the Nazi occupation regime represented a “scientific and systematic policy of plunder unlike anything the world has ever seen. The Germans have perfected the art of stealing.”³ Subsequent historical research has shown that German policies in the occupied countries were neither scientific nor systematic. In Eastern Europe, the Germans frequently resorted to large-scale plundering, and dismantled factories and states alike. Life under Nazi rule became nasty, brutish, and short. The differences between the Nazi occupation in the East and West are so substantial that it is tempting to see them as separate phenomena, even though they were linked by ideas, practices, and people that flowed between the regions.⁴ The Germans took a different approach to the mature economies in Western Europe, with their high productivity, extensive industrial infrastructure, and more developed administrative apparatuses. Some common principles seem to have existed for Nazi exploitation in this region, for instance in the management of financial policy or in the placement of industrial orders, but these were not uniformly applied.⁵ Furthermore the occupation regimes exhibited great variation in the institutional set-up, the relationship to the local political collaborators and state bureaucracy, in addition to the different socio-economic contexts and political contingencies that gave shape to the wartime history of Western Europe.

Hitler and his henchmen had little care for established borders or national sovereignties. The transcontinental and transboundary ambitions driving Nazi Germany’s imperialism are readily apparent in its various plans to tap Nordic blood in Scandinavia, Germanize parts of

³ Haakon Lie, *Nazi og Norge*, (London: Norges Sjømannsforbund, 1942). 26.

⁴ Mark Mazower, *Hitlers empire. How the Nazis ruled Europe*. (New York: Penguin Press: 2008).

⁵ On Auftragsverlagerung, see Elena Dickert, Die “Nutzbarmachung” des Produktionspotentials besetzter Gebiet durch Auftragsverlagerung im Zweiten Weltkrieg. Staatliche Regulierung und Verlagerungsverhalten von Maschinenbau- und Automobilunternehmen. unpublished dissertation, Norwegian University of Science and Technology, Trondheim, 2014; on principles for the financial occupation, see Jonas Scherner, The Architecture of Financing German Exploitation: Principles, Conflicts, and Results, in *Paying for Hitler’s War: The Consequences of Nazi Hegemony for Europe*, Jonas Scherner and Eugene White (eds.) (Cambridge: Cambridge University Press, 2016), 43–66.

the western European populations, re-settle the East with a militarized peasantry, as well as to impose a new colonial rule to extract food and resources from Africa.⁶ The enormous scale of the German conquests gave most European societies a first-hand experience of Nazi rule as a basis for comparison. Even so, the histories of Nazi occupation have frequently treated the experiences of the wartime years as a highly specific and sharply delineated national trauma, a historical parenthesis largely without either precursor or parallel. Responsibility for what transpired is externalized, and national participation marginalized. Such modes of history writing, which underlined the separation of German occupation from whatever came before or after, have served important functions in re-establishing political legitimacy and social coherence across Europe.⁷ However, these national processes of consolidation of historical memory have led to a paucity of comparative studies, as well as strong emphasis on the military, political, and social histories of war, occupation, and resistance.⁸ Economic histories of the war have been fewer in number, and particularly we lack comparative studies of Nazi economic policies in occupied Europe.⁹

While comparative history is no “new panacea” as Marc Bloch once remarked,¹⁰ it is only by comparing German policies across countries and different national sectors that we can arrive at a fuller understanding of how Nazi Germany exploited the advanced economies that were engulfed by its conquests. As this book shows, there were also varieties of exploitation, or different approaches to extracting the resources of the occupied territories of the continent. These modes can be described as plundering, mustering, or

⁶ Shelley Baranowski, *Nazi Empire: German Colonialism and Imperialism from Bismarck to Hitler* (Cambridge: Cambridge University Press, 2011).

⁷ Pieter Lagrou, *The legacy of Nazi occupation: patriotic memory and national recovery in Western Europe, 1945–1965*, (Cambridge: Cambridge University Press, 2000); Tony Judt, *Postwar: A History of Europe since 1945* (London: Pimlico, 2007).

⁸ Laurie R. Cohen, *Smolensk under the Nazis: Everyday Life in Occupied Russia*. (Rochester: Rochester University Press, 2013).

⁹ Hein Klemann and Sergei Kudryashov, *Occupied Economies. An economic history of Nazi-occupied Europe, 1939–1945* (London: Berg, 2012) provides one such crucial comparative undertaking, there are also more focused comparisons such as Hans Fredrik Dahl, Joachim Lund, Hans Kirchhoff and Lars-Erik Vaale, *Danske tilstander, norske tilstander: forskjeller og likheter under tysk okkupasjon 1940–1945* (Oslo: Forlaget Press, 2010).

¹⁰ Marc Bloch, *Land and Work in Mediaeval Europe: Selected Papers* (London: Routledge 1967), 44.

coopting. The first denotes outright looting and requisitioning. Mustering refers to the monopolization of input factors by the occupying power through the use of more indirect means, such as using the potentially unlimited purchasing power of the *Wehrmacht*. By exacting payments for occupation costs, using scrip money (*Reichskreditkassenscheine*) or manipulation of the exchange rate,¹¹ the occupier was in a position to outbid the domestic industries in the competition for workers, food, and raw materials. Mustering refers to a modernized and monetized strategy of letting armies live off the land. Beyond the awesome institutional spending power of the *Wehrmacht*, even the individual German soldier became a formidable competitor for consumer goods in the occupied society.¹² The final mode of exploitation, coopting, describes the mobilization of resources through collaboration with the domestic authorities. This approach, while premised on the implied threat of force and the asymmetric power structure inherent in the occupation, required the maintenance of a workable relationship with domestic authorities and firms, as well as a willingness to allocate scarce resources to the civilian sectors that did not produce directly or indirectly for Germany.¹³

Each mode of exploitation embodies varying structures of industrial relations, between labor, firms, and the authorities, entailing also different legal arrangements, incentive structures, employment and wage-setting practices, as well as corporate autonomy, scope for strategy, and mechanisms for balancing demand and supply. For instance, a policy of looting would require little in the way of wage-setting policy, as simple pressganging would be sufficient to secure labor for the occupier. A strategy based on mustering might entail free price formation for scarce resources, if only through black markets or the circumvention of the wage regulations, which allowed German agencies to outbid other potential buyers forced to adhere to price ceilings. A system of exploitation through coopting entails the use of strong incentives, matched by adherence to strict regulations in order to maintain an economic balance that would facilitate the maximum production compatible with the maintenance of social order.

¹¹ Filippo Occhino, Kim Oosterlinck and Eugene White, "How Much Can a Victor Force the Vanquished to Pay? France under the Nazi Boot!" *Journal of Economic History* 68 (2008), 1–45.

¹² Götz Aly, *Hitlers Volksstaat, Raub und nationaler Sozialismus*, (Frankfurt: S. Fischer Verlag, 2005).

¹³ Richard Overly, Gerhard Otto, Johannes Houwink ten Cate (eds.), *Die "Neuordnung" Europas: NS-Wirtschaftspolitik in den besetzten Gebieten* (Berlin: Metropol, 1997).

In practice, these modalities shifted between countries. For instance, plundering was widely practiced in Eastern Europe, and to a lesser extent in the West. In Norway, there was a low prevalence of looting, as the German strategy for winning over the population ruled out large-scale requisition and confiscation.¹⁴ The modalities also varied over time and according to the preferences and the constellations of power between the different German institutions. The *Reich's* economic mobilization supremo Hermann Göring was a forceful advocate of looting in Western Europe, but this strategy was circumscribed by other German actors. In France for instance, the German military governor explicitly condemned the use of “Polish methods,” because they hindered economic collaboration.¹⁵ In Norway, the *Wehrmacht* was an exponent of mustering, with its virtually unlimited demand for fortifications of a long coastline and construction of barracks for a garrison equivalent to 10 % of the local population. Even while the freedom of the individual soldiers to buy stuff in Norway to ship it off to Germany was severely limited in practice,¹⁶ the structural demand generated by the *Wehrmacht's* ambitions was still far in excess of what the Norwegian economy could handle. *Reichskommissar* Josef Terboven, on the other hand, pursued a strategy of coopting. From his perspective, it would ultimately be more fruitful to secure Norwegian collaboration and to keep reasonable balance between supply and demand. He derided the *Wehrmacht's* lack of moderation and unwillingness to prioritize, simply because they could force the Norwegians to pay: “Die Norskes zahlen.”¹⁷

¹⁴ Hans Otto Frøland, “Nazi Germany’s financial exploitation of Norway during the occupation, 1940–1945” in *Economies under Occupation. The hegemony of Nazi Germany and Imperial Japan in World War II*, Marcel Boldorf and Tetsuji Okazaki (eds.), (Oxon: Routledge, 2015), 130–146.

¹⁵ Thomas Laub, *After the Fall: German Policy in Occupied France, 1940–1944* (Oxford: Oxford University Press, 2009) 149.

¹⁶ Frøland, *Financial Exploitation*; Christoph Buchheim, “Die vielen Rechenfehler in der Abrechnung Götz Alys mit den Deutschen unter dem NS-Regime” *Sozial.Geschichte, Zeitschrift für historische Analyse des 20. und 21. Jahrhunderts*, 3 (2005): 67–76; Christoph Buchheim, “Der Mythos vom ‘Wohlleben’. Der Lebensstandard der deutschen Bevölkerung im Zweiten Weltkrieg” *Vierteljahrshefte für Zeitgeschichte* 3, (2010): 299–328, here p. 314.

¹⁷ Berit Nøkleby, *Terboven. Hitlers mann i Norge* (Oslo: Gyldendal, 1992), 142.

Exploitation and Collaboration in Context: A Literature Review

The German exploitation of the Norwegian economy has become an enduring image of the occupation. Victor Mogens, a prominent political voice formerly sympathetic to Nazi Germany, in late 1943 compared the *Wehrmacht* to a “swarm of locusts” and the occupation to a “systematic system of plunder, implemented with German thoroughness and ruthlessness.”¹⁸ Even Vidkun Quisling’s foreign policy advisor, Finn Støren, in March 1945 denounced the *de jure* state of war between Norway and Germany as a “justification for an exploitation of our resources which in many cases is tantamount to robbery,” a robbery for which the collaborationist party *Nasjonal Samling* (NS) had to bear the blame.¹⁹ More politically durable assessments were provided by a group of young economists that started gauging the financial burdens of the war in 1942. In a semi-official treatise, *Hva krigen kostet Norge* (What the war cost Norway) they estimated that even as the size of Norwegian gross national income declined every year, the share extracted by the Germans as costs of the occupation directly rose from 30 % in 1940 to 38 % for the first half of 1945.²⁰ Their figures and assumptions have since been disputed, but their description of the severe damage done to the Norwegian economy by Germany has become established dogma.²¹

The economics of occupation then fell by the wayside as the history of the Norwegian wartime experience was compiled in the early postwar years. The complexities and ambiguities that necessarily characterized human existence in an occupied society were re-organized and recounted in the form a national master narrative. This narrative privileged heroic resistance against an evil occupier, and placed Norway among the victorious Allies. The standard work in English, *Norway and the Second World War*, put it bluntly:

¹⁸ Victor Mogens, *Tyskerne, Quisling og Vi Andre* (Oslo: Utenriksforlaget, 1945), 288–297.

¹⁹ Quoted in Johs. Andenæs, Magne Skodvin and Olav Riste, *Norway and the Second World War* (Oslo: Tanum, 1966), 79.

²⁰ Odd Aukrust og Petter Bjerve, *Hva krigen kostet Norge* (Oslo: Dreyer, 1945).

²¹ Harald Espeli, “Economic Consequences Of The German Occupation Of Norway, 1940–1945” *Scandinavian Journal of History* vol. 38 (2013): 502–524.

“The main theme of Norwegian history 1940–1945 is without doubt the resistance movement,” both at home and abroad. Consequently, the contribution of the Norwegian fleet to the Allied cause overshadowed any interest in the contribution of the Norwegian economy to the German *Reich*.²² While the immediate postwar years saw many harsh critiques leveled in the press against “Economic traitors,” the issue of Norwegian economic assistance was largely ignored afterwards. It did not fit into the dichotomy between evil occupier and massive heroic resistance underlying the master narrative. It was only in the 1970s that alternative perspectives were opened up, as the first cracks appeared in the rigid framework for historical interpretation of the war years.²³ Helge Paulsen in 1971 highlighted the German economic concept of the *Großraumwirtschaft* and pointed to the many natural resources that the Germans were after in Norway, from hydropower for aluminum to squirrel hairs for the optical industry.²⁴ What remains the most important contribution to the wartime economic history of Norway was provided by Alan Milward in the following year, when he attempted to demonstrate that the German policies for the occupation of Norway had to be related to Nazi ideas about a New Order. Milward employed the *Großraumwirtschaft* as the conceptual framework for the German interventions in the Norwegian wartime economy, and laid bare a apparent paradox: Even though the Germans were immensely successful in exploiting the Norwegian economy by diverting resources to their own purposes, in economic terms the occupation was hardly any value to Germany at all.²⁵

Norwegian historians did not follow in Milward’s footsteps. Apart from some thematically specialized studies, such as wartime modernization of Norwegian industry,²⁶ the German occupation has been little studied from an economic perspective. The largest historical study of wartime

²² Andenæs, Skodvin, Riste, *Norway*, 62.

²³ It resurfaced briefly when the post-war juridical settlement was assessed in the mid-1960s, as the very lenient treatment of economic collaborators stood in glaring contrast to the harsh treatment of political collaborators. Susanne Maerz, “Okkupasjonstidens lange skygger” *Nytt Norsk Tidsskrift* vol. 04 (2007): 365–376.

²⁴ Helge Paulsen, “Tysk økonomisk politikk i Norge 1940–45”, *Kontrast* 25 (1971): 37–49. See also Hans Fredrik Dahl (ed.), *Krigen i Norge* (Oslo: Pax, 1974), 75–89.

²⁵ Alan Milward, *The Fascist Economy of Norway* (Oxford: Clarendon Press, 1972), 280.

²⁶ Olav Wicken, “Industrial change in Norway during the Second World War. Electrification and electrical engineering” *Scandinavian Journal of History* vol. 8 (1983): 119–150.

Norway, the six volumes of *Norge i Krig*, contained important insights about the substantial German investments in infrastructure. But these economic perspectives were primarily, and somewhat incongruously, incorporated in the volume dedicated to *alltagsgeschichte*, between recipes for potato cake and rutabaga marmalade.²⁷ These substantial investments in infrastructure, new industrial facilities and fortifications could not be explained by the *Wehrmacht*'s strategic aims alone, and particularly it was historians from Eastern Germany that contributed important insights about the nature of the demands the Germans placed on the Norwegian economy.²⁸ It fell to another German historian, Robert Bohn, to provide the first extensive history of the *Reichskommissariat*, including its economic policies.²⁹ Over the last decade or so, some Norwegian historians, Harald Espeli in particular,³⁰ have delivered important contributions towards an economic history of the occupation, including financial history, labor history, and industrial history.³¹ Nevertheless, the overall status is that the economic side of the occupation has been little present in histories of the war, and furthermore, the occupation is receives scant attention in economic histories of Norway.

²⁷ Guri Hjeltnes, *Norge i Krig, vol. 5 Hverdagsliv* (Oslo: Aschehoug, 1986).

²⁸ Manfred Menger et al. (eds.), *Expansionsrichtung Nordeuropa. Dokumente zur Nordeuropapolitik des faschistischen deutschen Imperialismus 1939–1945*, (Berlin: VEB Deutscher Verlag der Wissenschaften, 1987), *Die Okkupationspolitik des deutschen Faschismus in Dänemark und Norwegen (1940–1945) Dokumentauswahl und Einleitung von Fritz Petrick*, Europa unter dem Hakenkreuz. Die Okkupationspolitik des deutschen Faschismus (1938–1945) Bd. 7, (Berlin-Heidelberg: Hüthig Verlagsgemeinschaft, 1992); Fritz Petrick *Der "Leichtmetallausbau Norwegen" 1940–1945 eine Studie zur deutschen Expansions- und Okkupationspolitik in Nordeuropa* (Frankfurt am Main: Lang, 1992); Fritz Petrick, *Ruhestörung: Studien zur Nordeuropapolitik Hitlerdeutschlands*, Berlin: Edition Organon, 1998. These were originally published in the GDR but re-published after Germany was reunited.

²⁹ Robert Bohn, *Reichskommissariat Norwegen* (Munich: Oldenbourg, 2000).

³⁰ Harald Espeli, "Det økonomiske forholdet mellom Tyskland og Norge, 1940–1945" in *Danske tilstande, norske tilstand 1940–45*. Oslo, Forlaget Press 2010), 135–168; *Idem.*, "Cooperation on a purely matter-of-fact basis". The Norwegian central bank and its relationship to the German supervisory authority during the occupation, 1940–1945. *Scandinavian Economic History Review* vol. 62. no. 2 (2014), 188–212; *Idem.*, "The German occupation and its consequences on the composition and changes of Norwegian business elites" *Jahrbuch für Wirtschaftsgeschichte* 2010, 107–130.

³¹ Hans Otto Frøland and Anders Lervold, "Forced Labour in Norway during the German Occupation: French and Soviet Workers in the Light Metals Programme" *Revue d'histoire Nordique* vol. 17. (2014), 71–100; Hans Otto Frøland and Jan. Thomas Kobberrød, "The Norwegian Contribution to Göring's Megalomania. Norway's Aluminium Industry during World War II" *Cahiers d'histoire de l'aluminium*, vol. 42–43 (2009), 137–153.

In addition to the general economic history and the underlying question of German exploitation, the postwar discussion of economic collaboration has largely been a muted affair. While collaboration originally is a neutral term, in the context of the Second World War it has acquired sharply negative connotations.³² Tensions ran high over this phenomenon during the later war years and the early postwar period. Helge Krog in late 1944 suggested that in addition to the political fifth column in the NS, leading Norwegian industrialists had been acting as a sixth column that provided Germany with vitally important resources. These “oversatiated, sacrosanct Buddha-figures in the innermost chambers in the temples of production” had been far more important to Germany than Quisling and his minions, and he even suggested that political resistance was a distraction, possibly engineered by the Germans.³³ Despite such polemics, in the protracted postwar trials economic collaboration was less harshly punished than political collaboration. While 16,000 different cases were investigated, 3,355 people were convicted for economic treason after the war. This figure pales in comparison with the 92,000 cases that were investigated in total, predominantly for political collaboration, with juridical reactions in roughly half the cases on average. Economic collaboration was harder to prove, and convictions for criminal “impropriety” often relied on subjective assessments of whether the assignment was important for the war, whether it was volunteered, if the firm was already established, or if new contracts were accepted late in the war.³⁴ Just working for the Germans as an individual was not criminalized, if only for practical purposes, as the preparatory notes for the Treason ordinance stated “One simply cannot indict a large part of the Norwegian population.”³⁵ After an intense debate on the relative demerits of economic collaboration as a part of the postwar reckoning, it seems likely

³² René Marcq, “Collaboration under Enemy Occupation” *The Annals of the American Academy of Political and Social Science* Vol. 247, (1946), 69–72.

³³ Helge Krog, *6te kolonne -: om den norske storindustriens bidrag til Nazi-Tysklands krigføring* (Oslo: Radikalt forlag, 1946).

³⁴ Johs. Andenæs, *Det vanskelige oppgjøret: rettsoppgjøret etter okkupasjonen* (Oslo: Tano Aschehoug, 1998), 158.

³⁵ Justis- og politidepartementet, *Om landssvikoppgjøret: Innstilling fra et utvalg nedsatt for å skaffe tilveie materiale til en innberetning fra Justisdepartementet til Stortinget*. (Gjøvik: Mariendals Boktrykkeri, 1962). Quote p. 46. Statistisk Sentralbyrå, *Statistikk over Landssvik, 1940–1945* (Oslo: SSB, 1964).

that eventually the need to move on with the economic, political and social re-construction of the country took precedence.

Apart from a few intermittent studies, whether overtly politically motivated,³⁶ or regionally oriented,³⁷ economic collaboration occupied a very small niche in postwar Norwegian historiography. Even as late as 1999, Odd-Bjørn Fure concluded that economic collaboration had received far less scholarly attention than the question of political and administrative collaboration, leading to a skewed understanding in which the resistance movement still takes up far too much space.³⁸ This was not just a matter of the way the history of the war itself was written; Norwegian business histories have either carefully or carelessly avoided the question of industrial collaboration.³⁹ A string of recent studies have gone a long way towards addressing this state of affairs. The history of Norsk Hydro is widely regarded as having broken new ground, by providing a fair and balanced view of how the firm sought to realize its long-standing ambition of diversification into light metals production during the occupation.⁴⁰ Since Nina Drolsum Kroglund summarized our existing knowledge of Norwegian collaboration for a broader audience in 2012, several new studies have appeared that shed light on collaboration by state agencies in infrastructure development,⁴¹ but also of private Norwegian investor networks.⁴²

Despite a growing body of literature on economic history and economic collaboration, it still exhibits many of the long-standing hallmarks of Norwegian historiography as a whole: it is predominantly nationally framed, and nation-state centric.⁴³

³⁶Terje Valen, *De tjente på krigen. Hjemmefronten og kapitalen* (Oslo: Oktober, 1974).

³⁷Dag Ellingsen, *Krigsprofitørene og Rettsoppgjøret* (Oslo: Gyldendal, 1993).

³⁸Odd-Bjørn Fure, "Norsk okkupasjonshistorie: Konsensus, berøringsangst og tabuisering" in Stein Ugelvik Larsen (ed.), *I krigens kjølvann. Nye sider ved norsk krigshistorie og etterkrigstid* (Oslo: Universitetsforlaget, 1999).

³⁹Einar Lie, "Den kritiske bedriftshistorien" in Fredrik Engelstad et al. (eds.), *Demokratisk konservatisme. Festskrift til Francis Sejersted*. (Oslo: Pax, 2006).

⁴⁰Ketil Gjørlme Andersen, *Flaggskip i fremmed eie. Norsk Hydro 1905–1945* (Oslo: Pax 2005).

⁴¹Bjørn Westlie, *Fangene som forsvant. NSB og slavearbeiderne på Nordlandsbanen* (Oslo: Spartacus 2015); Pål Nygaard, *Store drømmer og harde realiteter. Veibygging og biltrafikk i Norge, 1912–1960* (Oslo: Pax, 2014).

⁴²Anette Storeide, *Norske Krigsprofitører. Nazi-Tysklands villige medhjelpere* (Oslo: Gyldendal, 2014).

⁴³Øystein Sørensen, "Forskningen om krigen i Norge", *Nytt Norsk Tidsskrift*, no 1 (1989), 40–58; Synne Corell, "The Solidity of a National Narrative. The German Occupation in Norwegian

It would be wrong to suggest that Norwegian historiography thrives in splendid isolation. The growing attention given to the holocaust and the emphasis on national memory culture is directly inspired by contemporary trends in international historiography. The use of the term collaboration is itself a quite recent import from the continental debates.⁴⁴ France, on the other hand, has had a long-running debate about collaboration since the publication of Robert Paxton's path-breaking study of Vichy France.⁴⁵ Economic collaboration received less attention until the 1990s, however, which is quite surprising given how important French collaboration was for the German war economy, and the prominence of many of these firms.⁴⁶ Similar patterns can be observed in the other Western European countries. After the immediate postwar settlement was finished, the economic history of occupation and collaboration was often relegated to the sideline of historical debates, and frequently it required the intervention of foreign scholars to place it on the agenda.⁴⁷ Economic collaboration is a crucial subject for the wartime history of Belgium, perhaps particularly due to the salience of the economic collaboration by the largest industrialists in a traditionally liberalistic and fragmented state.⁴⁸ From the late 1980s and early 1990s there have been numerous studies of economic collaboration, and the primacy of the economy is now placed

History Culture" in *Nordic Narratives of the Second World War: National Historiographies Revisited*, Stenius, Henrik, Mirja Österberg and Johan Östling (eds.) (Lund: Nordic Academic Press, 2011), 101–126.

⁴⁴ Ole Christian Grimnes, "Kollaborasjon" in *I krigens kjølvann. Nye sider ved norsk krigshistorie og etterkrigstid*, Stein Ugelvik Larsen (ed.), (Oslo: Universitetsforlaget, 1999), 47–57.

⁴⁵ Robert Paxton, *La France de Vichy 1940–1944* (Paris, Éditions du Seuil, 1973). Alan Milwards study of France was not translated, which severely limited its impact. Alan Milward, *The Fascist New Order and the French Economy* (Oxford: Clarendon Press, 1970).

⁴⁶ Fabian Lemmes, "Collaboration in wartime France" *European Review of History: Revue européenne d'histoire* 15,2 (2008), 157–177. Talbot Imlay and Martin Horn, *The Politics of Industrial Collaboration during World War II: Ford France*, (Cambridge: Cambridge University Press, 2014).

⁴⁷ See for instance the debate between Fernand Baudhuin and John Gillingham in Belgium Fernand Baudhuin, "L'article de John Gillingham Ph.D. sur: 'La politique de production de l'industrie belge durant l'occupation nazie'. Une réplique." *Belgisch Tijdschrift voor Nieuwste Geschiedenis* 3–4 (1974), 265–267; and John Gillingham, 'The Author's Response to Prof. Fernand Baudhuin's Critique of "The Baron de Launoit: A Case Study in the 'Politics of Production' of Belgian Industry during Nazi Occupation" *Belgisch Tijdschrift voor Nieuwste Geschiedenis* 3–4 (1974), 268–271.

⁴⁸ John Gillingham, *Belgian Business in the Nazi New Order*. (Ghent: Jan. Dhondt Stichting, 1977).

front and center in histories of the occupation regime.⁴⁹ Dutch occupation history until very few years ago dealt primarily with repression, resistance, and the holocaust, or if it strayed into economic history, it told a straightforward history of economic exploitation that resulted in famine and the Hunger Winter of 1944/45. Hein Klemann particularly has also questioned the lack of attention to this question in Dutch historical memory, and he has also gone to considerable lengths to show that the initial years of the occupation were hallmarked by the disappearance of unemployment and a virtual economic boom.⁵⁰ Finally, Denmark has in recent years seen a spate of important works on economic collaboration, both by firms,⁵¹ leading politicians, and the state.⁵² Nevertheless, the economic history of the occupation was ignored for a long time. Philip Giltner suggests the country had some difficulty in reconciling itself to the fact that instead of the violent exploitation one might have expected from a notoriously brutal regime, Denmark prospered through a strategy of active economic collaboration.⁵³

Germany and the Periphery

As the Second World War drew to an end, the Allied governments were pondering how to provide for postwar restitution and the return of stolen goods from Germany. They were concerned that the Nazi regime, through a policy of “systematic looting,” had so tightly integrated the raw materials, semi-manufactures, and finished products from the occupied countries into the German war economy that their origins would be impossible to

⁴⁹ Patrick Nefors *La collaboration industrielle en Belgique, 1940–1945* (Bruxelles: Racine, 2006). Nico Wouters, *De Führerstaat. Overheid en collaboratie in België (1940–1944)* (Tielt: Laanno, 2006).

⁵⁰ Hein Klemann, “Did the German Occupation (1940–1945) Ruin Dutch Industry?” *Contemporary European History* vol. 17 no. 4 (2008), 457–481.

⁵¹ Steen Andersen, *De gjorde Danmark større. Danske entreprenører i krise og krig 1919–1947* (Copenhagen: Lindhardt & Ringhof, 2005).

⁵² Joachim Lund, “Denmark and the ‘European New Order’, 1940–1942” *Contemporary European History*, vol. 13, no. 3 (2004), 305–21; *Idem*, “Cement og politik. Gunnar Larsen som minister 1940–1943”, *Historisk Tidsskrift* vol. 112/2 (2012), 469–511.

⁵³ Philip Giltner, “The Success of Collaboration: Denmark’s Self-Assessment of Its Economic Position after Five Years of Nazi Occupation” *Journal of Contemporary History* vol. 36, no. 3 (2001), 485–506.

trace.⁵⁴ This observation regarding the intricate inter-relationship between German power and occupied economies suggests an answer to the question of how Germany was able to wage war against much of the rest of the world for more than five years.⁵⁵ An exploration of the Nazi occupation regimes and their contributions to the German war economy thus can shed light on many of the intensely debated questions about the nature of the Nazi regime, its competitive and fragmented institutional set-up, its capabilities for rational and efficient policymaking, and its ability to mobilize private enterprise to accomplish its own objectives.

During the war, Hitler spoke frequently of the need to have a clear idea of the economic objectives of a military campaign, as well as its economic consequences if successful.⁵⁶ While it is highly debatable whether the German dictator heeded his own dictums, the occupied territories were certainly crucial to the maintenance of the German war economy. Recent revisions in the basic statistics have suggested that external resources available for Germany for waging war beyond the use in the respective occupied countries were greater than previously believed.⁵⁷ German net imports during the war were far bigger than official data suggests. Consequently, about 40 % of the foreign funds—i.e. occupation tributes and forced clearing loans—were used to finance net imports, not the 5 % given by the official import statistics. Occupied Europe's contribution to the German war effort in the form of weapon manufacturing and deliveries to the *Reich* was also far bigger and covered a longer period of time than scholars previously believed.⁵⁸ Almost a third of the necessary munitions and material were paid for or

⁵⁴ Herbert Elzer (ed.) *Dokumente zur Deutschlandpolitik Reihe 1. 3. September 1939 bis 8. Mai 1945 Bd. 5. Europäische Beratende Kommission: 15. Dezember 1943 bis 31. August 1945, Erster Halbband.* (München: Oldenbourg, 2003), 1024.

⁵⁵ Adam Tooze, *The Wages of Destruction. The making and breaking of the Nazi Economy* (New York: Allen Lane, 2006).

⁵⁶ Adolf Hitler, Hugh Trevor Roper, *Hitler's Table talk: 1941–1944: His private conversations* (London: Weidenfeld and Nicolson, 1973). See for instance 27 august 1942.

⁵⁷ Jonas Scherner, "Der deutsche Importboom während des Zweiten Weltkriegs. Neue Ergebnisse zur Struktur der Ausbeutung des besetzten Europas auf der Grundlage einer Neuschätzung der deutschen Handelsbilanz" *Historische Zeitschrift*, 294 (2012), 79–113.

⁵⁸ Jonas Scherner, "Europas Beitrag zu Hitlers Krieg. Die Verlagerung von Industrieaufträgen der Wehrmacht in die besetzten Gebiete und ihre Bedeutung für die deutsche Rüstung im Zweiten Weltkrieg" in *Europäische Volkswirtschaften unter deutscher Hegemonie*, Christoph Buchheim and Marcel Boldorf (eds.), (Munich: Oldenbourg Verlag, 2012), 70–92.292.

produced by countries that had been occupied or were under German influence, enabling the war machine to operate on multiple fronts. However, this contribution—with the notable exception of the *Protektorat*—stemmed predominately from Western and Northern European countries.

The tightly interwoven nature of the European economies means that each occupied territory represents a nexus between the war-making, policymaking and resource management strategies that were at the heart of the political economy of Nazi-controlled Europe. In the earlier historiography there are two distinguishable approaches. Both draw a sharp line between the first years of the war and a second period starting in 1942. The first is the *Blitzkrieg* hypothesis, which can be traced back to 1945 in the concluding report of the United States Strategic Bombing Survey, and which was later further developed by Burton H. Klein and Alan Milward. They claim that in-depth mobilization of the German economy did not take place before 1942, because the Nazi regime sought to achieve its expansionist goals by fighting short wars (*Blitzkriege*) with a comparatively small number of soldiers and arms.⁵⁹ This strategy, they argue, stemmed from Hitler's reluctance to place the full burden of war on the German population and risk an internal upheaval. According to this view, the strategy changed only in late 1941 after the Red Army had brought the German *Wehrmacht* to a halt near Moscow and the USA had entered the war. Confronted with the prospect of a long-lasting war against the USA and Soviet Russia, the German military planners realized that they had to considerably increase armament production.

The second hypothesis is the inefficiency hypothesis. Richard Overy states that there was a significant amount of initial confusion in the German war economy because the war began earlier than originally planned. Rolf-Dieter Müller modifies this assessment by arguing that it was not the insufficient mobilization, but rather the polycratic structures of the Third Reich that led to gross inefficiencies.⁶⁰ This inefficiency was

⁵⁹ United States Strategic Bombing Survey (ed.), *The Effects of Strategic Bombing on the German War Economy. Overall Economic Effects Division, October 31, 1945, vol. 1*, (New York: Garland, 1976); Burton Klein, *Germany's Economic Preparations for War* (Cambridge: Harvard University Press, 1959); Alan S. Milward, *Die deutsche Kriegswirtschaft 1939–1945*, (Stuttgart: Deutsche Verlags-Anstalt, 1966).

⁶⁰ See R. J. Overy, *War and Economy in the Third Reich* (Oxford: Clarendon Press, 1994); Rolf-Dieter Müller, "Die Mobilisierung der Deutschen Wirtschaft für Hitlers Kriegsführung",

supposedly overcome once Albert Speer became armament minister in February 1942 and, among other things, reformed and rationalized the German war economy administration. He thus contributed to a spectacular expansion of the German armament production and significantly raised labor productivity in the German industry. Both hypotheses, explicitly or implicitly, assume that such a radical break existed also with regard to the exploitation of the territories occupied by the Germans. Some authors emphasize that there was a great deal of mismanagement in the occupied territories before 1942.⁶¹ Milward claimed that Germany increased its exploitation efforts of occupied territories only after 1941, when the authority passed into the hands of the Armaments Ministry.⁶²

However, almost all the arguments of the *Blitzkrieg* hypothesis have been disproven during the last twenty years—the allegedly high level of consumption in Germany during the first two years of the war, the planning of the French campaign as a *Blitzkrieg*, the stagnation of armament production, and the alleged lack of development in the industrial base for a long war.⁶³ The inefficiency hypothesis has also been increasingly criticized during the last decade, especially regarding the question concerning the so-called armament miracle, i.e. the increase of armament production and

in: Militärgeschichtliches Forschungsamt (ed.), *Das Deutsche Reich und der Zweite Weltkrieg*, vol. 5/1. (Stuttgart: Deutsche Verlags-Anstalt, 1988), 349–692; Rolf-Dieter Müller, “Albert Speer und die Rüstungspolitik im Totalen Krieg”, in: Militärgeschichtliches Forschungsamt (ed.), *Das Deutsche Reich und der Zweite Weltkrieg*, vol. 5/2, (Stuttgart: Deutsche Verlags-Anstalt, 1999), 275–776.

⁶¹ Peter Liberman, *Does Conquest Pay? The exploitation of occupied industrial societies* (Princeton: Princeton University Press, 2011), 39.

⁶² Alan Milward, *The New Order and the French Economy*, (Oxford: The Clarendon Press, 1970), 41–2. See also Alan Milward, *Kriegswirtschaft*, 79, 109; Harald Winkel, Die Ausbeutung des besetzten Frankreichs, in: *Kriegswirtschaft und Rüstung 1939–1945*, Friedrich Forstmeier/Hans-Erich Volkmann (eds.) (Düsseldorf: Droste 1977), 373; Werner Röhr, Forschungsprobleme zur deutschen Okkupationspolitik im Spiegel der Reihe “Europa unterm Hakenkreuz”, in: *Europa unterm Hakenkreuz*, vol. 8: *Analysen, Quellen, Register*, Werner Schumann (ed.), (Heidelberg: Hühig 1996), 25–343, here: 242; Richard J. Overy, The Economy of the German “New Order”, in: *Die “Neuordnung” Europas. NS-Wirtschaftspolitik in den besetzten Gebieten*, Richard J. Overy (ed.) (Berlin: Metropolis, 1997), 11–28.

⁶³ *Westfeldzug 1940*, 3rd ed. (Munich, Oldenbourg, 2005), Adam Tooze, The Wages of Destruction: The Making and Breaking of the Nazi Economy (London: Allan Lane, 2006), figure 14, 348, 354, 409, 661; Jonas Scherner, “Nazi Germany’s Preparation for War: Evidence from Revised Industrial Investment Series” *European Review of Economic History*, 14 (2010), 433–68; Jonas Scherner, “Armament in the Depth or Armament in the Breadth? German Investments Pattern and Rearmament during the Nazi Period” *Economic History Review*, 66, 2 (2013), 497–517.

labor productivity, the effect Speer's reforms played, and the credibility of the underlying macroeconomic data.⁶⁴ Recent findings also challenge the conventional wisdom that suggests that occupied countries were fully and systematically exploited only after Speer's appointment as armament minister. For example, a recent re-estimate of total German real imports shows that the largest increase can be observed between 1940 and 1941, followed by a slower growth in the subsequent years.⁶⁵ The same is true for the amount of weapons manufactured in occupied countries on behalf of the *Wehrmacht*.⁶⁶ These quantitative findings are supported by a recent study which reveals that the incentive structure and the regulatory framework for the placement of orders to occupied countries were mainly created before Speer became armament minister.⁶⁷ All these observations lead to the conclusion that Speer did not revolutionize foreign procurement, but mostly relied on existing practices already established in the first half of the war. Recent studies about the financial policies Nazi Germany carried out in the occupied countries have also shown that there was no significant break in the sense of the *Blitzkrieg* hypothesis or the inefficiency hypothesis.⁶⁸ Even though these new interpretations seem to be increasingly accepted in recent

⁶⁴ See especially Adam Tooze, "No Room for Miracles: German Industrial Output in World War II Reassessed" *Geschichte und Gesellschaft*, 31 (2005), 439–464; Jonas Scherner/Jochen Streb, "Das Ende eines Mythos? Albert Speer und das so genannte Rüstungswunder" *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte*, 93 (2006), 172–196; Adam Tooze, *Wages of Destruction*; Lutz Budraß, Jonas Scherner and Jochen Streb, "Fixed-price Contracts, Learning and Outsourcing: Explaining the Continuous Growth of Output and Labour Productivity in the German Aircraft Industry during World War II" *Economic History Review*, 63 (2010), 107–136; Jonas Scherner and Jochen Streb, "The Mirage of the German Armament Miracle in World War II" in *An Economic History of Warfare and State Formation*, Jari Eloranta/Nikolaus Wolf/Bishnu Gupta, and Andrei Markevich (eds.) Springer (forthcoming).

⁶⁵ Scherner, Importboom während des Zweiten Weltkriegs. Neue Ergebnisse zur Struktur der Ausbeutung des besetzten Europas auf der Grundlage einer Neuschätzung der deutschen Handelsbilanz *Historische Zeitschrift*, 294 (2012): 79–113.

⁶⁶ Scherner, Europas Beitrag zu Hitlers Krieg. Die Verlagerung von Industrieaufträgen der Wehrmacht in die besetzten Gebiete und ihre Bedeutung für die deutsche Rüstung im Zweiten Weltkrieg in Christoph Buchheim and Marcel Boldorf, (eds.), *Europäische Volkswirtschaften unter deutscher Hegemonie* (Munich: Oldenbourg Verlag, 2012): 70–92.

⁶⁷ *Dickert Nutzbarmachung des Produktionspotentials besetzter Gebiet durch Auftragsverlagerung im Zweiten Weltkrieg. Staatliche Regulierung und Verlagerungsverhalten von Maschinenbau- und Automobilunternehmen*. (Unpublished Phd Dissertation: Trondheim, 2014).

⁶⁸ Marcel Boldorf and Jonas Scherner, "France's Occupation Costs and the War in the East: The Contribution to the German War Economy, 1940–1944" *Journal of Contemporary History*, 47 (2) (2012), 291–316; Scherner, The Architecture of Financing German Exploitation: Principles,

historiography, they have not been systematically tested in the case of single occupied countries, including Norway.⁶⁹

A second, on-going debate, which plays a prominent role in the recent historiography about the economic history of the Third Reich, concerns the question as to how much of private industrial enterprises' autonomy was preserved in Nazi Germany.⁷⁰ One strand of the literature states that the Third Reich, at least since 1937/38, can be characterized as a form of command economy. Even though only a few examples could be identified in which direct force played a role, the proponents of this approach believe that companies were intimidated by these existing cases of compulsion and by threats from leading representatives of the Nazi regime, such that firms acted out of some sort of anticipatory obedience. In addition, an increasingly restrictive macroeconomic framework due to rationing and other forms of regulation, which would have become "almost airtight" during the war, would have led to an "indirect socialization"—companies had no leeway to act in any way other than that preferred by the state.

The validity of this interpretation, however, has been challenged during the last decade. This second strand of the literature argues that normally companies' freedom of action with regard to investment decisions, i.e. those decisions which had a long-lasting impact, was preserved. The Nazi state availed itself of the private sectors to pursue its own goals. The Nazis did so by means of investment contracts between private companies and the state, in which the amortization risk of these predominately state-induced investments were often borne partially or totally by the state.⁷¹

Conflicts, and Results," in Jonas Scherner and Eugene White (eds.) *Paying for Hitler's War: The Consequences of Nazi Hegemony for Europe* (Cambridge: Cambridge University Press, forthcoming).

⁶⁹ See for example Mark Spoerer and Jochen Streb, *Neue deutsche Wirtschaftsgeschichte des 20. Jahrhunderts*, (Munich: Oldenbourg, 2013); Tim Schanetzky, *Wirtschaft und Konsum im Dritten Reich* (Munich: C.H. Beck, 2015); Marcel Boldorf, "European economies under National Socialist rule" in *Economies under Occupation*, 7–23.

⁷⁰ About this debate, see Christoph Buchheim and Jonas Scherner, "The Role of Private Property in the Nazi Economy: The Case of Industry" *Journal of Economic History*, 66 (2006), 390–416; Christoph Buchheim, "Unternehmen in Deutschland und NS-Regime: Versuch einer Synthese", *Historische Zeitschrift* 282 (2006), 351–390; Jonas Scherner, "Das Verhältnis zwischen NS-Regime und Industrieunternehmen – Zwang oder Kooperation?" *Zeitschrift für Unternehmensgeschichte*, (2006), 166–190; Peter Hayes, "Corporate Freedom of Action in Nazi Germany" *Bulletin of the GHI* 46 (2009), 29–42.

⁷¹ Jonas Scherner, *Die Logik der Industriepolitik im Dritten Reich. Die Investitionen in die Autarkie- und Rüstungsindustrie und ihre staatliche Förderung* (Stuttgart: Franz Steiner Verlag, 2008).

In addition, the regulative framework did not automatically constitute fully binding constraints for companies due to information asymmetries and monitoring problems faced by the authorities. Yet, these authors also emphasized that further research is needed, in order to fully understand the relationship between the Nazi state and companies.⁷² Such research must examine, for example, the different fields of companies' decision making—such as investments, the production program, cooperation with other companies (such as decisions about outsourcing and technological exchange), and R&D—because one cannot infer from compulsion in one field that companies were forced in other fields, too. The same applies with regard to other factors that may have an impact on the relationship between state and industry, such as the size of companies, or whether they belonged to sectors that directly or indirectly produced for the state.

It is clear that such systematization should also include the examination of companies in foreign countries. Even though their framework was in several aspects similar to that of German companies, such as to be subject to rationing of inputs and the role the state-induced demand played, there were also important differences, such as with regard to the acceptance of Nazi rule, or the fact that “state” for companies in occupied countries did not only mean German authorities, but also the sometimes more and sometimes less collaborative authorities of their own country. Similarly, the leeway stemming from information asymmetries may have been even greater than in the case of German companies, given that the Nazis had far less time to build up systems of economic monitoring and information gathering. That such information asymmetries were exploited by companies in some occupied countries, because German regulations were “everything but,” as a recently published monograph on occupied economies emphasizes, is also shown by the huge industrial black market production that took place in some countries.⁷³

One focus of this volume is to test, in the case of occupied Norway and the other countries discussed here, all these hypotheses that played a central role in the historiography of the German war economy. How

⁷² Jonas Scherner, “Anreiz statt Zwang”. Wirtschaftsordnung und Kriegswirtschaft im “Dritten Reich”, in *Unternehmen im Nationalsozialismus. Zur Historisierung einer Forschungskonjunktur*, Tim Schanetzky/Norbert Frei (eds.) (Göttingen: Wallstein Verlag, 2010), 140–155, here 153–4.

⁷³ Klemann and Kudryashov, *Occupied Economies*.

was the relationship between state and companies in occupied countries? Was the economic policy carried out by the Nazis rather consistent, as recent research suggests for the case of the German war economy, or can we observe a break around the end of 1941 and early 1942, as the proponents of the *Blitzkrieg* and the inefficiency hypotheses claim? Was the exploitation of Norway in the second half of the war significantly greater and more efficient?

One reason to take a closer look at the Norwegian case is that a substantial German manuscript on the economic exploitation of Norway has recently surfaced in the Norwegian National Archive.⁷⁴ Written at the behest of the Norwegian authorities after the war by the former head of the finance department of the German occupation authorities, Hans Claussen Korff,⁷⁵ it provides intriguing perspectives on the Norwegian economy in the maelstrom of Nazi occupation. While there may be reason to treat this manuscript with caution, Korff's assessments of what transpired during the war paints a very different picture of the occupation than either the *Blitzkrieg* or the inefficiency hypothesis would suggest. Korff believes that there was no clear break with the past when Speer ascended in 1942, as the latter never developed a deep insight into the functioning of the economy.⁷⁶ The polycratic muddle also persisted for far longer than previously thought, as Göring's competing economic czarism, the *Vierjahresplan* (Four-Year Plan) remained a force to be reckoned with until 1944. Speer was not able to impose order through the central planning committee (*Zentrale Planung*), which according to

⁷⁴ See for example Harald Espeli, "Cooperation on a purely matter-of fact basis': the Norwegian central bank and its relationship to the German supervisory authority during the occupation, 1940–1945" *Scandinavian Economic History Review*, 66 (2014), 188–212; Hans Otto Frøland, Nazi Germany's financial exploitation of Norway during the occupation, 1940–1945, in Boldorf/Okazaki, *Economies under Occupation*, 130–146; Jonas Scherner, The German system of financing occupation, in Boldorf/Okazaki, *Economies under Occupation*, 39–54.

⁷⁵ Korff had served as a financial advisor on various levels of government before he arrived in Oslo in 1940 to serve in the *Haubtabteilung Volkswirtschaft* in the *Reichskommissariat*. Having been shortly imprisoned after the German capitulation, he was recruited by the Norwegian government to work in the *Erstatningsdirektorat*, an agency set up to scrutinize economic collaboration among Norwegian legal subjects. The agency was closed down in 1952. Korff wanted to publish the manuscript, which he probably wrote in 1948, but this never happened.

⁷⁶ For the following see Hans Claussen Korff, *Norwegens Wirtschaft im Mahlstrom der Okkupation* I, 48, 71–75, RA, PA-0951, box 2.

common interpretations made the allocation of raw materials far more efficient. *Zentrale Planung* receives short shrift from Korff, and is referred to as the “central aimlessness” (*Zentrale Planlosigkeit*) because of its inefficient stop-and-go policy in Norway.

Regarding the relationship between state and industry, Korff makes it clear that companies in Norway, similar to those in Nazi Germany or in other occupied countries, also exploited information asymmetries and retained freedom of action because the occupiers lacked the capacity to enforce their regulations in a consistent way.⁷⁷ Companies requested inflated allocations of raw materials and used a part of these inputs to produce goods for the black market. Besides, it seems that Norwegian companies, as with companies in Nazi Germany, were only willing to make investments in capacities desired by the state if the latter bore the amortization risk partly or totally, at least in the case of investment projects that the companies considered to be risky. In some instances, Norwegian companies would have even welcomed German demands to make investments, because it opened new opportunities and access to German technology, as in the case of the cellulose producer Borregård, or in the case of the aluminium industry. Korff dealt also, in a whole subchapter with the telling title “The myth of compulsion” (*Das Märchen vom Zwang*), with the question of whether Norwegian companies were directly forced or not to produce for the Germans. In this context, Korff claims that in later stages of the war, Norwegian companies even requested letters from German authorities stating that they had been forced, which would serve as some sort of insurance, should the Nazis lose the war.⁷⁸ For reasons that remain obscure, while perhaps not inexplicable, the publication of the manuscript was blocked after the war. These important but difficult issues were subsequently ignored, leaving the task of unearthing both questions and answers about the economic nature of the occupation to a distant posterity.

⁷⁷ For the following see Hans Claussen Korff, *Norwegens Wirtschaft. About the exploitation of information asymmetries in Germany*, see Jonas Scherner, “Die Grenzen der Informationsbeschaffung, -transfer und -verarbeitung in der deutschen Wehr- und Kriegswirtschaftsverwaltung im Dritten Reich”, *Jahrbuch für Wirtschaftsgeschichte*, 56(1) (2015), 99–135.

⁷⁸ For a similar case in Nazi Germany, see Johannes Bähr, *Der Flick-Konzern im Dritten Reich* (Munich: Oldenborg 2008).

Constellations of Collaboration: German Goals, Norwegian Responses

One enduring image of the Nazi regime is the institutional “polycratic chaos,” in which corrupt satraps vied for power in a multi-dimensional configuration of overlapping, competing, and contradictory authorities. As Ian Kershaw remarks, the lack of orderly decision making and policy coordination in the internal management of German affairs can easily be exaggerated, and it is still debatable what the institutional arrangements say about the nature of the regime.⁷⁹ One way of approaching the issue is by looking at the management of the occupied territories. Occupation is by its very nature polycratic, as it superimposes a set of foreign institutions on top of the established political and administrative apparatus. How does that affect the governance capabilities of the occupier within the conquered territory?

There is no easy answer to this question, particularly due to the lack of a German blueprint for occupation beyond a few overarching ideas and ambitions. In the countries in the West, which Hitler did not regard as “natural enemies,” the main objectives were to maintain strategic control by the *Wehrmacht*, ensure economic exploitation of their productive capabilities, as well as gradual Germanization of the “racially valuable” parts of the population. An empire to last a thousand years was cobbled together over a few months, as the unexpectedly rapid victories in Western Europe forced the Germans to hastily improvise the institutional arrangements in the occupied territories.⁸⁰ On the most basic level, the *Wehrmacht* was present in all occupied countries, but in Norway and the

⁷⁹ Ian Kershaw, *The Nazi Dictatorship. Problems and Perspectives of Interpretation* (London: Bloomsbury, 2015). Helmut Maier has recently shown that the old perception about an inefficient Nazi research policy, which was characterized by conflicts among competing institutions, is misleading. Helmut Maier, *Forschung als Waffe. Rüstungsforschung in der Kaiser-Wilhelm-Gesellschaft und das Kaiser-Wilhelm-Institut für Metallforschung 1900 bis 1945/48* (Göttingen: Wallstein Verlag, 2007); Helmut Maier, “Ideologie, Rüstung und Ressourcen. Das Kaiser-Wilhelm-Institut für Metallforschung und die “Deutschen Metalle” 1933–1945” in *Rüstungsforschung im Nationalsozialismus. Organisation, Mobilisierung und Entgrenzung der Technikwissenschaften*, Helmut Maier (ed.) (Göttingen: Wallstein Verlag, 2002) 357–388, here 388.

⁸⁰ Wolfgang Benz/Johannes Houwink ten Cate/Gerhard Otto (eds.), *Die Bürokratie der Okkupation, Strukturen der Herrschaft und Verwaltung im besetzten Europa* (Berlin: Metropol, 1998).

Netherlands Hitler also introduced a *Reichskommissariat* to run civilian affairs. In France and Belgium, the commander of the German armed forces, the *Wehrmachtbefehlshaber*, also had authorities that extended to civilian affairs. Only in July 1944 did Hitler appoint Josef Grohé to take over responsibility from the military in Belgium and Northern France. The *Wehrmacht* was also present in Denmark, which negotiated an agreement which left the state largely intact until August 1943, even though a *Reichsbevollmächtigter* (Plenipotentiary) was installed in late 1942. The institutional set-up does not in any way represent a full explanation for the observable differences in occupation policies, as there were variations in the choice of tools for exploitation, their use, and their effectiveness in the different countries.

Collaboration provides a prism through which to look at the larger issues of German policymaking, because it refers to not only the type of exploitative policies introduced by the Germans, but also how the domestic firms responded, and how these responses developed over time. Was there a radical break in 1942, and if so, was it dictated by the elevation of Speer to the post of armaments minister, or were there other forces at work? The question of whether German agencies applied positive incentives based on freedom of choice, or negative incentives based on force, has consequences not only for the character of collaboration regime, but also for the nature of the Nazi regime itself. Our conceptual starting point is to use the results achieved by the establishment of positive and negative incentives—the collaborative cost structure—to measure the efficiency of Nazi policymaking. Rather than asking whether the firms were motivated by base and treasonous motivations when entering into contracts with Nazi Germany, it provides a way to think about the collaboration as a shifting phenomenon, in which the occupation authority has a range of tools at its disposal, such as positive incentives of high prices and rewards, or negative incentives such as punishments for under-performance. The proclivities to rely on either one may change according to circumstances, as reactions of the firms to these incentives also varied over time, according to the strategic and political outlook for continued German domination. In order to assess the effectiveness of German policies, we must have an idea of their goals and methods, as well as the responses and results that were obtained in the occupied territory. In the following, we will

therefore provide an overview of the institutional set-up and the colliding German ideas on the goals and methods of exploitation as they were applied in Norway.

The lessons of the First World War weighed heavily on the German leadership. While the British blockade provided a stark lesson about the German dependence on imported raw materials, Norway became a target due to its strategic geographical location rather than its own natural resources. By controlling the long Norwegian coastline, the *Kriegsmarine* could avoid being ignominiously bottled up in the North Sea. After the German invasion of Denmark and Norway on 9 April 1940, the strategic importance of the country grew even further in Hitler's thinking. After reducing the number of German troops in Norway to 100,000 after the attack on the Soviet Union, by summer 1942 the number was again 250,000 and by early 1945 it might have been well above 400,000. On average, a German population of about 300,000 resided in Norway, which made up a tenth of the indigenous population—far higher than in all other occupied countries. Funded by a Norwegian occupation account set up to cover the occupation costs, the demand created by the German occupation exploded. First the *Wehrmacht*, and subsequently the *Organisation Todt*, actuated massive building schemes, mostly for military purposes. Behind the fortification of the coast, a network of infrastructure was established that also would serve civilian purposes. *Wehrmacht* spending caused a permanent inflationary pressure and made the building sector swell. It soon brought Norway's economy to its limits.

The practicalities of occupation, such as fortifying the coast and preparing Northern Norway to be a deployment area for a war against the Soviet Union, were not the only German objectives in Norway. Strategic imperatives were initially paramount, but the economic opportunities also beckoned. To counteract the economic effect of a future blockade against Germany, Nazi geo-economic planners in Berlin had elaborated notions of a future German dominated European *Großraumwirtschaft*. On the eve of the war, the Nordic countries (the *Nordraum*) were not considered to be an integral part of the continental *Großraumwirtschaft*. Nevertheless, their abundance of mineral resources made the planners conclude: "*Der Anschluss des Nordraums ist für den Großwirtschaftsraum*

unentbehrlich.”⁸¹ We have no evidence of detailed plans to exploit the Norwegian economy before the invasion; these were only drawn up after the string of spectacular German victories in the spring and summer of 1940. Then the *Reichswirtschaftsministerium*, the *Oberkommando der Wehrmacht*, but also private firms such as IG Farben, immediately started elaborating how the Norwegian economy might benefit the objectives of the state, the military, and civilian industry respectively.⁸² Over time, German authorities developed ambitious plans for restructuring the Norwegian economy, removing the vestiges of its liberalistic tradition and eliminating foreign capital interests. In its place, a planned and controlled economy overseen by Germany would turn Norway’s natural treasures into exportable products in excess of its own requirements. If these policies were successful, state and military planners both in Berlin and Oslo agreed, then Norway would make a rich contribution to the European *Großraumwirtschaft*.⁸³

The job of reconciling these different objectives in the conquered Norwegian territory fell to Josef Terboven. He was an “old fighter” who had participated in the failed Beer Hall putsch in 1923. He had risen to the position as party leader (*Gauleiter*) for the *Nationalsozialistische Deutsche Arbeiterpartei* (NSDAP) in Essen, and later also assumed state powers as *Oberpräsident* of the Rhine province. Terboven was appointed by Hitler and only answered to him. After the *Reichskommissariat* settled in Oslo late April, it became responsible for integrating Norwegian industry into the *Großraumwirtschaft*. In this respect, the *Hauptabteilung Volkswirtschaft* would consist of representatives from the large German

⁸¹ Dietrich Eichholz, “Die Großraumwirtschaft für den großen Krieg. Zwei geheime Memoranden der Reichsstelle für Wirtschaftsausbau vom Frühjahr/Sommer 1939” *Bulletin des Arbeitskreises “Zweiter Weltkrieg”*, 1–4 (1986), 70–160, quote: 99.

⁸² Dietrich Eichholz, “Die IG-Farben-“Friedensplanung”. Schlüsseldokumente der faschistischen “Neuordnung des europäischen Großraumes” *Jahrbuch für Wirtschaftsgeschichte*, 3 (1966), 271–283; Petrick, Ruhestörung, 41–3; Bohn, *Reichskommissariat*, 124–6; “Aus dem Bericht des Wehrwirtschafts- und Rüstungsamtes im OKW von August 1940 über die Ausnutzung der norwegischen Industrie” in *Expansionsrichtung Nordeuropa. Dokumente zur Nordeuropapolitik des faschistischen deutschen Imperialismus 1939–1945*, Manfred Menger et al. (eds.), (Berlin: VEB Deutscher Verlag der Wissenschaften, 1987), 87–88.

⁸³ Der Chef des Oberkommandos der Wehrmacht, “Die Wehrwirtschaft Norwegens” (Berlin: Reichsdruckerei, 1941). Carlo Otte, *Das neue Norwegen im europäischen Raum* (Oslo: Deutsche Monatshefte in Norwegen, 1942).

companies taking an interest in Norwegian resources.⁸⁴ The smooth integration of Norway into Germany's economic orbit was to take place by means of German direct investments and increased bilateral trade. Terboven decreed in August that enemy property (*Feindvermögen*) was subsequently under German control. To reach its political goals it would tend to keep society functioning under extreme demand surplus from the Wehrmacht. Already by fall 1940, Reichskommissar Terboven clashed with *Wehrmachtbefehlshaber Norwegen's* Nikolaus von Falkenhorst over the *Wehrmacht* spending—a conflict which lasted until a settlement was reached in the summer of 1941. Thereafter, the monthly *Wehrmacht* spending stabilized, but at a level that was still too high and eventually which would bring the Norwegian economy beyond its limits. Ambitions were constrained not by money but by lack of resources. Consequently, Berlin authorities agreed that Norway must also be supplied from abroad, which entailed that Germany itself had to supply the conquered population with food and other essential supplies.⁸⁵ As the German fortunes turned, the more grandiose visions were dispelled by the realities of war. Rather than balancing the ambitious development plans for the Norwegian economy with military demands, Terboven increasingly had to seek the lowest possible allocation of resources to the civilian sector that was needed to avoid social unrest and the unravelling of the domestic economy, while providing the *Wehrmacht* with the resources to prepare for an eventual invasion.

Even as the German objectives fluctuated, the strategy of exploitation through coopting remained the fundamental guideline throughout the Norwegian occupation. From the outset of the occupation, the objective of establishing a lenient and indirect rule was an overarching goal for the German civilian administration. Hitler's last instruction to Terboven before he departed for Norway was unmistakably clear: "Arbeiten Sie so, dass sie die Norweger für mich gewinnen."⁸⁶ By winning the hearts and

⁸⁴ Gerhard Hass and Wolfgang Schumann (eds.), *Anatomie der Aggression. Neue Dokumente zu den Kriegszielen des faschistischen Imperialismus im Zweiten Weltkrieg*, (Berlin: VEB Deutscher Verlag der Wissenschaften, 1972), 79; Bohn *Reichskommissariat*, 79, 166.

⁸⁵ Frøland, "Nazi Germany's financial exploitation", 140–142.

⁸⁶ Carlo Otte, Die Hauptabteilung Volkswirtschaft, die Behörde des Reichskommissars für die Besetzten Norwegischen Gebiete, RA, B-sak 3061, box 2, file 3.

minds of the Norwegian people, their hearths and mines would surely follow. This required an occupation regime that relied on carefully calibrated incentives rather than the blunt threat of force. As the Germans noted upon arrival, they could rely on established economic links between the two countries, and in some respects the Norwegian and German economies appeared to be “happily supplementary.” But equally importantly, the Norwegian economic leadership showed great eagerness to collaborate. As Carlo Otto, the leader of *Hauptabteilung Volkswirtschaft*, later noted, the Norwegians not only needed to collaborate to maintain their workforce, they also wanted to make money.⁸⁷

While the King, government and parliament refused to reach an accommodation with the occupying force, there were in fact many members of the business and political elites that were eager to collaborate. The attempted coup by the self-styled *Fører*, Vidkun Quisling and his far right fringe party *Nasjonal Samling* (National Unity) generated political turbulence that afterwards made political collaboration illegitimate in the eyes of large parts of the population. Economic collaboration, on the other hand, remained broadly acceptable.⁸⁸ The latter was greatly facilitated as Quisling was forced to hand over the reins to a self-appointed *Administrasjonsråd* (Administrative Council) established on 15 April 1940. The main policy of the Administrative Council was to keep the economy going.⁸⁹ The Council, consisting of non-NS members, was accepted by the German occupation authorities and would operate until 25 September, when the *Reichskommissar* appointed a government of commissarial ministers. This government was largely composed of NS men, although without Quisling’s direct participation. Furthermore, the three important economic departments were deliberately given by Terboven to people that were not members of NS. Keeping the party out of the economy apparently mattered more than pro-German loyalties. Sigurd Johannesen, Terboven’s appointed minister for Trade and Enterprise, was deeply skeptical of the German plans to penetrate the

⁸⁷ Ibid.

⁸⁸ Susanne März, *Die langen Schatten der Besatzungszeit: “Vergangenheitsbewältigung” in Norwegen als Identitätsdiskurs*. (Berlin: BWV Berliner Wissenschafts-Verlag, 2010), 51–52.

⁸⁹ Innstilling fra Undersøkelseskommissjonen av. 1945, *Rapport over norske myndigheters disposisjoner før og etter 9. april 1940* (Oslo: Stortinget, 1946).

economy, and he was particularly hostile towards German private firms: They had shown their “cloven hoof.”⁹⁰ It was only in February 1942 that Vidkun Quisling was appointed *Ministerpresident*, and that the collaborationist puppet government had found its final form. By then, however, the collaborationist relationships in the economy were well established and deeply entrenched.

Economic collaboration is a better description of what transpired during the war years than adaptation, as the latter places agency and responsibility with the Germans. In the economic realm, the Norwegians proved more than willing to assist the Germans in managing the economy, which was a prerequisite if the German strategy of exploitation through coopting was to succeed. Norwegians participated in their own occupation by issuing new regulations for taxation and economic activity, allocating and rationing scarce resources, as well as directing labor to German work sites. While the pre-war administrative apparatus could be pressed into the service of German requirements and objectives, there were also clear limitations inherent in this strategy. Terboven was disinclined to let the NS engage in large-scale experimentation, and even the NS itself recognized that willingness to participate in economic collaboration did not extend to support for a politically inspired transformation of the economy. Alf L. Whist, the NS *Sambandsmann for Næringslivet*, realized that it was not “responsible, not least under the current circumstances, to engage in large-scale experiments targeting Norwegian trade, industry or its organizations.”⁹¹ Even his more modest plans for a re-organization of Norwegian enterprise on a sectoral basis through *Norges Næringsssamband* met with resistance, even within the NS itself. Overall, the leaders of industry preferred to work together with the *Reichskommissariat* and not worry too much about the Norwegian collaborationist authorities or the party *Næringsssamband*.⁹²

⁹⁰Note by Sigurd Johannesen, undated, Riksarkivet, Oslo (RA), Private Archive (PA), 0738 Eivind Blehr.

⁹¹Alf Whist to Quisling, March 12, 1942, RA, L-sak Whist.

⁹²*Fritt Folk*, 7 May 1943; See also Bohn, *Reichskommissariat*, 206.

Structure and Key Findings

The first part of the book investigates the German demand side for Norwegian resources. An important finding was that there were no coherent plans for how Norway might fit into the supply chain that would enable Germany to secure its raw materials supply. Lutz Budrass goes one step further, however, and shows how the plans that were rapidly drawn up to turn Norway into a supplier of light metals for the *Luftwaffe*, only made sense insofar as the German aircraft producers massively inflated their requirements. Consequently, one of the largest industrial projects undertaken under the banner of the *Großraumwirtschaft* proved superfluous as soon as more realistic estimates were introduced. Ole Sparenberg also demonstrates that it was the German attempts to restructure its fisheries during the inter-war period that shaped the form of the German demand for Norwegian fish during wartime. The technological transformation this wrought on the sector, such as the introduction of deep-freezing technology, would have profound consequences for the development pattern of Norwegian fisheries during the war, as Bjørn-Petter Finstad shows in Chap. 15.

The second part of the book provides detailed studies of institutional, monetary, regulatory, and industrial policies in other occupied countries. These chapters showcase the great variety in the German exploitation policies, as well as the reactions and adaptations to them within the country. Talbot Imlay, in his study of the French automobile industry, shows just how fluid the collaborative relationship was between the occupier and the occupied. As the strategic outlook changed for the *Wehrmacht*, so did the calculus of collaboration for the French firms, and they became less willing to mobilize additional resources on behalf of the German war economy. The collaborative impulse was strong among certain groups of industrial leaders in Belgium, based in part on a pre-existing ideological affinity for corporative arrangements. Despite this, Dirk Luyten demonstrates that it was the industrial structure that determined the scope of collaboration, rather than national control over these institutions, or whether the management was entrusted to committed Nazi sympathizers.

The initial impulse to loot was tempered by the gradual realization that the German occupations of Western Europe were bound to last for several years, and that the German armaments industries lacked the capacity to transform looted stocks of raw materials, machinery, and imported forced labor into implements of war. But as Marcel Boldorf establishes in Chap. 6, the German proclivity for looting was in large part determined by the type of product. Raw materials were easily seized as war booty in France, in contrast to Norway, while semi-finished components and manufactured goods were acquired through the establishment of incentives. Incentives cost money, and Hein Klemann demonstrates just how the German authorities went about financing their expenditures in the Netherlands through the re-introduction of convertibility between the German *Reichsmark* and the Dutch guilder. This unique arrangement in the Netherlands was just one means of pursuing the exploitation of an occupied economy by paying for goods through an expansion of the money supply.

The need to improvise also allowed the Germans to tailor specific tools of exploitation adapted to the economic structures of the individual country. The choice to exploit the economy through *Auftragsverlagerung*—transfer of orders from Germany to the industry in the occupied territories—thus seemed to be an ideal solution for the highly advanced countries in the West. The establishment of a *Zentralauftragsstelle* (Central Office for Public Orders, ZAST) enabled the coordination of German industrial orders in France, Belgium, and the Netherlands. The ZAST system was pioneered in the Netherlands, and as Martijn Lak shows, accounted for as much as 2–3 % of the armaments produced for Germany, and set off a wartime boom in the Netherlands. The ZAST was circumvented in France, as many German firms preferred to work directly with their French counterparts, and the same occurred in Belgium. In Norway too, there was a very small ZAST within the *Reichskommissariat*. It was established after multiple requests from the *Reichswirtschaftsministerium* for export of industrial products from Norway, but the actual results were meager. The *Reichskommissariat* reported back to Berlin that the little manufacturing industry that existed already was inundated by orders from the *Wehrmacht* in Norway. Instead of items like the cast iron ovens and locomotive parts that were originally requested, the actual transfers to Germany were composed of items such as cutlery and simple

furniture. Instead of *Auftragsverlagerung* for manufactured goods through a ZAST, the German exploitation of Norway had to be concentrated in the extractive industries, which already in the pre-war years had been export-oriented.

Part 3 of the book deals specifically with the German attempts to mobilize the Norwegian natural resources for the war economy, whether through an expansion of production of aluminum and magnesium, molybdenum, nickel or fish. The objectives were not met, due to a variety of reasons. Naturally, the Allied bombings of the light metal plants at Herøya and the molybdenum mine at Knaben played an important role. The willingness to collaborate also differed greatly between individual firms. Both NACO and Norsk Hydro competed for German favor in the light metal sector, providing clear examples of proactive collaboration. Knaben *Molybdengruber* also displayed an expansive attitude at first, but the willingness to collaborate declined towards the end of the war as the tides of war were turning. There was also sufficient corporate autonomy both within Nazi Germany and in occupied Norway to allow for a form of resistance. As Scherner and Sandvik show in their contribution on the nickel industry, a Norwegian firm could succeed in a strategy of under-production, in this case because its interests aligned with the ambition of the powerful German conglomerate IG Farben to establish production elsewhere.

As Harald Espeli shows in his contribution, the many infrastructure projects undertaken generated an infinite demand for labor and materials, for which the *Wehrmacht* was prepared to pay through the nose if necessary. This conflicted with the objectives of the *Reichskommissariat* for the orderly management of the Norwegian economy, as well as the hopes in Berlin for transfers of labor and manufactured goods to the *Reich*. It was the war-induced scarcities that enabled the *Reichskommissariat* to assert itself through increasingly tough regulations and oversight over the extractive industries, rather than the ascent of Speer as armaments minister. Hans Otto Frøland shows how the German authorities were able to establish a very effective incentive structure for the established firms in the aluminum sector. However, once the Germans were no longer able to provide either such generous incentives or the necessary input factor in the form of aluminum oxide, these firms, despite being under the authority of a German trustee, proved both unable to produce and

unwilling to invest in further expansion. These findings support what Korff asserted shortly after the war, that the use of force was unnecessary and that Speer's reforms had limited influence on the behaviors and performance of companies in the extractive industries.

Concluding Remarks

In late 1942, one of Quislings key economic officials, the later minister of enterprise, Alf Whist, wrote to Quisling: "Hitler and his generals will undoubtedly win the war [...] But I ask myself: Has he got the necessary help from his non-military associates and from us National Socialists in the different occupied countries to win the peace?"⁹³ Both premises for Whist's question were wrong. Hitler did not need the assistance of ideologically driven supporters in the occupied countries, as a combination of incentives and regulation could go a very long way towards mobilizing the resources Germany needed to maintain its war effort for several years, even if they were not sufficient to win in the end. This mobilization of resources was greatly facilitated by the German decision to partially forgo plunder and to resist the inevitable imbalances and economic chaos created by a full-scale mustering. The strategy of exploitation through coopting included the maintenance of a functioning economy, and close cooperation with private enterprise rather than the introduction of a command economy. This naturally affected the relationship between the state and companies in occupied countries. This strategy had the advantage that within the occupied societies, the perspectives of the individual firm differed from that of the larger society. In Norway, for instance, the German policy of providing incentives paid for by funds from Norges Bank, entailed that individual Norwegian firms could profit immensely from the occupation, even while the society at large was deprived of resources. In short, the German exploitation regime relied on a privatization of profits, coupled with socialization of risks and costs.⁹⁴

⁹³ Alf Whist til Quisling, Report on travels in Germany and France, 24 November 1942. L-Sak Alf Whist

⁹⁴ Jonas Scherner, "Tin and the German War Economy: Scrap Drives, Blockade Running and War Looting" in Mats Ingulstad, Andrew Perchard, Espen Storli (eds.) *The Devil's Metal: A History of the Global Tin Industry, 1850–2000* (New York: Routledge, 2014), 123–141.

The German occupation naturally varied greatly over time, and also between the different countries in Western Europe. These changes were not the outcome of any single factor, but rather a function of the country's economic structure, the polycratic constellation of German institutions and their domestic counterparts, and also the shifting and overlapping modalities of exploitation. In Norway, the modal shifts were influenced by strategic factors, such as the decision to build massive fortifications along the Norwegian coast and to station an inordinate number of soldiers in the country to protect what Hitler referred to as the *Schicksalszone*, a zone of destiny for the war.⁹⁵ This generated tremendous economic pressures, which complicated the attainment of any other objective, including the production of raw materials for the use of the German economy. In one sense, in terms of the economic exploitation of Norwegian resources to supply the German war effort, the *Wehrmacht* was its own worst enemy. But since there also were opposing forces, both in Oslo and Berlin, the polycratic structure of the German occupation contributed to keeping a semblance of balance within the economy as a whole.

The ability to extract resources rested upon economic collaboration with private enterprise, and as such there were more powerful influences at work than Speer's reforms or an intensification of regulations to mobilize under-utilized sections of European economies. The ample financial resources available to the *Wehrmacht*, together with the structural pressure generated by the very fact of the occupation, largely made the threat of violence against private firms unnecessary. For Norwegian firms, compulsion was an *ex post facto* rationalization of their collaboration. This was a useful defense in the postwar trials, but is not an accurate historical description. The problem inherent in the strategy of coopting resources was that as the German ability to provide incentives dwindled, so did the responsiveness of the economic collaborators. The gradually increasing pressure that was applied from 1942 onwards can therefore be seen as a sign of growing weakness and rising problems of under-utilization, rather than the implementation of a centralized plan. This owed much to the declining prospects of success for German arms in the long run, and the commensurate changes in outlook

⁹⁵ Helmuth Greiner, Percy Ernst Schramm *Kriegstagebuch des Oberkommandos der Wehrmacht: (Wehrmachtführungsstab)* (Frankfurt am Main: Bernard & Graefe, 1963), 124.

for the individual firms. It proved impossible to compensate the firms for the political risk inherent in continued extensive collaboration and production increases as the German defeat loomed ever larger. Just when stronger incentives would have been necessary to convince private firms to mobilize the still hidden reserves of resources from the economy, the Germans were left with recourse to force. In the end, that was not enough. While a fistful of *Reichskreditkassenscheine* had proved to be more effective than the *Panzerfaust* (armored fist) in extracting and mobilizing resources from occupied Western Europe, in the end neither was sufficient to sustain a Thousand-year *Reich* in a war that spanned the globe.

Part I

The German Demand for Norwegian Resources

2

Ideology and Business Strategy: Assessing Nazi Germany's Different Approaches to the Supply of Light Metals for the *Luftwaffe*

Lutz Budrass

Introduction

In the autumn of 1940, Heinrich Koppenberg, director general of the state owned Junkers combine, by then the largest German producer of aircraft and one of the largest German enterprises, presented a light metal programme for Norway to Hermann Göring. A number of facilities should be erected and expanded in order to use hydroelectric power from Norway's waterfalls to boost the country's aluminium production to 180,000 tons in 1943. With this, the shortage of aluminium in the German aircraft industry would be eliminated and in turn enable it to win the air war against the Western Allies. The *Leichtmetallausbau Norwegen* was an epitome of the Nazi *Grossraumwirtschaft* (Greater Economic Area) for Europe. At first, a domestic aluminium ore, labradorite, was to be used; at a later stage a much richer ore, bauxite, should be transported from France, Hungary and Croatia to Norway.

The light metal programme was the largest industrial project of Nazi Germany in any of the occupied countries. While it originally was envisioned as the development of an ‘inhouse’ industry for the *Luftwaffe*, soon other heavyweights of German industry appeared on the scene. The IG Farben Industrie AG, the biggest European industrial combine, but also the Vereinigte Aluminiumwerke, state-owned like Junkers, and the largest producer of aluminium in Germany, used every means to participate in the plan and, like Junkers, formed alliances with Norwegian firms—mainly Norsk Hydro, versed in producing nitrogen by hydroelectric power, and the Norsk Aluminium Company (NACO)—to this end. The project never flew, however. It was downsized after 1942, and it took a few Allied air strikes on the almost completed facilities to freeze the German initiative in the summer of 1943. The light metal programme ended up as the worst German investment in Norway during the war, as Hans Clausen Korff, financial advisor to the *Reichskommissariat* put it.¹

The German light metal programme for Norway presents a lesson in economic and business history of the Nazi regime itself. Alan Milward, in his pioneering studies on the New Order, presented it as major proof of the alignment between business and the Nazi government. Thereby, he wanted to add to the research on the nature of fascism, which concentrated on the role of the IG Farben—explicitly posing the thesis that the Marxist interpretation of an identity of business and state interest in fascism could be sustained in the light metal programme in Norway.² A second stage in the historiography began with the proof that theory of fascism matched the reality of the light metal programme to a far lesser degree than Milward had thought. At least there were a number of different business strategies present in Norway, much more powerful and autonomous

¹ Anette H. Storeide, *Norske Krigsprofitter. Nazi-Tysklands velvillige medløpere* (Oslo: Gyldendal, 2014), 402.

² Alan Milward, *The Fascist Economy in Norway* (Oxford: Clarendon Press, 1972), 171; a comparable approach is contained in Dieter Petzina, *Autarkiepolitik im Dritten Reich. Der nationalsozialistische Vierjahresplan* (Munich: DVA, 1968). For the research in the former GDR, see Fritz Petrick, *Der “Leichtmetallausbau Norwegen” 1940 - 1945. Eine Studie zur deutschen Expansions- und Okkupationspolitik in Nordeuropa* (Frankfurt/M.: Peter Lang, 1992); for a review of research on the light metal programme see also: Hans Otto Frøland, “Nazi Planning and the Aluminum Industry”, in *Alan S. Milward and a Century of European Change*, ed. Fernando Guirao et al. (New York, London: Routledge 2012), 168–171.

than Milward had assumed—not least that of Heinrich Koppenberg, who at best appears as one of Göring’s henchman in Milward’s writing. Simultaneously, Helmut Maier pointed out that both state and business interests were governed by a kind of technological ideology, in which light metals and the use of water power—white coal—were seen as a specific German approach to technology with the ultimate goal of feeding German armament with raw material from its own soil.³ A third stage was reached when Norwegian historians pointed out that the Norwegian contribution in both fields to the light metal programme—economy and technology—had been well underestimated by earlier research. Moreover, Anette H. Storeide’s pioneering study of 2014 firmly established the view that the driving force behind the light metal programme—after it had been initiated by the German occupiers—was the far reaching strategies of Scandinavian businesses that instrumentalized the German investments in order to improve their hold in the Norwegian light metal industry and to participate in most of its promising economic perspectives.⁴ The findings of Storeide, Frøland and Andersen, however, are liable to revive the discussion of the German interests in the light metal programme. It has to be asked anew why the attraction of the light metal programme, which started as one of the most ambitious plans for the *Europäische Grossraumwirtschaft*, faltered so rapidly. Had it originally been seen as a white elephant, a typical product of Nazi hubris and an economic absurdity, it has to be asked now, why the Germans did not foster their participation in the project more vigorously, given the promises it contained in the long run.

In the following, I will present some aspects of a first explanation, concentrating on the perspective of the *Luftwaffe*, which had initiated

³Lutz Budrass, *Flugzeugindustrie und Luftrüstung in Deutschland* (Düsseldorf: Droste 1998), 602; Helmut Maier, *Erwin Marx (1893–1980), Ingenieurwissenschaftler in Braunschweig, und die Forschung und Entwicklung auf dem Gebiet der elektrischen Energieübertragung auf weite Entfernungen zwischen 1918 und 1950* (Stuttgart: GNT-Verlag 1993), 291; Helmut Maier, “Ideology, Armaments and Resources. The Kaiser-Wilhelm-Institut for Metal Research and the “German Metals” 1933–1945”, in *The Kaiser Wilhelm Society under National Socialism*, ed. Susanne Heim et al. (Cambridge University Press, 2009), 252–283.

⁴Storeide, *Kriegsprofiteure*; Frøland, “Nazi Planning”; Ketil Gjolme Andersen, *Flaggskip I fremmed eie. Hydro 1905–2005* (Oslo: Pax forlag, 2005). See also the contribution of Storeide and Andersen to this volume.

the programme and hoped for the bulk of the aluminium and magnesium to be produced in Norway. Because it was a branch of the German armed forces, it has always been assumed that the *Luftwaffe* represented a certain interest of Nazi Germany as a whole, with the effect that the fading out of the light metal programme was attributed to a failure of the Nazi strategy altogether. If the lesson of historiography of the light metal programme can be summed up, however, it has to be admitted that it was rather differentiated business strategies—from among others, Junkers Flugzeug- und Motorenwerke (JFM), IG Farben, VAW, Norsk Hydro and NACO—than homogenous national interests that directed the course of this project. The *Luftwaffe* supply will be taken in account, but rather as an incentive for business reactions. Moreover, if one accepts the view that business politics and market competition framed the project, rather than Hermann Görings imagination, it has to be assumed that decisions were made with alternatives present. It is reasonable to ask if the choice of those alternatives was finally responsible for the fading interest in the light metal programme.

Two of these alternative strategies have to be emphasised. The expansion of aluminium production during World War I already had shown that virgin aluminium had to face growing competition from reclaimed metal scrap, also known as secondary aluminium, the longer the war lasted. The price for virgin aluminium grew due to the considerable amount of energy, coal and caustic soda necessary for its production, while secondary aluminium became cheaper the more the dump sites for aluminium scrap grew. Particularly if this effect was added to by research into aluminium alloys that used secondary rather than virgin aluminium, and attempts to substitute aluminium by using steel, zinc, wood and plastics in aircraft and elsewhere, a strategy of innovation and substitution might at a certain point have outweighed the investment in large new facilities in Norway.

Another alternative strategy that arose in combination with the innovation strategy was that Helmut Maier has argued strongly in favour of the idea that the presentation of aluminium and magnesium as “German” metals was a powerful backdrop for any business activity in this field during the Nazi period, including the light metal programme. It has to be asked whether this idea lost its binding character for German businesses

in the face of defeat, even if this was decided as a result of the growing hardships in securing transportation facilities, labour and raw materials, which plagued the light metal programme from the outset. I will argue that this idea—translated into business strategy—was responsible for an abnormal demand for aluminium in the pre-war era, which resulted in a misconception of supplying the *Luftwaffe* with light metals and the hope of boosting the supply through the light metal programme for Norway. In turn, it was the fading of this idea, triggered by a worsening of the bauxite supply and an innovation in the metallurgy of secondary aluminium, which was responsible for the German withdrawal from the project in Norway.

Aluminium and Business Strategy in the German Aircraft Industry

Aluminium is hardly a German metal, but the shift from wooden to metal aircraft was certainly a German achievement. From the moment when in late 1918 the first pure metal passenger aircraft, the Junkers F13, reached for the skies, the cultural symbolism of aviation was altered fundamentally. The all-metal aircraft was progressively treated as a vanguard of progress, modernity and science, while the conventional wooden aircraft was now associated with craft methods, tradition and backwardness.⁵ Since 1916, Hugo Junkers had used Duraluminium, an alloy of aluminium with some 4 % of copper and magnesium, for his aircraft. Almost accidentally invented by Alfred Wilm in 1905, duraluminium was the first age-hardening aluminium alloy. While pure aluminium is relatively soft, duraluminium becomes almost as hard as low alloyed steel after heat treating over time. Through Wilm's invention, aluminium could be used for metal constructions and it was his invention that some 25 years later gave rise to idea that aluminium was a 'German' metal. Max Haas, nicknamed 'Aluminium-Goebbels', head of the German association of aluminium producers, propagated Wilm as a vanguard of a movement

⁵ Eric Schatzberg, *Wings of Wood, Wings of Metal. Culture and Technical Choice in American Airplane Materials, 1914–1945* (Princeton: Princeton University Press, 1999), 3.

by which aluminium was secured for use in modern industry.⁶ To a lesser degree this was also true for the German airship and aircraft producers who first used aluminium: Zeppelin and Junkers. Count Zeppelin had used aluminium alloys for the framework of his giant airship from 1899, and switched to duraluminium immediately after it had been invented. When the Zeppelin combine founded aircraft firms at Lake Constance and Staaken near Berlin during World War I, these also used duraluminium. Led by Claude Dornier and Adolf Rohrbach, they became almost as popular for all-metal aircraft production as Junkers.⁷

The popularity of the passenger aircraft of Junkers, Rohrbach and Dornier was directly connected to their all-metal design. Allied troops who had been given a chance to inspect the rare latest war designs of Junkers and Dornier generated enthusiasm already, but when Danish-born businessman John Larsen imported two dozen Junkers F13 to the USA in 1920, it was reported to be the “airplane of the future” and inspired a whole movement to develop metal airplanes in the USA. “There can be no question that the all-metal plane is here and it behooves the rest of us to get busy in the near future if we hope not to be left entirely behind in the race,” the Chief of the Air Service told Larsen.⁸

The superior performance of the German airplanes wasn’t a result of their all-metal construction, however. The reason why Junkers, Dornier and Rohrbach dominated world civil air transport in the early 1920s lay in the application of aerodynamic theory to aircraft design, which had flourished in Germany during the war. It was mainly the idea of producing monoplanes with ‘thick’ wing profiles and avoiding wires and struts in stabilizing the airplane that gave German airplanes a lead. This conclusion could easily be derived from the fact that the firm of Dutch-born Anthony Fokker, who had been tied to Junkers in a merger company, produced aircraft for military and civil use as successfully by using conventional materials such as tubes of steel, wood and cloth. In fact, it had

⁶Maier, *Ideology*, 262–263.

⁷Lutz Budrass, “Rohrbach und Dornier. Zwei Unternehmen aus dem Zeppelin-Flugzeugbau in der Weimarer Republik und im Nationalsozialismus” in *Zeppelins Flieger. Das Flugzeug im Zeppelin-Konzern und in seinen Nachfolgebetrieben*, ed. Wolfgang Meighöner (Friedrichshafen: Zeppelin-Museum, 2006), 202–235.

⁸Schatzberg, *Wings*, 40–41.

been a late mover strategy that brought Junkers, Dornier and Rohrbach to the application of duraluminium: Junkers had produced bath boilers in his factory at Dessau, while the Zeppelin Combine used aluminium in order to distinguish itself from a competitor producing airships with a wooden framework. Both lacked a workforce that could be transferred to woodworking, while the raw material—dry wood—had been absorbed by air armament when they started building aircraft.

Junkers, Dornier and Rohrbach had no choice but to apply the workforce and the machinery available and made the best of it. As they all pioneered duraluminium construction, they gained patent rights for certain structural characteristics of their aircraft and, in turn, were able to discourage imitations. Simultaneously, they started merchandising campaigns that underlined the idea that progress, science and modernity were embodied in their artifacts. Junkers in particular drew on the idea that the all-metal airplane was the path to civil aviation as such. In 1917 already he spelt out the major characteristics of his airplane, which he propagated continuously during the 1920s: lightweightness, weatherproofness, durability, and, foremost, resistance against fire.⁹ Because of the greater security due to these characteristics, it seemed certain that civil aviation would in the near future switch over to the all-metal airplane completely, wrote Otto Mader, a close companion of Junkers, in a programatic article for the main German engineering journal in 1924.¹⁰

The Junkers' merchandizing campaign glossed over the fact that at close inspection the advantages of duraluminium were not nearly as clear as suggested; neither was a duraluminium structure lighter than a wooden aircraft, nor was its fuel more fireproof. Not until the late 1920s were aircraft producers building metal-winged airplanes with weight efficiencies comparable to wooden-winged airplanes. Another striking disadvantage of structures planked with duraluminium was the weakness of long, thin parts common in aircraft structures and a tendency for buckling. The more the structural material was concentrated towards the outer surfaces,

⁹ Zusammenfassung der wesentlichen Kennzeichen und Vorteile der Junkers-Flugzeuge, 12 April 1918, Deutsches Museum, München, Archive, Sondersammlungen, Dokumentation (DMM/ASD), Junkers-Archiv (JA) 0201/10/16.

¹⁰ Otto Mader, "Betrachtungen über den Flugzeugbau", in *Zeitschrift des Vereins Deutscher Ingenieure*, vol. 68, 1924, 1041–1042.

in order to gain maximum internal space for transport, the more the skin of the fuselage had to be supported by stiffeners and bulkheads. As duraluminium could not be welded—any heating up removed the age-hardening effect—all these stabilizing means had to be riveted, which resulted in a heavier framework that was highly complicated and also difficult to manufacture. But these were only the disadvantages clearly to be expected when the all-metal airplane first flew. The most severe drawback of duraluminium was revealed mainly through its use in the 1920s: intercrystalline embrittlement. Complaints about the corrosion of duraluminium parts exposed to water, heat and humidity mounted during the 1920s. As late as 1925, the reason was detected. Corrosion of iron eats away the surface of the metal but leaves the properties of the interior unchanged. Intercrystalline corrosion, however, proceeds along the crystalline structure of the alloy, decomposing and weakening it considerably. Intercrystalline embrittlement was not fully explained by contemporaries, but it was instantly clear that impurities in the duraluminium alloy like iron markedly contributed to the effect, because they caused cracks in the metal through which corrosion proceeded. As bauxite, the main aluminium ore, generally contained iron, tiny quantities of it were always present in virgin aluminium, and in turn, in duraluminium. There was no way of protecting duraluminium structures other than covering them: in the USA by metallurgical bonding of a surface layer of pure aluminium to the duraluminium parts exposed, in Germany by painting them. Both strategies added considerably to the weight of the aircraft. In 1940, *Oberflächenschutzstoffe* (protective cover) contributed to the weight of a FW 190 fighter by almost 12 % at 217 kg.¹¹

The fact that the deficiencies of duraluminium were not exposed was the main reason behind the ideology of the ‘German’ metal. Nationalistic popularization of aluminium deceived the public over its shortcomings and deterred criticism, while simultaneously the ground was prepared for investments in research on further age-hardening alloys of aluminium and magnesium—hoping that they would not have the ambiguous properties of duraluminium. Prominent examples were different alloys

¹¹ Reichsluftfahrtministerium (RLM), GL 3, Auswertung der Halbzeug- und Werkstofflisten für 1 Flugzeug, FW 190 A-1, December 1940, Bundesarchiv-Militärarchiv (BArch-MA), RL 3/1783.

researched at the Lautawerk of Vereinigte Aluminiumwerke (VAW), among them an alloy based on aluminium, manganese and zinc, which also saved the considerable amount of copper needed for duraluminium. Research for aluminium alloys for castings containing silicon instead of copper pointed in the same direction. In 1939, some 12 % of aluminium alloys produced in Germany was of the so-called Silumin type. Even more important was the research on magnesium, which was particularly dear to the *Reichswehr* secret air armament organization. The *Reichswehr* (German armed forces) concentrated on the development of a magnesium alloy at IG Farben termed '*Elektron*' to a degree that in 1928 the construction of an all-magnesium airplane was commissioned in the state owned Albatros works. All these attempts failed. An age-hardening alloy of magnesium could not be created. '*Elektron*' turned out to be even more corrosive than duraluminium, while the alloys at Lautawerk did not display better properties than duraluminium in this respect.¹²

Wolfram von Richthofen, a cousin of the "Red Baron", and from 1925 responsible for aircraft development at the Ordnance Office of the *Reichswehr*, summed up his experiences with aircraft structures in his 1929 doctoral thesis. Mainly, he drew up a priority list of aircraft designs but he also concluded on the value of different aircraft materials from a military standpoint. Differentiating the needs of an airforce in peacetime (with a priority on the durability of aircraft) and war (when the priority shifted to maximum production), Richthofen concluded that despite all its disadvantages, a carefully coated duraluminium structure suited an airforce in peacetime best; but in time of war, an all-wooden construction clearly had the priority.¹³ This was the main reason why the *Reichswehr* clung to a kind of compromise for aircraft material. It preferred a mixture of steel, duraluminium, wood and cloth for its warplane types, not very much different to what had been common during World War I.

¹²Peter Josef Belli, *Das Lautawerk der Vereinigte Aluminium-Werke AG von 1917 bis 1948. Ein Rüstungsbetrieb in regionalen, nationalen, internationalen und politischen Kontexten (zugleich ein Beitrag zur Industriegeschichte der Niederlausitz)* (Muenster: Lit-Verlag, 2012), 400–408; Budrass, *Flugzeugindustrie*, 211–212.

¹³Wolfram von Richthofen, "Der Einfluss der Flugzeugbauarten auf die Beschaffung unter besonderer Berücksichtigung militärischer Gesichtspunkte" (secret PhD thesis TH Berlin, 1929), 15, 88.

Here, ideology and business strategy clearly went into head-on opposition. By 1925, Junkers' merchandising campaign had succeeded in the way that it was believed that passenger airplanes had to have an all-duraluminium structure. A clear hierarchy existed among German aircraft producers. The top strata was formed by the big three duraluminium producers (Junkers, Dornier and Rohrbach), who built passenger aircraft, while a broad basis of rather tiny start-up businesses, such as Messerschmitt, Heinkel, Focke-Wulf and Arado, were confined to ordinary aircraft materials. They were closely incorporated into the secret rearmament programme, but acted only on the fringes of the civilian market. But the strategic perspective for all of them was that any opportunity to advance to the top strata was tightly linked to the switch to duraluminium. This was even more emphasized when Junkers' merchandising campaign backlashed in the USA. Here the euphoria over the 'Teutonic' style had led to an even more widespread introduction of aluminium alloys in military and civilian airplane construction. The famed all-metal passenger aircraft of Boeing, Lockheed and Douglas, which—due to their aerodynamic efficiency—outclassed the German designs on the civilian market from 1929 onwards, still underlined the all-metal philosophy Junkers had propagated since 1919. When Rohrbach, perceived as the leading duraluminium producer in Germany by then, had to close down his firm in 1929, not least due to the success of the American designs, this was the final signal for the minor German firms to turn to duraluminium in order to fill the gap.

Imaginary Scarcity: The Aluminium Supply of the *Luftwaffe*, Heinrich Koppenberg and the Origins of the Light Metal Programme for Occupied Norway

Although bauxite almost exclusively had to be imported to Germany it was never scarce to the German war economy. Starting from 1933, the German authorities stockpiled bauxite, which mainly originated in Yugoslavia and France in the pre-war era but progressively came from

the country which was to become Germany's most reliable ally, Hungary. Here, a yielding mining area near the village of Gánt had been explored since 1926, which had a capacity of about a million tons per year. On average, VAW alone received some 400,000 tons of bauxite per year from Gánt. Since 1937, yearly imports of bauxite exceeded 1 million tons. Not all of it was used by the plants producing alumina (aluminium oxide, Al_2O_3), the interstage product from which aluminium was finally extracted by electrolysis. If the total import is reduced by a rate of 20 % for the rate of bauxite used by the quarry industries, stockpiling guaranteed a reserve of a year's production of aluminium until 1941 (Table 2.1).

Table 2.1 Bauxite import, aluminium content, production of virgin aluminium and aluminium reserves, Germany 1933–1944 (1,000 tons)

Year	Bauxite import	Aluminium content of imported bauxite ^a	Virgin aluminium output	Aluminium reserve in stockpiled bauxite ^b
1933	236	42	21	21
1934	324	58	39	39
1935	502	89	73	55
1936	978	174	101	128
1937	1,308	232	132	229
1938	1,178	209	166	272
1939	1,114	198	199	271
1940	1,091	194	212	254
1941	1,171	208	234	228
1942	1,508	241	264	205
1943	1,535	205	250	161
1944	986	131	245	47

Source: H.R. Habicht, "The German Aluminium and Magnesium Industries." (Field Information Agency, Technical (FIAT) File Report No. 501, 1945), 98–99; see also United States Strategic Bombing Survey (USSBS), Aircraft Division, "Light Metal Industry of Germany. Part I: Aluminium" (Washington: Second Edition 1947), Exhibit B; Eberhard Neukirch, "Die Entwicklung des Leichtmetallausbaus im Vierjahresplan mit besonderer Berücksichtigung des Zeit des grossdeutschen Freiheitskampfes ab 1939", 1943, Bundesarchiv, Berlin (BArch) R 3112/150, fol. 51 wrongly produces the aluminium content of imported bauxite rather than the volume of imported bauxite itself

^aBauxite imports minus 20 %; given a conversion ratio of 4.5:1 from bauxite to aluminium from 1933 through 1941, 5:1 for 1942 and 6:1 for 1943 and 1944

^bCumulation of aluminium content of imported bauxite minus virgin aluminium output

At the outset, only a minor fraction of aluminium produced was used for the *Luftwaffe*. According to the statistics of the *Reichsamt für Wirtschaftsausbau* (Reich office for Economic Development), the airframe and aero-engine factories consumed 12.5 % of the virgin aluminium production in 1936, and 13.5 % in 1937.¹⁴ The use of aluminium was widely spread over the German industries. The electrical industry in particular progressively relied on aluminium as a substitute for the truly scarce copper. The moderate demand of the *Luftwaffe* can mainly be attributed to the *Reichswehr* decision to rely on aircraft structures with a mixed material composition. During the first phase of rearmament, the bulk of airplane production was devoted to schooling and training. From 1933 through 1936, at least two-thirds of all airplanes produced were used for training and auxiliary purposes. Most designs for these types had been devised during the late 1920s, and they contained moderate amounts of aluminium. 1136 of the 10,677 airplanes produced until March 1937 were Focke-Wulf Fw 44, another 1356 were Arado Ar 66 airplanes. Light metals contributed hardly more than 11 % to their total weight—97 kg in the Fw 44 and 178 kg in the Ar 66—but steel by roughly a quarter and wood by more than 30 %. The demand of the *Luftwaffe* would have been even smaller had it not decided to order a number of passenger aircraft—Junkers Ju 52 in particular—as auxiliary bombers. Until March 1937, 839 Ju 52s were produced for that purpose, each of which contained four tons of light metal alloys.¹⁵

The perspective was less moderate in the case of war: the *Luftwaffe*'s long-term armament programme, laid down in 1935, calculated on having a fully-furbished supply system from 1 April 1938. In case of war, after this date, 1165 airplanes could be delivered every month—among them 470 bombers. To this end, the *Luftwaffe* would need 4,198 tons of aluminium, 4,714 tons of magnesium and 693 tons of copper for the respective alloys every month—not just for airplanes but for all other *Luftwaffe* devices and the filling of incendiary bombs. But even this

¹⁴ Neukirch, "Entwicklung", BArch R 3112/150, fol. 44–47; Reichsamt für Wehrwirtschaftliche Planung, Reichsergebnis der Produktionserhebung für das Kalenderjahr 1937, BArch R 3102/5866.

¹⁵ Flugzeugbeschaffungsprogramm (LA) vom 1. April 1937, BArch-MA RL 3/984, fol. 154–155; RLM, GL 3, Halbzeuggewichte in Flugzeugbaumustern, March 1939, BArch-MA RL 3/1783.

demand for aluminium would have accounted for hardly 20 % of the production of 257,000 tons per year envisaged for 1940.¹⁶

Plans and programmes were put under considerable strain, however, when the main military aircraft that were about to form the core of the *Luftwaffe* went into production from 1937 onwards. When World War II began, the *Luftwaffe* relied on three models of aircraft: Heinkel's He 111 and Dornier's Do 17 as bombers, and Messerschmitt's Bf 109 as a single-engine fighter. Messerschmitt and Heinkel, start-up enterprises of the mid-1920s, had been the rising stars of aircraft design. Messerschmitt had switched to all-metal by 1929 (and almost went bankrupt over this move), Heinkel in 1932. In order to prove that they had arrived at the top strata of German aircraft firms, they lavishly used light metals for their designs. While Dornier's Do 17 contained 2.8 tons of light metals, Heinkel's He 111 used 3.5 tons. Messerschmitt apparently wanted to banish even the last piece of wood from his design. While light metals contributed just 56 % to the weight of the first operational version of Bf 109 D in 1937 and 1938, the Bf 109 E of 1939 and 1940 contained 73.1 %—almost one ton. The use of wood dropped from 47 kg to 9 kg in the same time period and to 6 kg in 1941 (Bf 109 F).¹⁷

An initial problem with these modern aircraft occurred not through the fact that they used aluminium at all, but because the *Luftwaffe* calculated the demand for the production of these aircraft with a fairly generous safety margin. In 1942, it was somewhat critically observed that for each kilogram of light metals used in a German aircraft, 3.65 kg had to be supplied. In 1939, *Luftwaffe* procurement calculated 9679 tons of aluminium for an average bomber airplane, and 3,634 tons for an average fighter airplane. There was reason behind this, as the conversion of aluminium to semi-finished products, and from there to the actual airplane parts, consumed aluminium as well as the production of spare parts. The calculation was so generous, however, that it apparently contained the idea

¹⁶RLM, LC, Industrierüstungsgrundlagen 1.4.38, 1. November 1935, BArch-MA RL 3/941; Neukirch, "Entwicklung", BArch R 3112/150, fol. 63.

¹⁷RLM, GL 3, Halbzeuggewichte in Flugzeugbaumustern, March 1939, BArch-MA RL 3/1783; Reichsluftfahrtministerium (RLM), GL 3, Auswertung der Halbzeug- und Werkstofflisten für 1 Flugzeug, Bf 109 E-3 and BF 109 F-1, January 1940, BArch-MA RL 3/1783.

Table 2.2 Production of the principal 1939 fighter and bomber aircraft and the demand for light metals generated

	Do 17 (bomber)	He 111 (bomber)	Bf 109 (fighter)	Light metal content (tons)	Light metal demand (tons) ^a
II./1936	1		3	5	17
III./1936	21		0	59	215
IV./1936	39		3	111	405
I./1937	90	36	21	394	1,437
II./1937	90	112	33	673	2,456
III./1937	89	97	155	692	2,526
IV./1937	126	96	118	769	2,807
I./1938	94	134	235	888	3,241
II./1938	45	140	319	824	3,009
III./1938	205	196	179	1,386	5,058
IV./1938	116	223	198	1,245	4,543
I./1939	190	194	369	1,454	5,308
II./1939	221	351	303	2,061	7,524
III./1939	212	334	476	2,083	7,602

^aAccording to the calculation that 3.65 kg of light metals were necessary for each kilogram used in the airplane

Sources: RLM, GL, Fertigungsablauf Bomber-Jäger, 19 September 1941, BArch-MA RL 3/1396; RLM, GL 3, Halbzeuggewichte in Flugzeugbaumustern, March 1939, BArch-MA RL 3/1783; RLM, GL, Vortrag des Oberst-Ing. Schwencke gehalten in der Amtschefbesprechung am 10.2.42, BARCH-MA RL 3/861

of securing an extra supply for the purposes of the *Luftwaffe*.¹⁸ At least the steep rise in *Luftwaffe* demand for aluminium could be explained through this surplus calculation (Table 2.2).

Mostly, however, the growing demand and the longing for an extra supply of light metals can be attributed to the growing competition within the different branches of the armed forces. After the *Wehrmacht* was ready for combat in spring of 1938, the armament system was plagued by a growing disorientation as to what might come next. As long as a war did not actually break out, Army, Navy and *Luftwaffe* wanted to shield their respective industries, which were desperately in need of further production contracts. The effects of this competition have been described by

¹⁸ RLM, GL, Vortrag des Oberst-Ing. Schwencke gehalten in der Amtschefbesprechung am 10.2.42, BARCH-MA RL 3/861; Maier, "Erwin Marx", 294.

numerous historians.¹⁹ All three forces devised plans for further armament developments. After the crisis of September 1938 had been settled, the *Luftwaffe* calculated a plan for its fivefold expansion up to 1942, while the Navy inaugurated its Z-Plan in early 1939.

The situation of the *Luftwaffe* was determined by a latecomer strategy. Junkers, completely nationalized after Hugo Junkers had passed away in 1935, had originally been destined to become the leading producer of bomber aircraft, but the model designed for that purpose turned out to be an utter failure. Heinkel and Dornier used their chance in 1937 and filled the gap. But the setback for Junkers was only brief. Heinrich Koppenberg, named director general of the Junkers combine in late 1933, commissioned two leading aircraft engineers of German–American origin with the design of an alternative bomber model, which was so promising that he pressed for integrating it into the *Luftwaffe* production programme. He succeeded in the spring of 1938. The Junkers Ju 88, as it was called, was chosen to become the workhorse of the *Luftwaffe* in the near future, while the designs of Heinkel and Dornier were to run out of production in the long run. The Ju 88 had to be integrated into the *Luftwaffe* supply system, and it was clear from the outset that this would put additional strain on the supply of light metals. The attraction of the Ju 88 lay in the fact that it was especially suited for the use of the ‘German’ metals, magnesium in particular. It contained a number of forged magnesium parts, 340 kg altogether, for which gigantic forging presses were erected at IG Farben’s factory at Bitterfeld and elsewhere. Through the Ju 88, Junkers became a pioneer and the largest user of magnesium in Germany, very much in contrast to other producers, namely Messerschmitt, who was least inclined to the use of magnesium among the German aircraft producers.²⁰

Most importantly, the expected switch to mass production of the Ju 88 secured further employment in the aircraft industry, but this required an expansion of the light metal supply of the *Luftwaffe* as a whole. For military reasons the production of models other than the Ju 88 had to be expanded accordingly—not least to avoid discontent among the

¹⁹ For an overview, see Adam Tooze, *The Wages of Destruction. The Making and Breaking of the Nazi Economy* (London: Allen Lane, 2006), 287–294; Budrass, *Flugzeugindustrie*, 557–571.

²⁰ “The German Magnesium Industry” (British Intelligence Objectives Subcommittee (BIOS) Misc. Report No. 5, London: HM Stationary Office, 1947), 25–27.

other producers—*Luftwaffe* planning arrived at the fivefold expansion of the *Luftwaffe* up to 1942. Some 30,000 airplanes would have to be produced by then. The decision for the Ju 88 marked the point in time when the *Luftwaffe* Technical Office recorded on a monthly basis the share of the *Luftwaffe* in the light metal production of Germany. In April 1938, the share in aluminium was 23 %, but it rocketed to 40 % of some 14,500 tons produced in August 1938.²¹ The growing demand of the *Luftwaffe* brought the German armament economy to the brink of collapse. Despite the fact that the production of aluminium grew steadily, the rest of German industry, which had consumed 87.5 % of the aluminium produced in 1936, had to face the fact that their supply was seriously curtailed in favour of the aircraft industry. This was not least true for the industries of the other branches of the *Wehrmacht*. While the army desperately insisted on an effort to coordinate the demand for aluminium, the Navy devised its own new armament plan to boost its share in light metals and succeeded as well. The Navy's Z-Plan of early 1939 diminished the share of the *Luftwaffe* in aluminium continuously. In March 1939, it stood at 35 %, in May it was below 30 % of 17,200 tons produced in that month.

The inherent absurdity of these armament plans is revealed by the fact that the masses of light metal given to the *Luftwaffe* were—in an ex-post perspective—by far not necessary. While the rest of the German economy had to deal with a growing shortage of aluminium, the aircraft industry experienced sheer abundance—but the *Luftwaffe* still bitterly complained about grossly inadequate supplies. This apparent contradiction can be solved mainly through a simple argument. Aluminium for the aircraft industry had to be disposed 12 months in advance. It took a year to turn ingots of virgin aluminium into aircraft parts ready for assembly. What this meant can be exemplified by a comparison of planning and actual production for the third quarter of 1940. Disposition had to happen in July through September 1939 when the beginning of the war relieved the shortage a little, as it gave a reason to further curtail civil consumption.

²¹ RLM, GL 1, Aluminium. Deutsche Gesamt-Erzeugung und Zuteilung an die Luftwaffe in t, July 1940, BArch-MA RL 3/1396.

Table 2.3 Planned production and actual production of fighter and bomber airplanes in the third quarter of 1940, and the respective aluminium supply

	Fighters	Bombers	Aluminium demand/ supply (tons)
Production plan (1939)	2,402	4,429	51,597 ^a
Total aluminium supply to the <i>Luftwaffe</i> (3rd quarter 1939)			17,609
Expected aluminium deficit			33,988
Actual production (3rd quarter 1940)	639	948	11,498 ^a
Aluminium surplus			6,111

Sources: RLM, GL, Untitled memorandum on *Luftwaffe* supply situation, 6 July 1939, BACh-MA RL 3/880; RLM, GL 1, Aluminium. Deutsche Gesamt-Erzeugung und Zuteilung an die *Luftwaffe* in t, July 1940, BACh-MA RL 3/1396; RLM, GL, Fertigungsablauf Bomber-Jäger, 19 September 1941, BACh-MA RL 3/1396

^aCalculated that production of an average fighter and bomber needed 3.634 tons and 9.679 ton of aluminium respectively

Total aluminium supply for the *Luftwaffe* roughly doubled in September 1939 compared to August.

Even when comparing a reduced version of an already revised plan with actual production, rather than the most ambitious production plans of 1938/39, the result is striking (Table 2.3).

The consequences of the abundant supply are not difficult to trace. When *Luftwaffe* officials scrutinized the stocks of the aircraft industry in 1942, in order to secure outdated and unusable light metal parts, they removed more than 12,000 tons. At Messerschmitt's factories alone, almost 1,000 tons were confiscated.²² The statistical office of the *Reichsverband der Deutschen Luftfahrt-Industrie* (Association of the Aircraft Industry/RDLI), which calculated the relation of stocked and used aircraft material, found that on average less than 25 % of the stock was used in aircraft production every month. The situation in the German economy had signalled a grave material shortage, so that aircraft producers hoarded light metals and kept doing so as long as the perspective for future production did not stabilize on a realistic level and the mood of scarcity wasn't lifted.

²² Endergebnis Schmidtler-Aktion, 11 January 1943, BA-MA RL 3/1584.

In early 1942, RDLI's figure dropped below 20 %: on average, aircraft producers had five times the material in stock that they used monthly for production.²³

The most striking result of the *Luftwaffe's* abundant aluminium supply was to be found in the production of ammunition. The *Luftwaffe* didn't have its own ammunition factories but commissioned factories directed by the Army and the Armament organisation of the *Wehrmacht* for producing ammunition. Production of the aluminium bullet casing of ammunition was carried out, however, with aluminium allocated to the *Luftwaffe*. As the ammunition industry otherwise suffered from a grave shortage of raw material, they were happy to use their capacity with *Luftwaffe* orders and met the production goals. As a consequence, the *Luftwaffe* depots were flooded with ammunition. The main gun of the Bf 109 was—up until 1942—the 20 mm calibre autocannon MG FF. When the Battle of Britain commenced in July 1940, some 8.6 million rounds for the MG FF were stored. During the war in France, some 234,000 rounds had been used, another 655,000 were consumed during the first month of the Battle of Britain. Meanwhile 1.8 million rounds were produced in August 1940, but the ultimate monthly production goal was set at 4 million rounds from November 1940 onwards. As a result, the perspective in August 1940 was a stock of no less than 34.7 million rounds for the MG FF by May 1941, an amount which would have sufficed—given the consumption in July 1940—for another 53 months of war.²⁴

But even in the aircraft industry, the impression could arise that light metals were scarce if the production results were compared with the original production plans. As a sober coordination of capacity and production goals among the different aircraft firms, let alone the different branches of the *Wehrmacht*, did not seem possible, those in particular were eager to look for additional sources for light metals who were blamed for not meeting the targets once projected. In the *Luftwaffe* armament organization, this was especially true for Heinrich Koppenberg. Koppenberg had disturbed the somewhat stable supply arrangements for the *Luftwaffe* by

²³ Budrass, *Flugzeugindustrie*, 827.

²⁴ RLM, GL, to OKW, re: Entwicklung des materiellen Rüstungsstandes für die Zeit vom 1.8.40 bis 1.5.41, BArch-MA RL 3/882.

promising to Göring a monthly production of at first 200 and later up to 300 Ju 88. When this goal could not be reached by 1940, his position became more precarious. Koppenberg was under mounting pressure to secure an extra supply and he detected it in newly occupied Norway. All he had to do was to persuade Göring that this was for the common good of German air armament, when in fact it was just serving the interests of the Junkers combine; to secure an additional supply of aluminium and magnesium for Junkers that no one else was able to interfere with. Given this original intention, Koppenberg already had failed when VAW and IG Farben appeared and demanded their share in the light metal programme.

Defeat Looming: Stabilization of Demand, Secondary Aluminium and the Bauxite Crisis

Essentially the light metal programme in Norway had an immediate value for German air armament only as long as those excessive production plans, for whatever purpose, were drawn up. They never died out completely, but the ‘Göring programme’ of 1941 was the last that imprinted itself onto the *Luftwaffe* production system. When Heinrich Koppenberg was released as director general of the Junkers combine in September 1941, and Junkers henceforth had to follow the production programmes devised at the *Reichsluftfahrtministerium* (RLM) as much as any other aircraft producer, the excessive demand was reduced step-by-step, and the mood of scarcity and hoarding lifted. Ironically enough, it was the rather stable demand of the later war years to produce as many aircraft as possible along set goals that created an atmosphere for continuous and efficient work in the aircraft industry, and finally a drop in the *Luftwaffe* demand for light metals.²⁵

At the same time, the ideology of the ‘German’ metal was devaluated to a degree. It was not abandoned completely but aided by what was considered another ‘German’ virtue—engineering ingenuity in finding substitute materials for aluminium where it was not essential. Here again,

²⁵Neukirch, “Entwicklung”, BArch R 3112/150, fol. 98–99.

Table 2.4 Origin of aluminium used in Germany 1933–44 (1,000 tons)

	Virgin	Secondary	Import, net
1933	21.0	5.8	–4.50
1934	39.4	7.5	2.50
1935	73.3	10.6	11.80
1936	100.8	15.8	1.10
1937	132.0	22.7	–1.40
1938	165.6	34.8	10.90
1939	199.4	48.5	4.50
1940	211.5	58.0	2.82
1941	233.7	85.6	29.40
1942	263.9	103.2	7.60
1943	249.6	128.4	30.50
1944	245.3	163.2	77.90

Source: H.R. Habicht, "The German Aluminium and Magnesium Industries." (Field Information Agency, Technical (FIAT) File Report No. 501, 1945), 25; see also (with slightly different data): Helmut Maier, "Flugzeugschrott und Suppentöpfe: Aluminiumrecycling in Deutschland vor und nach 1945," in *Recycling in Geschichte und Gegenwart*, ed. Roland Ladwig (Freiberg: Georg-Agricola-Gesellschaft, 2003), 84

the optimistic goals weren't met by reality. In the case of the key model of the German aircraft industry, the Bf 109, with some 35,000 units produced altogether, in March 1943 a reduction of its aluminium content from 1,012 kg in the third quarter of 1942 to 570 kg in 1944 was projected. But in 1944, the production model of the Bf 109 still contained 918 kg of aluminium and the goals were no longer as optimistic as they had been in 1943. A reduction of the aluminium content to 792 kg in the second quarter of 1945 was projected. It is not known if this was ever achieved.²⁶ Apparently, even in the final war years there was no pressing need to substitute light metals in aircraft, although the procedures were fairly developed and reasonable. This might have been a result of shortcomings in alternative aircraft material, but it was rooted in the abundance of secondary aluminium (Table 2.4).

Ever since aluminium had first been used for industrial purposes, secondary aluminium had been produced. When the war began, however,

²⁶ Industrierat, Umstellausschuss, Stand der Umstellarbeiten März 1943, 20 March 1943, BArch-MA RL 3/869; Industrierat, Umstellausschuss, Einsparung von Leichtmetall im Flugzeugzellenbau (Stand der Umstellarbeiten Aug. 1944), no Date, BArch-MA RL 3/2666.

the use of secondary aluminium was mostly confined to the lesser industries beyond aircraft production. The *Luftwaffe* consumed the best material that was available in Germany, and its alloys almost exclusively were made from virgin aluminium, following the strict definitions for aircraft material released by the *Luftwaffe*. The major problem with secondary aluminium by then was that its production needed a substantial number of unskilled workers, because chips originating from production and scrapped aircraft material had to be sorted carefully in order to avoid impurities. A number of procedures had been tested to sort scrap mechanically, but they all failed. Scrap had to be sorted by hand and that was not a pleasant kind of work. In the 1930s, aircraft producers had to battle upcoming rumours on ‘duraluminium poisoning’: due to its crystalline structure, duraluminium cuts jagged wounds which heal very slowly. A metallurgical refinement of secondary aluminium was not at hand either. There had been some research on ‘washing’ secondary aluminium melted aircraft scrap with other melted metals—Norwegian metallurgist Gustaf Kirsebom had suggested lead for that purpose—but no practical methods of doing it had been developed before the war started.²⁷

The war changed the basis for secondary aluminium considerably. As forced labour became available, the *Luftwaffe* from 1941 onwards was able to establish salvage commands where badly damaged aircraft were dismantled, the scrap sorted and cut to sizes suitable for transporting. Later in the war, these raw material reclaiming depots were brought in closer liaison with the factories where the scrap was handled. Allied troops found dump sites near Rackwitz/Leipzig and Rotenburg/Bremen, and elsewhere where the scrap of thousands of aircraft was piled up. Unskilled labour was crucial for the process. Even concentration camps were involved in preparing the aircraft scrap.²⁸ An overall plan for handling scrap and producing secondary aluminium was decreed when the light metal programme for Norway was inaugurated also through Göring’s order to boost the aluminium production of occupied Europe to one million tons, but in

²⁷ Adolf Beck, “Aufbereitung des Leichtmetallschrotts”, in *Werkstoff. Bericht über die Sitzung Aluminiumlegierungen am 22. und 23. November 1944 in Weimar* (Lilienthal-Gesellschaft für Luftfahrtforschung: Bericht 183, 1944), 19–20.

²⁸ “Recovery of Aluminium alloys from Aircraft Scrap” (London: BIOS Final Report No. 376, 1945), 9; Belli, “Lautawerk”, 549.

this case the goals were almost met. The perspective of the 1942 plan was a production of some 190,000 tons in 1945. In February 1945, capacity for secondary aluminium was still at 140,000 tons.²⁹

Secondary aluminium production was not only facilitated by forced labour but also by research into alloy refinement. Reacting to the shortage of aluminium in the late 1930s, IG Farben at Bitterfeld had commissioned research into ‘washing’ melted aluminium scrap. Adolf Beck, a leading metallurgist of the firm devised a concept to refine melted aluminium scrap with melted magnesium scrap, to filter and distil it. Beck succeeded almost instantly. In 1940, a report with a most promising perspective was prepared. The Beck process would suffice in removing almost all impurities from melted scrap, except copper. Iron in particular could be extracted to a degree exceeding the quality of virgin aluminium in this respect. Almost parallel, another process was invented and put to use by which aluminium was purified by mercury, which showed comparable results.³⁰ Through the Beck process, alloys of aluminium with copper were to be produced with highest purity, so that duraluminium was progressively made from aircraft scrap. By June 1944, all newly produced duraluminium contained almost 30 % reclaimed metals. As the capacity for refinement was too small, however, ingots made from sorted scrap with varying impurities were put directly into production. As the *Luftwaffe* had redefined the properties for aircraft material, even aluminium alloys with considerable impurities could be used. By 1944 already, a decree was issued that virgin aluminium was not allowed for castings anymore. All this contributed to the rather balanced *Luftwaffe* aluminium supply in the last stages of the war. When the leading researchers in light metal alloys met in late 1944, it was stated that under certain conditions, even a *Katastrophenplan* (contingency plan) could be drawn up where no virgin aluminium was needed at all. The whole of air armament would rest on secondary aluminium then.³¹ Even

²⁹ Neukirch, “Entwicklung”, BArch R 3112/150, fol. 110; USSBS, Aircraft Division, “Light Metal Industry”, 35; Maier, “Flugzeugschrott”, 84.

³⁰ “The working up of light metal scrap. Free translation of report and program for IG Farben by Dr. Kurt Schneider, 1940” in *Aluminium and Magnesium Production and Fabrication at IG Farben Works* (London: CIOS Final Report XXXII-59, 1945), Appendix I.

³¹ Anton Vöth, “Die Leichtmetalle im 6. Kriegsjahr”, in *Werkstoff. Bericht über die Sitzung Aluminiumlegierungen am 22. und 23. November 1944 in Weimar* (Lilienthal-Gesellschaft für Luftfahrtforschung: Bericht 183, 1944), 4–16.

the Allied observers who scrutinized the German aluminium industry in 1945 acknowledged the progress in secondary aluminium production: "Had Germany not been defeated when it was, the principal aluminium fabricators would, in another year, have been consuming scrap and secondaries much in excess of new aluminum. The accumulating tonnages of scrap were bringing a pressure to bear in the direction of use. Costs also were in favour of fabricators' use of scrap. The art of handling airplane scrap had developed to such a point that the original reluctance to use scrap in making metal for all but critical and highly stressed airplane parts had all but disappeared."³²

The success in refining and using secondary aluminium was paralleled by a crisis in producing virgin aluminium. From 1942 onwards, it became clear that the major supply of bauxite at Gánt was on the brink of exhaustion. Bauxite supply never terminated altogether, but the aluminium content deteriorated while the amount of silica rose. From 1943, bauxite was transported to Germany that would have been dumped in 1940. While up to 1941, 4.5 tons of bauxite had been calculated to produce one ton of aluminium, the quota dropped to 5:1 in 1942 and 6:1 in 1943 and 1944. The rising content of silica was a grave problem in particular. The amount of caustic soda necessary to fabricate alumina rose, while the extraction of alumina dwindled. Moreover, the amount of waste in alumina production, already considerable, grew. After the war, it was calculated that bauxite that contained 8 % of silica produced 22.6 % of additional waste, compared to bauxite which contained 7.5 % of silica.³³ The impurity of the resulting virgin aluminum, however, led to the decision to reduce pure aluminium exclusively from secondary aluminium. The most grave effect of the poorer quality of bauxite imported was that it wore down the production facilities of the alumina works more rapidly. All this worked in favour of the use of secondary aluminium as well.

³² "Recovery of Metals from Scrapped Airplanes" (London: CIOS Final Report No. XXXII-55, 1945), 3.

³³ Wilhelm Fulda, Hans Ginsberg, *Tonerde und Aluminium. Ergebnisse und Erfahrungen aus der Betriebspraxis 1920–1950. 1. Teil: die Tonerde* (Berlin: Walter De Gruyter, 1951), 10–11; Belli, "Lautawerk", 371–381.

Conclusion

How did all this contribute to business decisions regarding the light metal programme in Norway? It has to be stated that it contained—from a German point of view—an economic logic only for a very brief period of time, from 1940 through 1942 at most. But even then it was a lesson in the history of Nazi economic rule. The tendency to overrate Germany's economic capability combined with a complete lack of effort for control and direction was mirrored in the light metal programme as much as in the absurd production programs for the *Luftwaffe* and the Navy from which it had originated. But a number of arguments worked against German ambitions in the project. The bauxite crisis in particular ruled out any substantial supply of bauxite to Norway, as domestic production had to rely on a poorer substitute for every ton of bauxite delivered to Norway. VAW was eager to use the bauxite stored in order to preserve its own, and that worked against any further involvement in the Norwegian project. Moreover, this strategy revealed that even at the height of the project in Norway, defeat was already looming. Consequently, the German producers were eager to secure their own factories and were no longer willing anymore to invest capital and material in projects that they wouldn't be able to control in the near future.

The reverse is true for business interests in secondary aluminium. Here some developments could be furthered which had been at the core of the ideology of the 'German' metal, which would be useful in peacetime as well. The Beck process could be applied to produce first class aluminium, even if there was no import of bauxite whatsoever, while the efforts of clearing the aluminium alloys from impurities promised to overcome some major deficiencies, intercrystalline embrittlement in particular, that had plagued the application of duraluminium from the outset. Indeed, as much as Norway's post-war economy profited from the light metal programme, post-war Germany profited from the development of secondary metallurgy. Well into the 1950s, Germany produced more secondary than virgin aluminium. Paul Röntgen, who among others had initiated discussion on metallurgical refinement of aluminium in the 1930s, concluded in 1956 that, "the leading position of Germany in

producing secondary aluminium has not yet been shattered”.³⁴ That the Beck process and other procedures in producing secondary aluminium had made the light metal programme in Norway obsolete, could be read between the lines during the war already. In March 1944, the *Deutsche Zeitung für Norwegen*, the German newspaper for Norway, published an article by Richard Wolff that was headlined: “Our enemies provide us with raw material. Mountains of scrap of Allied terror aircraft pile up next to the raw material reclaiming depots.”³⁵ Somehow this sounded like an excuse.

³⁴ Paul Rängen, “Metallgewinnung” in *Aufgaben deutscher Forschung. Vol. III: Technik*, ed. Leo Brandt (Köln: Westdeutscher Verlag, second edition, 1956), 102.

³⁵ Quoted after Maier, “Flugzeugschrott”, 87.

3

Frozen Fillets from the Far North: German Demand for Norwegian Fish

Ole Sparenberg

Introduction

Soon after the outbreak of World War II, the German deep-sea fishery came to an abrupt halt as trawlers could no longer reach their main catching grounds off Iceland, in the Barents Sea and the North Sea.¹ Naval and aerial warfare, including minefields laid by both sides, as well as the requisitioning of trawlers and the drafting of fishermen, brought the off-shore fisheries of most European nations almost to a standstill.² Once Germany and Great Britain were at war, this development certainly came as a surprise to no one; in fact it merely represented a repetition of what had already happened in 1914.³ Nevertheless, when it comes to fisheries and fish consumption in Germany, the situation in 1939–45 differed

¹“Deutsche Fischerei-Rundschau unterbricht ihr Erscheinen,” Heinz Boberach (ed.) (Herrsching: Pawlak, 1984), 592–93. *Deutsche Fischerei-Rundschau*, September 13, 1939, 477–78; *Meldungen aus dem Reich. Die geheimen Lageberichte des Sicherheitsdienstes der SS. Vol. 3.*

²Poul Holm, “World War II and the ‘Great Acceleration’ of North Atlantic Fisheries,” *Global Environment* 10 (2012): 69–72.

³Jenny Sarazin, “War, Public Intervention and Structural Changes in the German Fishing Industry, 1914–1930,” in *Maritime Industries and Public Intervention. The Fourth North Sea History*

in two regards from the First World War: First, the National Socialist regime had previously tried to increase fish consumption in various ways as part of their autarky policy in the 1930s, and second, the German war economy could still count on considerable fish supplies from the occupied countries, especially from Norway, following 1940.

This chapter argues that Norway's wartime role as a major supplier of marine protein was not based on German pre-war plans. Nevertheless, German plans set up during the conflict foresaw that Norway was to retain this role within the German-dominated European post-war *Grossraumwirtschaft*. While there is no indication that the German fishing industry had envisaged the exploitation of Norwegian fisheries prior to 1940, there is, nevertheless, a strong connection between the development of Germany's fishing sector prior to the conflict and Norway under the occupation, when it comes to the field of fish processing, handling and preservation. In the late 1930s, the German authorities had identified filleting and deep freezing as key technologies to increase fish consumption and to turn fish into more of a staple food, even in areas far away from the coast. These technologies were still in their infancy in Germany when the war started, and were only applied on a large scale in Norway during the occupation, so that frozen fillets from Norway produced in large purpose-built plants could make a substantial contribution to the German war economy.

Alan S. Milward and Robert Bohn dealt with the fishing industry within the larger economic framework of occupied Norway, while several English-language articles by Dag K. Andreassen, and especially by Bjørn-Petter Finstad, have directly examined the fishing sector and the impact of the occupation.⁴ This chapter, by contrast, focuses on the German

Conference, 18–20 August 1995, Stavanger, Norway, ed. Randi Ertesvåg, David J. Starkey and Anne Tove Austbø (Stavanger: Maritime Museum, 2002), 142–50.

⁴ Alan S. Milward, *The Fascist Economy in Norway* (Oxford: Clarendon Press, 1972); Dag K. Andreassen, "The Wartime Need for Fish and its Consequences for the Norwegian Fishing Industry," in *War and Society in Scandinavia 1914–1950*, ed. Henrik Lundtofte, Mona Jensen and Flemming Just (Odense: University Press of Southern Denmark, 2009), 101–14; Bjørn-Petter Finstad, "Freezing Technology in the Norwegian Fish Processing Industry, 1930–1960," in *Technological Change in the North Atlantic Fisheries*, ed. Poul Holm and David Starkey (Esbjerg: Fiskeri- og Søfartsmuseet, 1999), 89–113; idem, "The Frozen Fillet: The Fish that Changed North Norway?," *International Journal of Maritime History* 16 (2004), 1: 27–41; idem, "The Norwegian

side. After outlining the development of the German fishing industry and the nascent freezing industry during the 1930s, the wartime fish supply and the German perception as well as long-term plans for Norway are examined. These plans are then contrasted to pre-war plans for the geographic expansion of the German fisheries.

The German Fishing Industry and the Pre-War Autarky Policy⁵

With the help of state subsidies, the German fishing fleet recovered quickly from the loss of a substantial number of trawlers during the First World War. Soon, however, fish supply surpassed demand. In the years during and immediately after the war, fish had been in great demand, as was every other food item, but after the economy had stabilized and agricultural production had resumed, the consumers turned back to meat. Lack of demand or an overcapacity became the dominant problems for the German fishing industry during the 1920s and 1930s. A number of state-sponsored initiatives were conceived to boost the consumers' appetite for fish, but with little noticeable effect.⁶

The National Socialists' rise to power in 1933 at first did not change this situation. In the aftermath of the Great Depression, many sectors of the economy were ailing, and therefore, the fishing industry had to argue why it deserved the help of the state and the consumer. Trade journals and similar publications pointed to the need to create employment

Fisheries during the German Occupation: Change and Continuity," *NETwerk. Jaarboek Visserijmuseum* 15 (2004): 113–19.

⁵C.f. in general: Ole Sparenberg, "*Segen des Meeres*": *Hochseefischerei und Walfang im Rahmen der nationalsozialistischen Autarkiepolitik* (Berlin: Duncker & Humblot, 2012); Birgit Pelzer-Reith and Reinhold Reith, "Fischkonsum und Eiweißlücke im Nationalsozialismus," *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte* 96 (2009): 4–26.

⁶Ingo Heidbrink, "Creating a Demand: The Marketing Activities of the German Fishing Industry, c. 1880–1990," in *The North Atlantic Fisheries: Supply, Marketing and Consumption, 1560–1990*, ed. David J. Starkey and James E. Candow (Hull: North Atlantic Fisheries History Association, 2006), 138–39; Ole Sparenberg, "How the Germans did not Appropriate Fish and Chips: the Case of the Fischbratküche in the 1920s and 1930s," in *Travelling Goods, Travelling Moods: Varieties of Cultural Appropriation (1850–1950)*, ed. Christian Huck and Stefan Bauernschmidt (Frankfurt-on-Main: Campus, 2012), 61–78.

for the fishermen and workers in related shore-side industries,⁷ but this argument was in no way unique to the fishing industry. Also suffering from depressed prices, agriculture was much more important to the economy as a whole and could count on an influential lobby. When in the winter of 1933/34, the regional state and party authorities in Northern Germany organized a campaign for a second “fish day” per week (in addition to Friday) in order to help the ailing fishing industry, resistance from agriculture and the butcher trade, who saw fish as a competitor to meat, soon put paid to this.⁸

This situation changed with the emergence of the German autarky policy. When German agriculture proved unable to ensure self-sufficiency, new opportunities opened up for the German fishing sector. The National Socialists tightened up capital transfer controls that had already been introduced in July 1931, but gold and currency reserves kept declining, as the economic recovery in 1933/34 led to more imports, while German exports did not recover. The regime reacted by imposing a system of increasingly bureaucratic controls over Germany’s foreign trade that led to the *Neuer Plan* (New Plan) announced in September 1934, and allowed the government to favour imports needed for rearmament and related investments over the requirements of the consumer goods industry. Finally in 1936, the *Vierjahresplan* (Four-Year Plan) aimed at cutting imports further and preparing Germany for war by boosting the exploitation of domestic resources and the production of synthetic raw materials.⁹ This policy can be described as autarkic because Germany dedicated much effort to the substitution of imports that had to be paid in hard currency, even though complete self-sufficiency was never aimed at or considered realistic.

By the mid-1930s, three gaps became apparent in the German raw material supply, because domestic production could not completely

⁷ W. Bretthofer, “Die Bilanz der Fischtage in Hamburg,” *Deutsche Fischerei-Rundschau*, September 27, 1933, 432–3; Friedrich Lücke, “Der Seefisch als Volksnahrungsmittel,” *Die Deutsche Fischwirtschaft*, May 1934, 73.

⁸ Sparenberg, *Segen*, 217–24.

⁹ Adam Tooze, *The Wages of Destruction. The Making and Breaking of the Nazi Economy* (London: Penguin, 2006), 72–73, 90–94, 207–30; Harold James, “Innovation and Conservatism in Economic Recovery: The Alleged ‘Nazi Recovery’ of the 1930s,” in *Capitalism in Crisis. International Responses to the Great Depression*, ed. William R. Garside (London: Pinter, 1993), 82–88.

replace imports. Contemporary authors pointed out the gaps affecting the supply of textile fibres, fat and protein.¹⁰ In the case of fibres, the production of wood-based staple fibre was increased to substitute imported cotton and wool.¹¹ In the case of fat and protein, German agriculture proved unable to substitute all imports, despite some successes by the *Erzeugungsschlacht* (Battle for Production) declared in 1934—a campaign intended to increase agricultural production. In 1938/39, the degree of self-sufficiency came to 97 % for meat, but only 57 % in case of fat, and 82 % for eggs.¹² The situation was actually worse, if it is taken into account that domestic production partly relied on imported feed-stuff.¹³ Although synthetic substitutes based on coal or wood proved to be to some degree successful in the case of fuel, rubber and fibres, similar attempts to synthesize fat and protein never resulted in products suitable for human consumption.¹⁴ Germany also started whaling in the Antarctic in 1936, but German whale oil production never exceeded 90,000 tons per year, whereas the total fat consumption amounted to 1,876,000 tons in 1936.¹⁵

The supply situation for meat and fat became strained as Germany tried to squeeze its food imports and increasingly directed the economy towards rearmament. Long queues in front of butcher shops had become a common sight by 1936.¹⁶ In the case of fat, shortages were so severe that

¹⁰ Wilhelm Ziegmayer, *Rohstoff-Fragen der deutschen Volksernährung. Eine Darstellung der ernährungswirtschaftlichen und ernährungswissenschaftlichen Aufgaben unserer Zeit* (Dresden: Steinkopff, 1936), 19; Hans v. d. Decken, *Entwicklung der Selbstversorgung Deutschlands mit landwirtschaftlichen Erzeugnissen* (Berlin: Parey, 1938), 129; “Die Öl- und Fettlücke,” DAF-Rohstoff-Dienst 29, 1939.

¹¹ Jonas Scherner, “The Beginnings of Nazi Autarky Policy: The National Pulp Programme and the Origin of Regional Staple Fibre Plants,” *The Economic History Review. New Series* 61, 4 (2008): 867–95; Tooze, *Wages*, 130–32.

¹² Dietmar Petzina, *Autarkiepolitik im Dritten Reich. Der nationalsozialistische Vierjahresplan* (Stuttgart: DVA, 1968), 95.

¹³ Ziegmayer, *Rohstoff-Fragen*, 20; v. d. Decken, *Selbstversorgung*, 59.

¹⁴ Reinhold Reith, “‘Hurrah die Butter ist alle!’. ‘Fettlücke’ und ‘Eiweißlücke’ im Dritten Reich,” in *Erfahrung der Moderne*, ed. Michael Pammer, Herta Neiß and Michael John (Stuttgart: Steiner, 2007), 420–26; Birgit Pelzer-Reith and Reinhold Reith, “Fett aus Kohle? Die Speisefettsynthese in Deutschland 1933–1945,” *Technikgeschichte* 69 (2002), 3: 173–205.

¹⁵ Sparenberg, *Segen*, 336–47.

¹⁶ See, for instance, the reports clandestinely gathered by the Social democratic opposition in exile: Klaus Behnken (ed.), *Deutschland-Berichte der Sopade* 3 (1936), (Salzhausen: Nettelbeck, 1980),

the state resorted to rationing, although such measures were normally only associated with wartime. A discrete form of rationing for butter, margarine, bacon, lard and oil was first conducted by the individual shops in the winter of 1935/36, and was institutionalized by the authorities in the following winter.¹⁷ Such bottlenecks in food supply, however, cannot be equated with hunger; they rather reflected the increasing demand as unemployment rates sank and household incomes rose at a time when the government depressed supply by limiting imports of food and feed-stuff.¹⁸ Nevertheless, the effect of autarky on alimentation, coupled with the state's neglect of the health care system, might have had a detrimental effect on health and mortality in pre-war Germany.¹⁹

In a liberal economy, the mismatch between demand and supply would have been quickly solved by the price mechanism. However, in Nazi Germany the government controlled prices as well as salaries, and in general tried to freeze them at the level of 1933 to avoid inflationary tendencies.²⁰ Direct rationing represented another option, but with the exception of fat, the regime shied away from such an extreme measure in peacetime. Therefore, directing consumption by propaganda (*Verbrauchslenkung*) became an important element of German economic policy, especially from 1936 onwards. More potatoes, more skimmed milk and quark, sugar-based spreads like syrup or jam in place of butter or margarine, rye bread instead of white bread, and fish instead of meat were the recurrent themes of this propaganda.²¹

326, 689; *Deutschland-Berichte der Sopade 4 (1937)*, ed. (Salzhausen: Nettelbeck, 1980), 1426; *Deutschland-Berichte der Sopade 5 (1938)*, ed. Klaus Behnken (Salzhausen: Nettelbeck 1980), 1227; *Deutschland-Berichte der Sopade 6 (1939)*, ed. Klaus Behnken (Salzhausen: Nettelbeck, 1980), 627.

¹⁷ Sparenberg, *Segen*, 49–52; Herbert Backe, “Warum wurde eine Neuregelung des Fettverbrauchs und Fettbezuges notwendig?,” *Der Vierjahresplan 1* (1937), 4–8.

¹⁸ Tooze, *Wages*, 193.

¹⁹ Jörg Baten and Andrea Wagner, “Mangelernährung, Krankheit und Sterblichkeit im NS-Wirtschaftsaufschwung (1933–1937),” *Jahrbuch für Wirtschaftsgeschichte* 2003/1: 99–123.

²⁰ André Steiner, “Umriss einer Geschichte der Verbraucherpreispolitik unter dem Nationalsozialismus der Vorkriegszeit,” in *Wirtschaftsordnung, Staat und Unternehmen*, ed. Werner Abelshauser, Jan-Otmar Hesse and Werner Plumpe (Essen: Klartext, 2003), 279–303.

²¹ Ziegelmayer, *Rohstoff-Fragen*, 37; Herbert Backe, “Verbrauchslenkung,” *Der Vierjahresplan 1* (1937), 203–4; Herbert Ilchmann, *Die Wiedererringung der deutschen Nahrungsfreiheit im Vollzug des Vierjahresplanes* (Berlin-Wilmersdorf: Werner, 1939), 111–15.

Fishery and autarky looked like a perfect match in pre-war Nazi Germany: the fishing industry suffered from a lack of demand, whereas the autarky economy suffered from a lack of supply. From 1936 onwards, references to autarky became frequent in the publications of the fishing industry. The annual outlook and review of the past year published by a fishery trade journal mentioned the fishery's contribution to autarky for the first time in January 1936.²² It was not only the self-representation of the industry that linked fishery and autarky, but also Hermann Göring, as the recently appointed commissioner for the Four-Year Plan. When he delivered a speech in the Berlin Sportpalast in October 1936 to prepare the German public for any grievances the Four-Year Plan might bring them, Göring openly admitted that meat would become scarce, but he promised that enough fish would be available as a substitute.²³ Remarkably, the insufficient meat supply was not swept under the carpet in pre-war Nazi Germany, and the fishing trade gladly took up the opportunity to stress that there might be shortages of pork and beef, but that fish was meat too.²⁴

Given the limitations of domestic resources, and the regime's resolution to reduce imports, it made sense to increase the exploitation of international waters. German fishery did not require foreign exchange and it still had considerable growth potential. Not only expert discourses referred to the problem of foreign currency, but publications directed at a broader public, too, frequently claimed that fish consumption saved hard currency.²⁵ Fish was not only promoted as tasty or nutritious food, but Germans were explicitly urged to support their country's economy by eating more fish. It was presented as a national duty.

²²August Dierks, "Die deutsche Hochseefischerei im Jahre 1935 und ihre Aussichten," *Deutsche Fischerei-Rundschau*, January 8, 1936, 3–5.

²³Hermann Göring, "Rede des Ministerpräsidenten Generaloberst Göring am 28. Oktober 1936 im Sportpalast," *Der Vierjahresplan* 1 (1937), 32.

²⁴Dierks, "Hochseefischerei im Jahre 1935," 5; "Wenn Rind- und Schweinefleisch knapp sind," *Deutsche Fischerei-Rundschau*, September 16, 1936, 440.

²⁵"Umfassende Fischwerbung im Vierjahresplan setzt ein." *Die Deutsche Fischwirtschaft*, April 4, 1937, 206; *Deutschland-Berichte* 1937, 383; Albrecht Janssen, *Segen des Meeres. Ein Buch von Deutschlands Hochseefischerei* (Berlin: Drei-Masken-Verlag, 1939), 196; Heinrich Hausmann, *Das Meer als Ernährungs- und Rohstoffquelle* (Breslau: Handel, 2. ed. 1941), 3.

As an industrialized country with a relatively high population density, Germany had long been dependent on agricultural imports. Without additional inputs from abroad like feedstuff and fertilizer, and without comprehensive mechanization—all of this was not an option at this time—German agriculture had reached its limits in the 1930s. By contrast, the fishing industry had experienced an almost continuous growth since the 1880s and, in 1936, was confident enough to promise doubling the catches within the Four-Year Plan.²⁶

Not everything went as expected in the following years, but with regard to the increase in catches, German deep-sea fishery came close to fulfilling its promise. Catch figures rose from 499,000 tons in 1935 to 730,000 tons in 1938.²⁷ Even though many fish stocks already showed signs of overfishing, and despite shortages of workforce and materials of all kinds, German deep-sea fishery was still able to expand its production. This increase, however, represented a continuation of a long-term trend and was not solely an achievement of National Socialist policy.²⁸ Annual per-capita consumption also increased from 11.28 kg in 1935 to 13.64 kg in 1937, and 13.55 kg in 1938.²⁹ After the war, the figures of the late 1930s were not surpassed for decades, whereas meat consumption skyrocketed, indicating how much the rise in fish consumption in the 1930s owed to the special circumstances of the autarky policy. The Minister for Alimentation and Agriculture, R. Walter Darré, and others, praised the rising fish consumption as a success,³⁰ but actually figures still fell short of what was expected and what was required.

²⁶ Robert Ahlf, "Die Hochseefischerei und ihre Verteilungs- und Lagerungsaufgaben," *Der Vierjahresplan* 1 (1937), 398; August Dierks, "Die deutsche Hochseefischerei im Jahre 1938. Zwei Jahre Vierjahresplan," *Deutsche Fischerei-Rundschau*, January 11, 1939, 1.

²⁷ Walther G. Hoffmann, *Das Wachstum der deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts* (Berlin/Heidelberg/New York: Springer, 1965), 329–30.

²⁸ Sparenberg, *Segen*, 142–89.

²⁹ Hans-Jürgen Teuteberg, "Der Verzehr von Nahrungsmitteln in Deutschland pro Kopf und Jahr seit Beginn der Industrialisierung (1850–1975). Versuch einer quantitativen Langzeitanalyse," *Archiv für Sozialgeschichte* 19 (1979): 347–49, 358.

³⁰ R. Walther Darré, "Rede zur Eröffnung der 1. Deutschen Fischerei- und Walfang-Ausstellung, 'Segen des Meeres' am 29. April in Hamburg," *Deutsche Fischerei-Rundschau*, May 3, 1939, 207; Ilchmann, *Wiedererringung*, 46.

By 1939, representatives of the fishing industry realized that even under autarky conditions, consumption did not keep pace with the rising production, and that the insufficient demand put any further expansion of the trawler fleet into question.³¹ The considerable propaganda efforts had achieved little in terms of endearing fish to the Germans, and looking back from 1941, the nutritionist Wilhelm Zieglmayer acknowledged that meat shortages had contributed decisively to the rise in fish consumption.³² Furthermore, fish was increasingly served in factory canteens, the armed forces, camps of various NSDAP organizations, as well as prisons and concentrations camps in the 1930s, where consumers had little choice.³³ Articles in trade journals emphasized the role of the military, and one author in 1938 even came to the conclusion that the recent rise in fish consumption was predominantly caused by the armed forces.³⁴ This might be exaggerated, but it does not appear to be completely implausible, and it implied a devastating assessment of the propaganda effort made to direct household consumption.

In addition to the fact that the years from 1936 up to the war were too short to profoundly change consumer habits, there were several reasons for this relative failure. First of all, with the exception of salted herring, the consumption of saltwater fish had little tradition in the German inland areas far from the coast and especially in rural areas. Consumption varied greatly within Germany, and dropped significantly with increasing distance from the coastline.³⁵ Consumers considered fish to be difficult to prepare, smelly and not filling. Additionally, there was widespread fear

³¹ Dierks, "Hochseefischerei im Jahre 1938," 2; "Aufklärung und Werbung—die vordringlichsten Gebiete der deutschen Seefischwirtschaft," *Deutsche Fischerei-Rundschau*, July 5, 1939, 361.

³² Wilhelm Zieglmayer, *Rohstoff-Fragen der deutschen Volksernährung. Eine Darstellung der ernährungswirtschaftlichen und ernährungswissenschaftlichen Aufgaben unserer Zeit* (4. ed. Dresden: Steinkopff, 1941), 154.

³³ *Deutschland-Berichte* 3 (1936), 321; "Die deutsche Großküche," *Deutsche Fischerei-Rundschau*, September 8, 1937, 395–96; "Großküchen als Bahnbrecher für höheren Fischverbrauch," *Deutsche Fischerei-Rundschau*, April 5, 1939, 140–2; Hannes A. Keune and Wilhelm Zieglmayer, *Handbuch über Fische und Fischwaren für die Gemeinschaftsverpflegung* (Berlin: Verlag Das Fischnetz, 1939).

³⁴ "Fisch in der Truppenküche," *Die Deutsche Fischwirtschaft*, February 6, 1938, 84–85; "24, 5 Kilogramm jährlicher Fischverbrauch des deutschen Soldaten," *Deutsche Fischerei-Rundschau*, September 7, 1938, 416–17.

³⁵ Zieglmayer, *Rohstoff-Fragen*, 99; Hans Mosolff, *Die deutsche Fischwirtschaft im Vierjahresplan. Steigerung der deutschen Seefischversorgung und ihre Grundlagen* (Berlin: Haude & Spener, 1938), 34.

of fish poisoning, especially in summer.³⁶ The low popularity of fish in many inland regions was closely interconnected with the situation of German fish mongers. Their insufficient numbers formed an obstacle for the increase in sales, just as did their low social standing and insufficient hygienic standards—both issues that were openly addressed in publications close to the fish trade.³⁷

Apart from stepping up the propaganda effort, the state and the industry adopted several approaches to tackle these problems. One way was to introduce new products that were more attractive to the consumers or that did not resemble fish. As Germans were certainly familiar with sausages, the *Fischwurst* (fish sausage) seemed to be a promising idea.³⁸ Remarkably, in this case traditional notions of food law and food safety prevailed over autarky considerations and the authorities quickly ruled that fish sausages had to be correctly labelled as such.³⁹ Subject to this qualification, *Fischwurst* and even crab sausage hit the streets, and were soon noticed by observers from outside Germany like the Social Democrats in exile or the British writer George Orwell, who saw these foods as a prime example of the pre-war German *Ersatz*-economy.⁴⁰ *Wiking-Eiweiß* (Viking egg white), a protein concentrate powder made from fish, was mainly used in the food industry and bakeries, where it replaced imported egg products, but it even served to improve rayon staple. *Wiking-Eiweiß* was claimed to be odorless and neutral in taste, so that it could be used even in fine

³⁶ Sparenberg, *Segen*, 199–202.

³⁷ Mosolff, *Fischwirtschaft*, 37; “Noch immer Diffamierung des Fisches!,” *Die Deutsche Fischwirtschaft*, January 23, 1938, 49–51; “Arbeitstagung des Fischeinzelhandels am 15. Mai im Hotel Esplanade, Hamburg,” *Deutsche Fischerei-Rundschau*, May 24, 1939, 282–88; Harro Stolle, *Neue Marktordnung in der Fischwirtschaft* (Hamburg: Hanseatische Verlagsanstalt, 1939), 56; Max Stahmer, *Fischhandel und Fischindustrie* (3. ed. Hamburg: Keune, 1943), 260.

³⁸ “Fischwurst aus Fischfleisch,” *Hansa. Deutsche Schifffahrtszeitschrift*, December 1936, 2473; “Fischwurst - der große Artikel der Zukunft,” *Deutsche Fischerei-Rundschau*, January 26, 1938, 86–87.

³⁹ “Fischwurst - aber nur wenn sie wirklich gut, haltbar und billig ist,” *Die Deutsche Fischwirtschaft*, March 14, 1937, 159–60; “Kennzeichnung von Fischwurst,” *Die Deutsche Fischwirtschaft*, November 21, 1937, 741.

⁴⁰ *Deutschland-Berichte* 4 (1937), 1743; “Fischwurst,” *Neuer Vorwärts*, January 17, 1938, 4; George Orwell, “Coming up for Air,” in *The Complete Works of George Orwell*, vol. 7 (London: Secker & Warburg, 1986), 24 (first published 1939).

pastries and cakes. This apparently successful product was produced from 1936 onwards and was still available for some time after the war.⁴¹

A more conventional product—and one that still dominates the market today—was fillets: pure fish meat without head, skin, fish bones or fins. The industrial production of fillets had started in Germany already in 1926, and the idea was to make fish more attractive by sparing housewives the hassle of skinning and boning the fish, a task that many were unfamiliar with or disliked.⁴² Nevertheless, the production of fillets only spread in the German fishing industry during the second half of the 1930s, because fillets were especially suited to win new customers and because—under autarky conditions—it became important to use skins, heads and tails for the productions of by-products such as fish meal.⁴³ Fish skins were even turned into “fish leather” that could substitute leather imports.⁴⁴

Frozen Fish in Germany

Fillets were also most suitable for deep freezing, a technology which at this time began to replace the traditional way of preserving fish. Since the second half of the 19th century, storing fish on ice had become the standard technique to preserve it on the trawler, in the port, during the (railway) transport and at the fish monger's shop. This was a long proven procedure which kept the fish in a palatable or at least in an eatable condition for approximately three weeks from capture. It limited, however, the operational radius of the trawlers, almost rendered impossible the storage

⁴¹ Peter Paul Hiltner, “Das Meer als Rohstoffgebiet,” in *Das Fischeiweiß in Ernährung und Kleidung*, ed. Otto Mecheels and Peter Paul Hiltner (M.-Gladbach: Forschungsinstitut für Textilindustrie, 1939), 5–14; Janssen, *Segen*, 195–96; Stahmer, *Fischhandel*, 558–59; Sparenberg, *Segen*, 243–47.

⁴² “Neue Wege im Fischhandel,” *Mitteilungen des Deutschen Seefischerei-Vereins* 42 (1926), 5, 132–34; “Gründung der Fisch-Filet, GmbH, und der Tütenfisch, AG,” *Die Fischwirtschaft* 2 (1926), 4, 76.

⁴³ Robert Ahlf, “Neue Wege in der Hochseefischerei,” *Der Vierjahresplan* 2 (1938), 142–43; Keune and Zieglmayer, *Handbuch Gemeinschaftsverpflegung*, 36.

⁴⁴ Janssen, *Segen*, 196; Stahmer, *Fischhandel*, 560–67; Anne Sudrow, “Das ‘deutsche Rohstoffwunder’ und die Schuhindustrie. Schuhproduktion unter den Bedingungen der nationalsozialistischen Autarkiepolitik,” *Blätter für Technikgeschichte* 60 (1998): 76–78.

of fish, and it made handling and transport very time sensitive. The fact that fish was not available everywhere in the interior of Germany, and often showed a questionable quality—the smell of fish mongers' shops was notorious—owed much to the deficiencies of the traditional method of preservation.⁴⁵

As a result, deep freezing was considered a key technology for the further development of the German fishing industry in the second half of the 1930s and explicitly under the Four-Year Plan.⁴⁶ The influential nutritionist Ziegelmayer in 1936 defined three tasks for deep freezing in the fishing trade in order to close the German protein gap: first, to offer high-quality fish to the customers even in the interior of Germany, second, to even out seasonal fluctuations in demand and supply, and third, to exploit catching grounds at a larger distance from the German coast. The last point was of special importance to Germany, according to Ziegelmayer, because overfishing of the North Sea had already become evident.⁴⁷

Not without justification—as the international development after 1945 would prove—deep freezing was considered essential for the expansion of production and consumption. At this time, deep freezing was not completely new, but this technology had had a difficult start in Germany. Deep freezing of fish was pioneered by the Danish fish merchant A. J. A. Ottesen in 1910 and was considerably improved by the American Clarence Birdseye in the 1920s.⁴⁸ In 1924, a German company based on a licence from Ottesen was founded in Bremerhaven, which froze fish on shore, but for a long time it remained the only German company in this field. With the help of state subsidies, a trawler, the *Volkswohl*, equipped with a deep freezing system—also following the Ottesen method—was launched in 1929, but proved to be a complete failure.⁴⁹ Additionally,

⁴⁵ Sparenberg, *Segen*, 161–64.

⁴⁶ Ziegelmayer, *Rohstoff-Fragen*, 236; Ahlf, “Verteilungs- und Lagerungsaufgaben,” 401; Mosolf, *Fischwirtschaft*, 24.

⁴⁷ Ziegelmayer, *Rohstoff-Fragen*, 236.

⁴⁸ Hans Jürgen Teuteberg, “Zur Geschichte der Kühlkost und des Tiefgefrierens,” *Zeitschrift für Unternehmensgeschichte* 36 (1991), 3: 139–55.

⁴⁹ “Kühlfischdampfer,” *Die Fischwirtschaft* 3 (1927), 2: 28; “Was ist mit dem Dampfer Volkswohl,” *Fische und Fischwaren*, May 5, 1932, 123; ritz-, “Tiefkühlen von Seefischen seit über 30 Jahren in Deutschland,” *Monatshefte für Fischerei N.F.* 9, June 1941, 80–81; Stahmer, *Fischhandel*, 406–7.

customers showed a distinct aversion to frozen fish, and in the middle of the 1930s, everybody within the trade seemed to agree that deep freezing had reached a dead end.⁵⁰

Nevertheless, due to the autarky policy and the resulting state interest in matters of food supply, the period of 1935/36 represented the turning point for deep freezing in Germany, which was not limited to fish, but was also applied to fruit and vegetables.⁵¹ The German army put great emphasis on food sciences during the late 1930s and strongly relied on frozen fish and meat from 1940 onwards.⁵² Establishing a modern deep freezing industry is a time- and resource-consuming task, however, and most of the plans had not been implemented when the war started.

There were four companies and consortia active in the field of frozen fish prior to and during the war, three of which operated plants in Norway during the occupation. Among them was the Nordsee AG, by far Germany's largest fishing company. Since its foundation in 1896, Nordsee's activities encompassed deep-sea fishery, the processing of fish and retailing, with shops all over Germany. In 1937, the Anglo-Dutch Unilever group became the main shareholder of Nordsee, an acquisition partly motivated by Unilever's need to find an investment opportunity for its large blocked *Reichsmark* accounts.⁵³ But Unilever also realized that frozen food had large potential in Germany and, therefore, established in 1939 the Solo Feinfrost GmbH as an umbrella for its deep freezing activities which comprised fish as well as fruits and vegetables. Because it was looking for a proven technology suited to large-scale production, Unilever bought a licence for the Birdseye plate-freezing technology from the USA, where it already had been in operation for several

⁵⁰ "Hat gefrorener Fisch eine Zukunft?," *Deutsche Fischerei-Rundschau*, October 16, 1935, 480–481; Wilhelm Roloff, "Die Bedeutung des Schnellgefrierverfahrens in der deutschen Seefischwirtschaft," *Deutsche Fischerei-Rundschau*, September 1940, 162.

⁵¹ Hans Mosolff, *Der Aufbau der deutschen Gefrierindustrie. Handbuch der Tiefkühlwirtschaft* (Hamburg: Keune, 1941); Teuteberg, "Kühlkost," 152.

⁵² Ulrike Thoms, "The Innovative Power of War: The Army, Food Sciences and the Food Industry in Germany in the Twentieth Century," in *Food and War in Twentieth Century Europe*, ed. Ina Zweiniger-Bargielowska, Alain Drouard and Rachel Duffett (Farnham: Ashgate, 2011), 247–61.

⁵³ Ben Wubs, "Unilever Between Reich and Empire 1939–1945. International Business and National War Interest" (PhD diss., University of Rotterdam, 2006), 62.

years.⁵⁴ For the sake of simplicity and ease of operation, Nordsee preferred plants on shore instead of ship-borne freezers, although the latter offered the advantage of processing fish directly after capture. During the war, Nordsee operated two fish-freezing plants in Norway. The construction of the first one in Trondheim started prior to the occupation, based on a contract signed already on 22 September 1939, in other words after the outbreak of the war but prior to the new German–Norwegian trade agreement of 20 February 1940 and the invasion in April. Work on the second plant in Bodø started only after the occupation.⁵⁵

Apart from Nordsee, most companies within the German fishing trade were much too small to invest in this new technology on their own. Instead they joined forces and established two consortia. One of them, Vereinigte Tiefkühlgesellschaften Lohmann & Co KG, was founded by a number of smaller fish wholesale dealers. They first cooperated in 1939 to invest in filleting machines, which were too expensive for individual wholesale dealers except for Nordsee. One year later, in 1940, the situation basically repeated itself with deep freezing installations, and for the same reason Vereinigte Tiefkühlgesellschaften Lohmann was founded. This consortium operated one plant in Hammerfest, Norway, during the war and this was translocated southwards to Svolvær in late 1944.⁵⁶ The other consortium was the Gefiertechnische Gesellschaft Deutscher Hochseefischereien founded by a number of smaller fishing companies, which launched an innovative factory freezer trawler in 1940, which due to the war only operated in the Baltic. This consortium was not active in Norway, however.⁵⁷

⁵⁴ Erwin Hilck and Rudolf auf dem Hövel, *Jenseits von minus Null. Die Geschichte der deutschen Tiefkühlwirtschaft* (Cologne: Deutsches Tiefkühlinstitut, 1979), 35; Wilhelm Roloff, "Die Bedeutung des Schnellgefrierverfahrens in der deutschen Seefischwirtschaft," *Deutsche Fischerei-Rundschau* September 1940, 161–67.

⁵⁵ Hilck and auf dem Hövel, *Jenseits von minus Null*, 43.

⁵⁶ Ibid., 42–44; W. H. Myles, G. A. Reay and H. E. M. Farrer, *Certain Aspects on the German Fishing Industry (British Intelligence Objectives Sub Committee. Final Report No. 493, Item No. 22)* (London: H. M. Stationery Office, 1945), 32–36.

⁵⁷ Hilck and auf dem Hövel, *Jenseits von minus Null*, 25; Ingo Heidbrink, "From Sail to Factory Freezer: Patterns of Technological Change," in *A History of the North Atlantic Fisheries. Vol. 2: from the 1850s to the Early Twenty-First Century*, ed. David J. Starkey and Ingo Heidbrink (Bremen: H. M. Hauschild, 2012), 63.

A fourth actor in this field was the Hochseefischerei Hamburg Andersen & Co KG. This company was launched by an outsider with no previous experience in the fishing trade, namely the German tobacco tycoon Philipp F. Reemtsma. Probably also triggered by his personal acquaintance with Hermann Göring,⁵⁸ Reemtsma used the boom of autarky-related industries to diversify his business, and became the investor behind the Hochseefischerei Hamburg Andersen, a company explicitly founded for the production of frozen fillets.⁵⁹ Reemtsma also decided to install freezing facilities on board a ship to allow for operations at a larger distance from Germany. However, unlike the Gefriertechnische Gesellschaft, Hochseefischerei Hamburg Andersen built a factory ship, the *Hamburg*, which was designed to act as a mothership for three trawlers, whose catches would be processed, frozen and stored on board the *Hamburg*. The outbreak of war prevented operations as intended and instead the *Hamburg* went to Norway after the occupation, where she operated as a stationary floating factory, processing catches supplied by Norwegian fishermen until she was destroyed in a British raid.⁶⁰

The German Fish Supply During the War

The war almost immediately blocked access to the main catching grounds of the German deep-sea fishery, which so far had supplied the lion's share of the total landings in Germany. Apart from the direct effects of warfare on the fisheries, the shortage of manpower, fuel and essential materials like nets further reduced landings.⁶¹ Demand for fish, however, soared and the traditional sales problem of the German fishing trade, which had persisted even under autarky conditions, turned to an opposite one.⁶²

⁵⁸ Hilck and auf dem Hövel, *Jenseits von minus Null*, 31.

⁵⁹ Hartmut Rübner, "Unternehmensinteressen und Vierjahresplan. Der Reemtsma-Konzern im 'Dritten Reich'," *Sozial. Geschichte* 22 (2007), 3: 22–23.

⁶⁰ Hilck and auf dem Hövel, *Jenseits von minus Null*, 38–39; Dierks, "Hochseefischerei im Jahre 1938," 2.

⁶¹ Alfred Willer, "Die deutsche Fischerei im Kriegsjahr 1943," *Hansa. Deutsche Schifffahrtszeitschrift* 81 (1944), 1/2, 16–17.

⁶² "Verstärktes Interesse für Fische," *Deutsche Fischerei-Rundschau*, August, 1941, 145.

The reason for this development can be found in the general situation of the food supply in Germany during the war. Official rationing of meat and fat among other consumer goods had started already on 28 August 1939, and the rations showed a downward trend throughout the war, starting already in the first year.⁶³ Scarcity of food in general and especially of meat, increased demand for fish, which was only included in the official rationing from October 1940 onwards.⁶⁴

The wartime situation left Germany with three ways to improve food supply through fisheries. First, German fishermen intensified the exploitation of still accessible catching grounds in inshore waters and the Baltic.⁶⁵ This was common behavior among the fisheries of all belligerent and neutral European countries. Consequently, the accessible areas were exposed to increased fishing pressure, whereas both World Wars in general brought a temporary reprieve to most fish stocks, leading to bumper catches in the immediate post-war years.⁶⁶ Second, the German fishing trade developed new products and turned to species that had not been utilized in peacetime. Especially, the gathering of mussels was increased and blue mussels—heretofore hardly consumed in Germany outside the Rhineland—as well as soft-shell clams—a species previously only used during the First World War under similar circumstances—served as raw material for sausage-like products.⁶⁷ Third and most important, just as in other sectors of the economy, the fish supply during the war relied to a large extent on the occupied countries.

Among the occupied countries, Norway, followed by Denmark, made the largest contribution to the German fish supply during the war. This was not surprising given the extent and characteristics of the Norwegian fisheries prior to the war. In 1938, Norway's catch figures (1,201,922 tons) surpassed every other European state, ahead of Great Britain

⁶³ Christoph Buchheim, "Der Mythos vom 'Wohlleben'. Der Lebensstandard der deutschen Zivilbevölkerung im Zweiten Weltkrieg," *Vierteljahrshefte für Zeitgeschichte* 58 (2010), 3: 307.

⁶⁴ Pelzer-Reith and Reith, "Fischkonsum," 15.

⁶⁵ Willer, "Kriegsjahr 1943," 17.

⁶⁶ Holm, "World War II," 75–80.

⁶⁷ Willer, "Kriegsjahr 1943," 17–18; "Die Miesmuschel," *Deutsche Fischerei-Rundschau* December 1940, 236; Werner Schnakenbeck, *Die deutsche Seefischerei in Nordsee und Nordmeer* (Hamburg-Blankenese: Kröger, 1953), 140–41.

(1,063,651 tons) and with Germany (718,000 tons) ranked third.⁶⁸ In addition, the Norwegian fisheries suited German wartime needs well, because of the fact that most fishing—especially cod fishery—took place close to the shore and thus was less affected by naval warfare.⁶⁹ The traditional main export product of the extensive Norwegian cod fishery—stockfish (air-dried cod) and clipfish (salted and air-dried cod)—did not meet German demand, however. There had been a factory in Germany producing stockfish and clipfish from fish that was leftover as unsalable in the auctions since 1909, but this state-subsidized factory mainly served to support prices. The end product was—similar to the Norwegian case—exported to the Iberian Peninsula, Africa and Latin America rather than consumed on the domestic market.⁷⁰

The problem of how to make the huge Norwegian catches useful to the German war economy was solved by the construction of deep freezing plants in Norway, run by the German companies mentioned above. Hitherto there were only a few smaller deep freezing installations operating in Norway.⁷¹ This change from dried fish to frozen fillets, and the presence of German companies in Norway, was already provided for in the German–Norwegian trade agreement of 20 February 1940 and, therefore, following the naval blockade of Germany, but preceding the occupation in April 1940.⁷² The German plants erected in Norway put into practice the large-scale freezing of fish as it had been envisioned since 1936. Norway also produced significant amounts of canned herring or sprat and pickled herring. Because these products were well known in Germany and high in demand, especially with the military, there was no need to switch to another final product in the case of herring and sprat fishery.⁷³

⁶⁸ Gerhard Meseck, “Seefischerei Nord- und Westeuropas während des Krieges 1940 bis 1944,” in *Jahresbericht über die deutsche Fischerei 1949*, ed. Bundesministerium für Ernährung, Landwirtschaft und Forsten (Berlin: Gebr. Mann, 1950), 97–98.

⁶⁹ Bohn, *Reichskommissariat*, 277–78.

⁷⁰ Stahmer, *Fischhandel*, 417–18.

⁷¹ Andreassen, “The Wartime Need,” 101–3. See also in chapter 15

⁷² *Ibid.*; Milward, *Fascist Economy*, 243.

⁷³ Finstad, “Norwegian Fisheries,” 117; Milward, *Fascist Economy*, 243.

From Denmark, Germany obtained not only butter and meat, but it was also the second largest supplier of fish to Germany during the war.⁷⁴ Due to the proximity to the North German markets, there was no need to establish freezing plants in Denmark, where the German wartime demand led to a boom in the fishing industry. In the important port of Esbjerg, the number of persons employed in the fishery and related shore-side occupations, as well as the size of the fishing fleet, grew considerably. Ship owners, fishermen and exporters enjoyed substantial increases of their income, although the Danish economy as a whole did not benefit because, as in the case of other occupied countries, the value of these exports to Germany was merely credited to the Danish clearing account without any deliveries of similar value going from Germany northwards.⁷⁵

In France, the canning industry of Brittany and Normandy first saw an intensification of their production because the German military had a large demand for sardines in oil, especially for submarine crews, but the war subsequently reduced fishing activities in this area considerably.⁷⁶ The proximity to England also meant that French fishermen had to work under close supervision by the German military.⁷⁷ German authorities also intervened in the fisheries of the Netherlands, Belgium, Estonia and Latvia, with the last two countries playing an important role in supplying the military on the Eastern front.⁷⁸

Finally, there was also some trade in sardine- and tuna-based products with Italy, Turkey and Portugal,⁷⁹ but it was Norway that assumed the greatest importance for the German fish supply during the war. See Table 15.4 on page 411, Norwegian supplies surpassed Germany's domestic production from 1940 onwards. German fisheries still landed sizeable

⁷⁴ Pelzer-Reith and Reith, "Fischkonsum," 21.

⁷⁵ Lulu Anne Hansen, "'Wo der Nordseefischer regiert.' Das Fischereigewerbe in Esbjerg unter der deutschen Besatzung 1940–1945," in *Mensch und Meer in der Geschichte Schleswig Holsteins und Süddänemarks*, ed. Martin Rheinheimer (Neumünster: Wachholtz, 2010), 327–44.

⁷⁶ Pelzer-Reith and Reith, "Fischkonsum," 21–22.

⁷⁷ Ernst Grunwald, "Fischfang an der Kanalküste im Schutze deutscher MGs und Flak," *Deutsche Fischerei-Rundschau*, December 1941, 222–24.

⁷⁸ Willer, "Kriegsjahr 1943," 18.

⁷⁹ Pelzer-Reith and Reith, "Fischkonsum," 22.

catches during the war, but the disruption caused by the war is clearly discernible. Whereas it proved impossible—even with the exploitation of occupied countries—to maintain the peacetime level, the supply nevertheless could be stabilized on a fairly high level at least up to 1942/43.

In addition to the official exports, it was common for German soldiers in all occupied countries to buy food individually and to bring it home to their families when on home leave, or send it to them by parcel. By doing so, they profited from the artificially high purchasing power of the *Reichsmark* in occupied Europe. In Norway, the soldiers bought mainly pickled herring. In 2005, Götz Aly assessed the importance of these unofficial imports for the wartime food supply of the German population to be considerable.⁸⁰ Christoph Buchheim, by contrast, emphasized that the amount of food imported in this way was insignificant compared to the total German population, especially because the German authorities had every interest to skim off most of the food in the occupied countries before it reached the (black) market.⁸¹

German Perception of Norwegian Fisheries

The importance of Norway for the German fish supply during wartime was well known to the interested public already during the conflict. The press in neutral Switzerland also reported, in November 1940, on the changes in Norway's foreign trade since the occupation, the effects on the supply situation within the country and the exports to Germany, which included large quantities of fish.⁸² German publications, too, starting in 1940, covered the developments in the occupied Scandinavian country in remarkable detail, and informed their readers about the sites of German-run deep freezing plants and the names of the companies that were involved.⁸³ Other published reports offered a close description of a

⁸⁰ Götz Aly, *Hitlers Volksstaat. Raub, Rassenkrieg und nationaler Sozialismus* (Frankfurt-on-Main: Fischer, 2005), 123.

⁸¹ Buchheim, "Mythos," 314.

⁸² "Norwegischer Außenhandel," *Neue Zürcher Zeitung*, November 4, 1940.

⁸³ "Die Tiefkühlung marschiert," *Deutsche Fischerei-Rundschau*, November 1940, 222; Stahmer, *Fischhandel*, 411.

specific factory without mentioning the place, although any informed reader could deduce from the given information that these articles most likely referred to Hammerfest and the Vereinigte Tiefkühlgesellschaften Lohmann.⁸⁴ The author of one of these articles emphasized the novelty of the freezing industry that had only unfolded during the war, but he also noted a contrast between the state-of-the-art processing and freezing installations and the somewhat primitive wooden houses where they were set up. He reminded the reader that these plants were “no model plants of the very first order” but wartime production sites to relieve the supply situation.⁸⁵

German reports presented the effects of the occupation on the Norwegian fishing sector as a long overdue modernization, a blessing for Norway's economy and a necessary adaption to the coming post-war international order. While the situation up to 1940 was characterized by low export prices and unprofitability, the German wartime demand and the introduction of deep freezing were an improvement and opened up the opportunity to expand to new continental European markets, according to an article from 1943.⁸⁶ Already in 1941, another article claimed that the export of outdated products like air-dried cod, within the framework of the “liberal-capitalist era”, had brought no gain for the Norwegian people, whereas the whole Norwegian economy would benefit from the cooperation with Germany and the export of frozen fillets.⁸⁷ Seen from the German viewpoint, Great Britain would be no longer a solvent client of Norwegian fish after the war, which would make redirection towards Germany and the continental European market a necessity for Norway.⁸⁸ A speech by State Secretary Friedrich Landfried (Ministry of Economics) claimed that Norway had been liberated from British domination, but he also admitted that the war involved “inevitable hardships”

⁸⁴ W. Pohlmann, “Fischgefrieranlage in Norwegen,” *Zeitschrift für die gesamte Kälte-Industrie*, 50 (1943), 87–89; ritz-, “Gang durch eine Tiefkühlstation,” *Monatshefte für Fischerei*. NF October 1942), 158–60.

⁸⁵ ritz-, “Tiefkühlstation,” 159.

⁸⁶ Ed. Emblik, “Die Bedeutung der Gefrierkonserve in der europäischen Großraumwirtschaft, ihre Herstellung und ihr Transport,” *Zeitschrift für die gesamte Kälte-Industrie* 50 (1943), 7/8, 89.

⁸⁷ “Eine neue Epoche für Norwegens Fischwirtschaft eingeleitet,” *Deutsche Fischerei-Rundschau* November 1941, 203.

⁸⁸ “Zukunftspläne in Norwegen,” *Deutsche Fischerei-Rundschau* March 1941, 41.

for the occupied country.⁸⁹ Apart from this remark, German publications usually did not touch upon the rather lopsided power relation between the two countries during the war.

German interest in the Norwegian fishing sector was not limited to the wartime need for fish, but the occupiers had come to stay and Norway was very soon included in the plans for the German-dominated *Grossraumwirtschaft* (Greater Economic Space), the economic and political new order that the National Socialists envisioned for the time following their victory. In his public speech in November 1940, State Secretary Landfried referred to the coming industrialization of Norway that could only succeed within the framework of European as well as German cooperation, and he defined the *Reichskommissariat's* task as turning the Scandinavian state into a valuable part of the continental European economy.⁹⁰ Within the *Reichskommissariat, Abteilung Fischwirtschaft* (Division of Fisheries), in April 1941 also envisioned Norway's integration into a large-scale European fishing sector, as fish would continue to assume a high importance within the common continental food supply after the war.⁹¹ In a way this was obvious, because the Norwegian fishing sector had already been very export-oriented prior to the conflict. Whereas substantial exports used to go to Latin America and West Africa,⁹² the post-war European order following German concepts, however, most likely would have entailed a concentration on continental Europe.

In this context, it is interesting to see how food economy in the *Grossraumwirtschaft* was imagined. In 1942, a book by Herbert Backe—State Secretary and dominating figure in the Ministry of Agriculture—was dedicated to this question. Remarkably, Backe did not paint a rosy picture of a coming affluent consumer society for the time following the victory. Instead, he outlined a basically autarkic continental Europe where food supply would very much resemble the pre-war German conditions; in other words households still would have to reduce their meat and fat consumption for the sake of self-sufficiency. Perfectly in line with the pre-war policy,

⁸⁹ "Norwegens Wirtschaft im neuen Europa," *Völkischer Beobachter* (Norddeutsche Ausgabe), November 21, 1940, 7.

⁹⁰ Ibid.

⁹¹ Bohn, *Reichskommissariat*, 277.

⁹² Milward, *Fascist Economy*, 52; Finstad, "Frozen Fillet," 28.

but without explicitly mentioning Norway, Backe stressed the importance of fish in this context to close the gap in meat supply and he considered deep freezing to be essential to increase fish consumption in the interior of the continent where this easily perishable food hitherto was not common.⁹³

Despite these wartime plans, there is nothing to indicate that the Norwegian fishing sector had come into the focus of German expansionist plans prior to the outbreak of the war. Since its beginnings in the 1880s, when the first German steam trawler was launched in 1885, the German deep-sea fishery was characterized by a geographic expansion to ever-new still productive, not already overexploited catching grounds. Starting in the German Bight and the North Sea in general, German trawlers frequently fished off Iceland by the turn of the century; this catch area remained the most important up to the 1960s. In 1905, the trawlers began to appear in the Barents Sea, north-east of Norway, and the Norwegian coast from Trondheim to the Lofoten Islands became an operational area for the German fishery from the start of the 1930s onwards. Other catching grounds of lesser importance were located off Bear Island, Spitzbergen and Greenland.⁹⁴ A further expansion was planned in the late 1930s as a part of the autarky policy, and freezing was considered essential for this, due to increasing distances. The German fishing industry looked at the Great Banks of Newfoundland, the coasts of the former German colonies in Africa and the waters off Morocco and Spanish Sahara.⁹⁵ To exploit the latter, an expedition in 1937 clandestinely studied the possibility of building a German-run fishing port on Fuerteventura.⁹⁶ By 1939, however, none of these plans had come to fruition. It is likely, in any case, that the persisting sales problems faced by the fishing industry at the end of the 1930s would have put any further expansion into question.

⁹³Herbert Backe, *Um die Nahrungsfreiheit Europas. Weltwirtschaft oder Großraum* (Leipzig: Goldmann, 1942), 231–33.

⁹⁴Roland Baartz, *Entwicklung und Strukturwandel der deutschen Hochseefischerei unter besonderer Berücksichtigung ihrer Bedeutung für Siedlung, Wirtschaft und Verkehr Cuxhavens* (Stuttgart: Steiner, 1991), 161–67; Hermann Steinert, “Die Fanggebiete der deutschen Hochseefischerei,” *Geographische Zeitschrift* 37 (1931): 30–37.

⁹⁵Janssen, *Segen*, 191–92; “Neuer Fischdampfertyp für Neufundlandfang,” *Deutsche Fischerei-Rundschau* April 20, 1938, 186; Heinrich Sachers, “Afrikas Fischreichtum - eine unerschlossene Rohstoffquelle,” *Deutsche Fischerei-Rundschau* July 19, 1939, 385–90.

⁹⁶Sparenberg, *Segen*, 150–57.

Apart from political considerations, Norway was not included in these plans, because the German fishing industry was looking for catching grounds that were hitherto not or only lightly exploited and, consequently, still yielded greater catches than the already heavily used stocks in the Eastern North Atlantic area. In addition, German trawlers were already operating off the Norwegian coast and, as cod is a migratory species, the Norwegian coastal fishermen within their country's territorial waters, and the foreign trawlers outside it, were most likely drawing on the same stocks. Consequently, the Norwegian coastal fishery became of interest to Germany only when its own trawler fleet was barred from access to the open sea after the outbreak of hostilities.

Conclusion

The German autarky policy in the pre-war years, especially from 1936 onwards, caused a considerable expansion of the fishing industry, and of the role of fish within the German food supply. Within this framework, state and industry laid the foundation for a large-scale freezing industry in order to overcome problems with the supply, distribution, storage and consumer acceptance of fish. The requirements of autarky and war economy revived and accelerated the technological-economic developments regarding frozen fish when first initiatives in the 1920s had come to nothing. These plans were only put into practice, however, during the war in Norway, but had started already prior to the occupation. After naval warfare had excluded German trawlers from their catching grounds, the company Nordsee signed the contract for the Trondheim plant already in September 1939 and the German–Norwegian trade agreement of February 1940 made provisions for the delivery of frozen fish. During the war, Norwegian fish products assumed a paramount importance, contributing roughly 50 % of the total fish supply in Germany. The German penetration of the Norwegian fishing sector, however, was rather a war-time makeshift solution than based on any pre-war expansionist plans. Following the occupation, Norway was soon integrated into the economic plans for a German-dominated post-war European *Grossraumwirtschaft*, where its role was to be that of a major supplier of marine protein.

Part II

The Western European Context: Regulation and Responses

4

Financial and Monetary Developments in the Occupied Netherlands, 1940–45

Hein A.M. Klemann

Introduction

According to a 1943 review published in a German economic journal, in occupied Europe financial and monetary procedures were just a refined requisition policy.¹ In the highly developed western parts of the occupied continent, simply not paying would terminate production. However, Germany did not want to pay for purchases in the countries it conquered. Consequently, the occupier had to use its dominance to pay individual suppliers with money taken from the occupied countries. These countries were compensated by an administrative recognition that Germany owed them a certain sum payable in an unknown future, and even that only for

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¹ C. Brinkmann, Review of Helmuth Kasten, 'Die Neuordnung der Währung in den besetzten Gebiete.' *Finanzarchiv*, 9 (1943) 215–216.

non-military deliveries. For military supplies the bill was simply passed to the national treasuries. By manipulation of this mechanism, Berlin got all it wanted from these countries for free, at the same time transmitting parts of its wartime inflation to these countries.² This is visible in the parallel growth of the banknote and monetary circulation (M1) in occupied Western Europe and in Germany (Table 4.1). It suggests that there was some kind of European monetary mechanism.

Not everywhere was financing the occupation done in the same way. Apart from using *Reichskreditkassenscheine* (RKKS)—requisition money of the *Wehrmacht*—Berlin paid its bills for military expenses by demanding tributes. Non-military purchases were paid by manipulating bi-lateral clearing accounts. Only in the Netherlands did the since 1931 inconvertible *Reichsmark* become exchangeable into the national currency, the guilder. Consequently, while everywhere else in Western Europe the occupier demanded money from treasuries, causing financial problems for the state, in the Netherlands the Central Bank had to exchange all *Reichsmark* notes streaming into the country into freshly printed guilders. Thus the Nederlandsche Bank (the Dutch Central Bank) carried a substantial part of the burden, causing a massive growth in banknote circulation.³ However, as nowhere were taxation or state borrowing enough, in countries where the state carried the burden, the treasury had to borrow directly from the central bank, which also resulted in an increased circulation.

In this chapter the questions will be, why Germany implemented an aberrant system in the Netherlands, and what caused the parallelism in monetary expansion all over Western Europe. As Berlin had no blueprint for how conquered territories should be exploited, differences between countries could be accidental. German officials in occupied countries were highly independent, defending their positions jealously against all interference. At the same time, Berlin ministries, the *Wehrmacht*, party organizations, the SS, as well as prominent Nazis, all had plans for these countries. Occupied Europe became just another ground for their struggles for power. As co-ordination was almost absent, solutions for

² Klemann, Kudryashov, *Occupied Economies*, 235–237.

³ De Inspecteur der Invoerrechten en accijnzen, Roosendaal, den 4. Januar 1941, Übersetzung, Niod 47 Devisenreferat 40–44 inv. nr. 7.

Table 4.1 Banknote and monetary circulation in Western Europe 1940–45 (1940 = 100)

	Banknote circulation				Total circulation M1			
	Germany	France	Belgium	Netherlands	Norway	France	Belgium	Netherlands
1940	100	100	100	100	100	100	100	100
1941	129	143	119	145	182	147	117	132
1942	170	178	164	200	268	176	158	158
1943	230	254	230	255	372	217	212	197
1944	301	333	282	364	450	272	267	268
End of the occupation	549	368	333	500	534	298	309	358

Source: Klemann, Kudryashov, *Occupied Economies*, 237

similar problems differed. Only from 1942 onwards, when Albert Speer obtained unprecedented power in economic matters, were the authorities in occupied Europe obliged to accept his directions in economic matters.⁴ As Germany took money for its purchases, not for its own sake, a higher level of exploitation automatically required another financial policy as well.

Neutrality

During the period of neutrality between September 1939 and May 1940, the Dutch financial situation seemed healthy. Nonetheless, Bank President L. J. A. Trip was worried. Even if the country could remain neutral, mobilization costs were f600 million a year, 60 % of the pre-war state budget. Thus, already in 1939 the floating debt increased by 39 %.⁵ After the Munich Treaty, all over Europe capital providers wanted liquidity. Hence, raising loans became difficult.⁶ In December 1939, a 300 million guilders Dutch public loan ended in an unprecedented failure.⁷ During the neutrality period, international tensions motivated companies to stockpile raw materials and semi-finished goods; private households hoarded soap, tinned food, shoes and clothing. On top of this, many wanted cash in hand.⁸ Thus, already in 1939, the accounts payable of the 37 most important banks decreased by 20 %.⁹ Between

⁴ See: Hein A.M. Klemann, "Occupation and Industry. The industrial development of the Netherlands, 1940–1945" in *Working for the New Order. European business under German domination 1939–1945*, Joachim Lund (ed.) (Copenhagen: University Press of Southern Denmark, 2006), 45–74.

⁵ Centraal Bureau voor de Statistiek, *Jaarcijfers voor Nederland 1943–1946* (Utrecht: De Haan, 1954), 369.

⁶ "Die Entwicklung des internationale Geld- und Kapitalmarktes und der Märkte einzelner Länder während 1939 I", *Jahrbücher für Nationalökonomie und Statistik*, 1940, 70; 'Idem 1940 I', *Jahrbücher für Nationalökonomie und Statistik*, 1941, 84.

⁷ Klemann, *Nederland 1938–1948*, passim; "De Nederlandse kapitaalmarkt in 1939." *Economisch-Statistische Berichten (ESB)*, 31 Januari 1940; "Emissies in december 1939." *ESB*, 17 Januari 1940, 52.

⁸ V.d.V., "Oorzaken van de recente schaarschte aan middelen op de geldmarkt." *ESB*, 7 Februari 1940, 98–99.

⁹ See: Neha Amsterdam, Annual reports collection; *Van Oss' Effectenboeken*; De Nederlandsche Bank, *Financiële instellingen in Nederland in de twintigste eeuw. Balansreeksen en naamlijst van handelsbanken* (Amsterdam: De Nederlandsche Bank, 2000); Ph.C.M van Campen e.a., *Landbouw*

1938 and 1940, Dutch banks lost 19 %, and savings banks 17 % of their accounts.¹⁰ In 1940 alone, the most important savings bank paid out 25 % of its balances.¹¹ At the same time the accounts receivable grew. Bank liquidity collapsed.¹² This was not typically Dutch. All over Europe, financial markets became tight. Hence, after December 1939, The Hague, when introducing a public loan, warned investors that if the money needed was not raised, it would be compulsory to subscribe under much worse conditions. In February 1940, the first of a series of such loans was introduced.¹³ In the same period, Trip initiated a plan to raise special taxes to refund the money borrowed in the twenty years after the war. Trip feared nothing more than inflation, and emphasized that treasury bonds were just a temporary solution. Selling these to the Central Bank was out of the question.¹⁴

Raising the Currency Border

According to the 1940 German–Dutch capitulation agreement, *Reichskreditkassenscheine* (RKKS), *Wehrmacht* requisition money could be used to pay for all military purchases.¹⁵ From 1939, each time a German soldier entered a shop in conquered territories, he paid with such notes. In 1942, an American journal described the *Reichskreditkassen* as motor-

en landbouwcrediet 1898–1948. Vijftig jaar geschiedenis van de Coöperatieve Centrale Boerenleenbank (Eindhoven Eindhoven: C.C.B., 1949) 541.

¹⁰ “Die Entwicklung des internationale Geld- und Kapitalmarktes und der Märkte einzelner Länder.” *Jahrbücher für Nationalökonomie und Statistik*, 1939–1943; Klemann, *Nederland 1938–1948*; League of Nations, *Statistical Yearbook*, 17, 1942–44 (Geneva 1945).

¹¹ C. Goedhart, “De contractie van het spaarbankbedrijf in 1940.” *ESB*, 28 mei 1940, 341–342; A.C. Mijs, *Belevenissen van de Nederlandse spaarbanken in oorlogstijd 1939–1945* (s.l. 1948); “Het Nederlandsche spaarbankwezen in 1939.” *ESB*, 13 Maart 1940, 202–203; E.V.D. De economische toestand in Nederland in November 1940, Niod 212^{inv.} nr. 4^a.

¹² “Bankwezen, geldmarkt en schatkistfinanciering.” *ESB*, 4 September 1940, 545–547.

¹³ CBS, *Economische en sociale kroniek der oorlogsjaren 1940–1945* (Utrecht: De Haan, 1947) 315; “De staatsleening.” *ESB*, 28 Februari 1940.

¹⁴ Joh. De Vries, *Geschiedenis van de Nederlandsche Bank. Deel V, De Nederlandsche Bank van 1914 tot 1948. Trips tijdperk 1931–1948 onderbroken door de Tweede Wereldoorlog* (Amsterdam: NIBE, 1994), 223–224.

¹⁵ Willi A. Boelcke, *Die Kosten von Hitlers Krieg. Kriegsfinanzierung und finanzielles Kriegserbe in Deutschland 1933–1948* (Paderborn: Schöningh, 1985), 108–109.

ized Banks of Issue; a post-war historian called them spearheads of the *Reichsbank*.¹⁶ However, until 1940 these institutions were more closely linked to the *Wehrmacht* than to the *Reichsbank*, giving military commanders direct access to all money needed. Although some days before the 1940 campaign issuing *RKKS* became a *Reichsbank* matter, the object remained to provide soldiers with all funds needed during their campaigns.

RKKS were banknotes that German soldiers and military organizations used in occupied territory. There they were legal tender, but after they were used they were not accepted in Germany, nor could they be used in any other occupied country. The receiver should exchange the notes with its national bank for national currency. As the *Wehrmacht* thus solved all its financial problems in occupied Europe by inflating the banknote supply, bank presidents lost all control over this. This did not change by the fact that in the first month of the occupation, Bank President Trip—who by now combined this position with that of secretary-general of the Department of Finance—agreed to pay occupation costs from the Treasury if the *Wehrmacht* promised not to use *RKKS* anymore. Trip hoped to limit the inflationary effects of wartime expenditures in the same way as he had planned to do for the Dutch mobilization. Loans should be repaid by increased taxation.¹⁷ Yet, that would only be possible if the *Wehrmacht* demanded limited sums, for instance the actual costs of the occupation. In 1940, however, German orders to Dutch companies already amounted to 14 % of the GDP, and a substantial part of this was claimed as occupation costs. Trip protested. Non-compliant with international law, the *Wehrmacht* demanded more than the costs of the occupation army. From December 1940, demands became so huge that the treasury could not finance them anymore, just like anywhere else in occupied Western Europe, where all military purchases were booked as occupation costs. In 1941, the *Wehrmacht* headquarters instructed the military authorities in Belgium to ransack the country. ‘Purchases of all kinds which the military services made in Belgium... all of which

¹⁶ Harry H. Bell, “Monetary Problems of Military Occupation.” *Military Affairs*, 6.2 (1942), 77–88, there 79.

¹⁷ Leonardus Jacobus Anthonius Trip, *De Duitse bezetting van Nederland en de financiële ontwikkeling van het land gedurende de jaren der bezetting* (Den Haag: Nijhoff, 1946), 54 e.v. 18.

was designated for other territories' should be 'written off as occupation costs'.¹⁸ Only in 1941, after ever-increasing demands, were Dutch occupation costs frozen at the astonishing sum of 135 million *RM* (f100 million) a month, much more than could be spent on the occupation.¹⁹ The sum simply was the level at which *Wehrmacht* purchases stabilized. Only by inflating the money supply could such sums be financed.²⁰

Clearing

By introducing *RKKS*, the *Wehrmacht* solved its financial problems. Financing non-military purchases was another matter. In many countries, Germany used bilateral clearing to solve this. During the 1931 financial crisis, the *Reichsmark* became inconvertible. The German–Dutch 1934 bilateral clearing agreement partly solved some of the resulting problems. Thenceforth, German imports from the Netherlands should be paid from the revenues of German exports to its neighbour. Because of the overvaluation of the *Reichsmark*, in the 1930s German exports had a tendency to decrease. However, by discriminating with export subsidies, Berlin could stimulate exports to certain countries, manipulating the availability of money for imports in the clearing accounts of a specific trading partner. From 1937 onwards, the regime granted higher subsidies for exports to countries from which it wanted certain products. As these subsidies resulted in higher payments by importers in that country's clearing account, higher German imports became possible.²¹ As the Nazi regime valued certain Dutch exports, Berlin paid high subsidies to stimulate exports to the Netherlands. These subsidies were terminated

¹⁸ Trial of German Major War Criminals. Monday, 21st January, 1946. <http://www.nizkor.org/hweb/imt/tgmwc/tgmwc-05/tgmwc-05-39-09.shtml>, 36.

¹⁹ Kommissar bei der Niederländischen Bank. Notiz. Den 12. Juni 1941, Niod Amsterdam 47 Devisenreferat 40–44.

²⁰ Der Kommissar bei der Niederländische Bank, den 9. Dezember 1940; Notiz 7. August 1940, Niod 47: Devisenreferat 40–44 inv. nr. 7.

²¹ Before 1937 Germany had a similar, but less systematic system of export subsidies. Hein Klemann, *Tussen Reich en Empire. De economische betrekkingen van Nederland met zijn belangrijkste handelspartners, Duitsland, Groot-Brittannië en België en de Nederlandse handelspolitiek, 1929-1936* (Amsterdam: NEHA, 1990), passim.

from the start of the occupation.²² Consequently, already in June 1940, H. M. Hirschfeld, secretary-general of the Dutch Ministry of Economics, complained that not only imports from overseas, but also those from Germany slumped. German exports to the occupied countries collapsed as Berlin terminated subsidies and introduced all kind of prohibitions. At the same time, imports increased.²³

Apart from military orders, purchases in the Netherlands were paid for from the clearing account. However, growing exports and slumping imports caused imbalances. Individual firms were paid for their deliveries from the national clearing account, but as German exports collapsed, this account was not refilled from the spoil of these anymore. As waiting too long for their money would demotivate firms from producing for Germany, the clearing account was balanced by advance payments from the Dutch treasury. Thus the occupied country was forced to provide unlimited credits to the national clearing account. These credits would only be repayable after the war, when Germany started to export again. Already in 1940, Berlin thus obtained 743 million *RM* from all occupied countries together. Of this amount, 55 % came from the Netherlands. Manipulating the Dutch clearing account was most successful.²⁴ Nonetheless, at the end of 1944, when Germany had an overall clearing deficit of 14.8 billion *RM*, the Dutch share was insignificant (Table 4.2).²⁵

In April 1941, the *Reichsmark* became convertible into guilders. From then on, non-military purchases in the Netherlands were paid in *Reichsmark*. The Nederlandsche Bank had to exchange these into guilders, thus massively enlarging the money supply (Table 4.3). As it was impossible to buy anything with *Reichsmark* without special permissions or distribution marks, this currency had no value anymore.

²² The Germans used the term booty. See: Christoph Buchheim, "Die besetzten Länder im Dienste der deutschen Kriegswirtschaft während des Zweiten Weltkriegs. Ein Bericht der Forschungsstelle für Wehrwirtschaft." *Vierteljahrshefte für Zeitgeschichte*, 1986, 117–147.

²³ Hirschfeld an Wohlthat, den 21. Juni 1940, Niod 212a inv. nr. 2a; Nota: Toestand van het Nederlandsche bedrijfsleven gedurende de maand October 1941, 24 November 1941, NA, The Hague, Handel en Nijverheid 9672; Abteilung Wirtschaftsforschung: Die wirtschaftliche Entwicklung in den Niederlande im Jahre 1941. Den 19. Januar 1942, Niod 212a inv. nr. 4a; Gerhard Hirschfeld, *Bezetting en collaboratie. Nederland tijdens de oorlogsjaren 1940–1945* (Haarlem, Becht, 1991), 164.

²⁴ Boelcke, *Die Kosten von Hitlers Krieg*, 111; See also: Kwartaal- en jaarverslagen 1940, Archief Ministerie van Financiën, Archief NCI doos 3 en 4, nr. 8 en 9.

²⁵ Boelcke, *Die Kosten von Hitlers Krieg*, 110–111.

Table 4.2 German deficits in clearing accounts with occupied Europe, 1940–44 (million RM)

	France	Netherlands	Belgium	Denmark	Norway	Western Europe	All of Europe	Dutch share in %
1940	55	405	132	191	–13	770	743	52
1941	812	16	666	384	–60	1,819	1,883	1
1942	2,590	23	1,980	559	–91	5,061	5,324	–
1943	5,780	12	3,883	1,008	–160	10,523	10,342	–
1944	8,532	10	4,976	1,421	–22	14,918	14,754	–

Sources: Boelcke, *Die Kosten von Hitlers Krieg*; Klemann, *Nederland 1938–1948*. Richard W. Lindholm, "German Finance in World War II." *American Economic Review* 37 (1947) 121–134, 129; Own calculations

Table 4.3 Dutch monetary developments 1938–46 (million guilders)

	Money supply (M1)			Liquidity (M3)			Balance sheet totals of the most important banks	Accounts payable as % of bank balance sheets	Treasury bonds as % of bank balance sheets
Year	Inflow mark	Total	Index	Savings	Total	Index			
1938	–	2,211	100	1,797	4,008	100	2,175	64	15
1939	–	2,243	101	1,682	3,925	98	1,882	60	22
1940	73	3,050	138	1,444	4,494	112	2,115	65	29
1941	1,121	4,023	182	1,429	5,452	136	2,295	65	47
1942	1,016	4,819	218	1,684	6,503	162	2,059	73	55
1943	1,598	6,011	272	2,374	8,385	209	2,421	80	56
1944	672	8,182	370	2,974	11,156	278	3,387	76	56
1945	–	6,096	276	5,027	11,123	278	5,065	84	60

Sources: Neha Amsterdam: Collection annual reports of Dutch Companies; Van Oss' Effectenboeken 1938–1950; De Nederlandsche Bank, Financiële instellingen in Nederland in de twintigste eeuw. Balansreeksen en naamlijst van handelsbanken (Amsterdam 20002); Own calculations

However, it was still possible to buy some products with guilders. Therefore the Nederlandsche Bank was forced to exchange worthless paper for real money: *Raub* (robbery), as the Bank president, Walther Funk, concluded.²⁶ The consequences became clear in the booming art

²⁶L. Kortenhorst, "Strijd met het recht" in *Onderdrukking en verzet. Nederland in oorlogstijd*, 2, Johannes van Bolhuis, C.D.J. Brandt; H.M. van Randwijk (eds.) (Arnhem: Van Loghum Slaterus.), 219–252, 246.

market. The Nederlandsche Bank had to pay for all works of art sent to Germany, as it had to supply guilders to everyone who wanted to exchange *Reichsmark*. Hence, auction prices multiplied, especially for Romantic 19th century paintings popular in Nazi Germany.²⁷ Most foreign acquisitions were German, but according to Rost van Tonningen, the Dutch Nazi who in 1941 became president of the Nederlandsche Bank, Belgian authorities also used superfluous *Reichsmark* to obtain interwar Belgian governmental bonds on the Amsterdam Stock Exchange.²⁸ By introducing rationing systems for almost everything, the Dutch authorities tried to limit exports; but smuggling to Germany was difficult to suppress, especially as German authorities did not object.²⁹ Rost did not consider the inflow of billions of *Reichsmark* tricky. In his eyes, these represented 'concentrated purchasing power guaranteed by the labour of an entire continent'.³⁰ Even Dutch National Socialists were critical.³¹ On black markets, the guilder depreciated by 50 % to the Belgian franc.³²

In countries where the clearing account was used to pay Germany's non-military bills, the treasury bled, especially as the state also paid for occupation costs. In theory, the occupied state could try to minimize monetary expansion by increasing taxes, governmental loans and treasury bills. In the Netherlands, just as elsewhere in Western Europe, the occupier took enormous quantities of goods, services and securities. At the end, for f12.0 billion goods and services and for f1.4 billion securities were taken.³³ This was f9.9 billion in 1938 guilders, or 1.74 times

²⁷ Jeroen Euwe, *De Nederlandse kunstmarkt 1940–1945* (Amsterdam: Boom, 2007).

²⁸ Trip, *De Duitse bezetting*, 54 e.v.

²⁹ Trip, *De Duitse bezetting*, 48–49.

³⁰ *Jaarverslag van de Nederlandsche Bank*, 1940–41.

³¹ H.J. von Brucken Fock, "Het wegvallen der Nederlandsch-Duitse deviezengrens." *Nieuw Nederland. Maandblad voor economie, staatkunde en cultuur*, 1941, 7, 851–866.

³² Sub-inspectie Invoerrechten en Accijnzen Terneuzen. *Frauderapport over Juni 1943*, Niod 216 map 103^b.

³³ In fact, Germany bought for f18.4 billion, but a part of this was compensated by imports. f13.4 billion is net. Hein A.M. Klemann, "De Nederlandse economie tijdens de Tweede Wereldoorlog." *Tijdschrift voor Geschiedenis*, 110 (1997), 3–40, there 36.

Table 4.4 Money obtained by the occupier, 1940–45 (millions of guilders)

Year	Occupation cost	War				Clearing and RKKS	Total Treasury	Net RM-inflow	Total general	In real prices 1938 = 100	Minus capital transactions
		against USSR	German civil adm.	Diverse							
1940	477	–	22	–	248	747	73	820	697	408	
1941	1,124	–	40	–	270	1,434	1,121	2,555	1,946	1,139	
1942	1,181	680	42	6	6	1,915	1,016	2,931	2,206	2,206	
1943	1,328	453	71	35	5	1,892	1,598	3,490	2,553	2,553	
1944	1,757	453	39	18	–	2,267	672	2,939	2,133	2,133	
1945	489	121	14	–	–	624	–	624	391	391	
Total	6,356	1,707	228	59	529	8,879	4,480	13,359	9,926	8,830	

Sources: Klemann, *Nederland 1938–1948*, 102; Centraal Bureau voor de Statistiek, *Jaarcijfers voor Nederland 1943–1946*; Centraal Bureau voor de Statistiek, *Economische en sociale kroniek der oorlogsjaren 1940–1945* (Utrecht: De Haan, 1947); Trip, *De Duitse bezetting* own calculations

the 1938 GDP.³⁴ The treasury paid f8.9 billion; the Nederlandsche Bank f4.5 billion (Table 4.4). Consequently, in a period when national income declined by 16 % (1938–44),³⁵ the money supply almost quadrupled, while liquidity (M3) increased by 178 % (Table 4.3). All over Europe, occupation costs were paid by the state, but in the Netherlands 34 % of the money Germany took came from exchanging *Reichsmark*. This directly resulted in an increased banknote circulation (Table 4.4). As a solid price regulation policy suppressed price inflation, this growing circulation in a period of diminishing production caused an excessive money supply. The public had more cash than it could legally spend. This resulted in queuing in shops where still something was available without distribution marks. At the same time, black markets and corruption were still limited, but growing. Suppressed inflation was no direct consequence of the fact that important parts of the production had been taken, or because of the financial difficulties of the state. It simply resulted from the decision to get a substantial part of the money the occupier needed directly from the Central Bank. Only during the winter of 1944–45, the Hunger Winter, did the money supply become so superfluous that cash almost vanished from the economy. Bartering became dominant, as farmers were hardly interested in money anymore.³⁶

The Start

In the early summer of 1940, the financial regime in the occupied Netherlands resulted in enormous German orders, heavily overburdening the clearing balance. Already in May 1940, Berlin had ordered stocks, military equipment and industrial products, while limiting exports by abolishing subsidies. As the war in the Netherlands was short, Dutch industry fell undamaged into German hands. As France and Britain were still fighting,

³⁴ Klemann, *Nederland 1938–1948*, 100.

³⁵ Klemann, *Nederland 1938–1948*, 438. The difference between the national income and the available national income was what Germany took from the country without real payment.

³⁶ Hein A.M. Klemann, “Die koren onthoudt, wordt gevloekt onder het volk...”. De zwarte markt in voedingswaren 1940–1948.” *Bijdragen en Mededelingen betreffende de Geschiedenis der Nederlanden*, 115 (2000), 532–560.

involving this industry in the war production seemed pressing. For General Georg Thomas, head of the *Wehrmacht's* economic office, this was not the main reason to send already on 22 May, a week after the capitulation, an officer to restart Dutch industrial production.³⁷ Thomas was in a hurry because on 18 May, four days before he sent his officer, Hitler decided that a *Wehrmacht* officer should not rule the Netherlands, but instead an influential Nazi, Dr. Arthur Seyss-Inquart. At that time, this Austrian was second-in-command in the Polish General Government. Thomas, but also the leader of the Four Year Plan, Hermann Göring, feared that Seyss-Inquart had learned there how to keep Berlin tyrants out of his back garden.³⁸ Therefore, if Thomas wanted to obtain influence in the Dutch economy, he needed a Dutch foothold before Seyss-Inquart arrived. As Thomas, a professional army officer without a power base of his own, feared that he himself would not be strong enough, he asked Göring to co-operate.³⁹ On 24 May, Göring and Thomas founded an organization to place military orders in the Netherlands, the *Rüstungsinspektion Niederlande* (Armaments Inspection Board for the Netherlands). Thus, when on 29 May, Seyss-Inquart was inaugurated in The Hague's Hall of Knights, his rivals had a bastion in his territory already. As these could undermine his goal to win the Dutch for a German future, he had to get rid of them. When Göring started to take stocks from the occupied countries after the victory in the West, this could easily become a serious threat.⁴⁰

³⁷ Louis de Jong, *Het Koninkrijk der Nederlanden in de Tweede Wereldoorlog, Part 4*. (The Hague: 1969–1991), 185.

³⁸ J.Th.M. Houwink ten Cate, "Generaal Winkelman, secretaris-generaal Hirschfeld en de Duitse bezettingsspolitiek in mei-juni 1940." *BMGN* 105 (1990) 186–230, here 204–205; Richard J. Overy, Göring, *The 'Iron Man'* (Boston: K. Paul, 1984), 119.

³⁹ See: Ian Kershaw, *Hitler 1936–45: Nemesis* (Harmondsworth: Penguin Press, 2000), 225, 345–346; Alan Bullock, *Hitler and Stalin. Parallel lives* (London: Fontana Edition, 1993), 590; Also: Richard Overy, *War and economy in the Third Reich* (Boston: K. Paul, 1984) passim; Golo Mann, *Deutsche Geschichte 1919–1945* (Frankfurt am Main: Fischer Tb, 1986) 166–167; Albert Speer, *Erinnerungen* (Frankfurt am Main: Propyläen, 1976), 197–198; Overy, *Göring, the 'Iron Man'*, 71

⁴⁰ Arne Radtke-Delacor, "La place des commandes allemandes à l'industrie Française dans les stratégies de guerre nazies de 1940–1944." in *Occupation, L'état Français et les entreprises. Actes du colloque organisé par l'université de Franche-Comté, Besançon, les 24, 25 et 26 mars 1999*, Olivier Dard, Jean Claude Daumas and François Marcot (eds) (Paris: Association pour le développement de l'histoire économique, 2000), 13–14; See: Hein A.M. Klemann, Marleen Arbouw, Renate Scheek, Mariëlle Scheerhoorn, Bonny Steijgerwald, "Schaarste aan grondstoffen" in *Mooie jaarcijfers. Enige onderzoeksresultaten betreffende de Nederlandse economische ontwikkeling tijdens de Tweede Wereldoorlog*, Hein Klemann (ed)

Hitler's order to win the Dutch implied that they should be protected from robbery. Above all, Seyss-Inquart wanted to terminate unemployment. Hence the *Reichskommissar* arranged for Dutch industries to get German orders. Therefore Dutch stocks should not be sent to Germany, but used in Dutch production. In August 1940, it was decided that companies all over Western Europe were allowed to keep limited stocks. Then Göring learned of the decision to attack the USSR. Plundering countries whose industry could supply the army was not an effective way to prepare for this. Therefore, from then on German orders, of the highest importance in the Netherlands already, also went to France and Belgium.

When the *Reichskommissar* arrived, he was confronted with growing unemployment. Three weeks after the capitulation, 26 % of the trade unionists, more than ever during the 1930s, were out of work.⁴¹ Therefore, Seyss-Inquart declared unemployment the number one problem.⁴² To solve this and neutralize Thomas' and Göring's *Rüstungsinspektion*, he organized that orders from overburdened German companies should be passed on to Dutch industry. This started the programme of *Auftragsverlagerung*, transferring orders, an important instrument to exploit Western Europe.⁴³ As the output went to Germany, it explains the extreme Dutch share in the 1940 German clearing deficit.⁴⁴ In August, when Dutch industry already obtained German orders worth f375 million, the *Reichskommissariat* founded an organization to systemize this, the *Zentralstelle für Öffentliche Aufträge* (Central Office for Public Orders). Officially, it was not just the duty of this office to stimulate *Auftragsverlagerung*, but also to prevent competition between

(Utrecht: Vakgroep Geschiedenis der Universiteit Utrecht, 1997), 48–76; Hein A.M. Klemann, “Belangrijke gebeurtenissen vonden niet plaats...” De Nederlandse industrie 1938–1948.” *BMGN*, 114 (1999) 506–552, 514; Alan S. Milward, *The new order and the French economy* (Oxford: Clarendon Press, 1970), 37.

⁴¹ CBS, *geheime notities* (Copy in the Niod); G.P. den Bakker, W. van Sorge, “Het onbenut arbeidsvolume in het Interbellum.” *Economisch- en sociaal-historisch jaarboek*, 1991 (54) 212–240, 225–226.

⁴² J. Meulenbelt, *De Duitse tijd* (Utrecht: Bruna, 1955), 52.

⁴³ Ernst Erman, ““VB”-Gespräch mit Seyss-Inquart. Wie steht es in den Niederlande?.” *Völkischer Beobachter*, 1 Dezember 1940.

⁴⁴ Boelcke, *Die Kosten von Hitlers Krieg*, 111; Also: Kwartaal- en jaarverslagen 1940, Archief Ministerie van Financiën, Archief NCI doos 3 en 4, nr. 8 en 9.

German companies. Therefore, it also had to administer orders of the *Rüstungsinspektion*. Seyss-Inquart got a grip on the economy. Transferring orders from the overburdened German industry to the occupied countries proved an effective way to get the industry there involved in war production, but it created the problem of how to finance this.⁴⁵

In the summer of 1940, financing the clearing deficit became a problem. It was feared that Dutch firms that had to wait for their money would lose interest in German orders. For this, The Hague authorities had to find a solution. In June 1940, Hans Fischböck—Seyss-Inquart's General Commissioner for Finance and Economy—initiated a plan to solve all such problems by making *Reichsmark* convertible into guilders. Two months later, in August, it was decided, however, to solve the problem of unbalanced bilateral clearing accounts all over occupied Europe by using credits from the treasuries. As, German orders in the Netherlands had already become important in the summer of 1940, the practice of using this account for exploitation was introduced here first. It was only a limited solution, as the clearing was controlled by Dutch officials and therefore could only be used for exports. Occupation costs went to the *Wehrmacht*, but for Göring's attempts to obtain financial assets another instrument was needed. A *Reichsmark* convertible into guilders would solve this. The Dutch authorities, in the first place Trip, threatened to resign if that happened.⁴⁶ Seyss-Inquart also was afraid of such a step, as it could be seen as a move to annexation. This would weaken the chance to win the suzerainty over the Netherlands Indies (Indonesia) in future negotiations.⁴⁷ Trip, who was a colonial expert, made clear that after such a step, Batavia (Djakarta) would try to incorporate the Indies into the British Empire, or turn to Washington.⁴⁸ Nevertheless, from April 1941, the Nederlandsche Bank received orders to convert all *Reichsmark* into guilders. Trip resigned. M. M. Rost van Tonningen, a Dutch SS admirer, succeeded him.

⁴⁵Tätigkeitsbericht der ZAST für Mai und Juni 1942. Den Haag den 15. Juni 1942; Tätigkeitsbericht der ZAST für Juni und Juli 1944. Den Haag den 28. August 1942, Niod 93, B4.

⁴⁶Trip, *De Duitse bezetting van Nederland*, 27.

⁴⁷J.C.H. de Pater, "Doel van het Duitse civiele bestuur in Nederland" in *Studies over Nederland in oorlogstijd I*, Abraham Paape (ed) (Gravenhage: Nijhoff, 1972), 39–47, 40.

⁴⁸Der Kommissar bei der Niederländischen Bank, den 9. November 1940, Niod 47 Devisenreferat 40–44 inv. nr. 7. Until 1931 Trip was president of the Javasche Bank, the central bank of the Netherlands Indies.

As Berlin wanted to buy securities in Dutch financial markets, the clearing solution was no solution.⁴⁹ All over occupied Europe, *Reichsmarschall* Göring tried to obtain strategic participation, or *Verflechtung* (intertwin- ing), as he called it. In fact, German firms should obtain decisive shares in strategic companies in occupied countries, not the other way round. In the Dutch capital market, Berlin further wanted to regain German governmental loans from the 1920s, among these being the Dawes and Young loans. The Netherlands was the only occupied country that partic- ipated heavily in Germany's *Auslandsverschuldung* (foreign indebtedness) in the 1920s.⁵⁰ Altogether, German loans in the Amsterdam stock market valued f1.35 billion (RM 1.8 billion), among these were *Auslandsbonds* (German governmental loans), worth f400 million (RM 535 million).⁵¹ As a result of the 1931 *Stillhalteabkommen*, an agreement to transfer only limited parts of the interest on such securities, these were sold far below par. Further, the occupier hoped to obtain American and Dutch–Indian securities that could be sold for hard currency.

As Göring knew Germany's economic position better than anyone else, he was not convinced that the *Reich* would win the war. Through *Verflechtung* he hoped to continue Germany's economic dominance over continental Europe, even when the war was lost. Therefore, in August 1940, he declared that the German target to enlarge its influence in foreign companies should be realized during wartime already.⁵² In fact, Göring did not manage to get a secure hold over companies anywhere in Western Europe. In the Netherlands, Trip did everything to prevent clearing being used for such transactions, and when in September 1940 an attempt was made to finance *Verflechtung* by a limited convertibility of *Reichsmark*, he introduced a prohibitive tax to prevent this.⁵³ Only by making *Reichsmark* convertible into guilders could Göring get all he

⁴⁹ See: H.M. Hirschfeld, *Herinneringen uit de bezettingstijd* (Amsterdam: Elsevier, 1960) 50.

⁵⁰ Bernard Kranenburg, *Hoofdtrekken der overheidsbemoeiing met het internationale betalingsverkeer in Nederland sinds 31 juli 1914* (Assen: Van Gorcum, 1937) 189.

⁵¹ Der Kommissar bei der Niederländischen Bank, den 9. November 1940, Niod 47 Devisenreferat 40–44 inv. nr. 7.

⁵² Otfried Ulshöfer, *Einflußnahme auf Wirtschaftsunternehmungen in den besetzten nord-, west- und südoesteuropäische Ländern während des Zweiten Weltkrieges insbesondere der Erwerb von Beteiligungen (Verflechtung)* (Tübingen: Institut für Besatzungsfragen, 1958), 41, 50–51.

⁵³ Trip, *De Duitse bezetting van Nederland*, 31.

wanted. At the same time, it would undermine the position of Trip, an incorruptible man of firm principles, who was considered an obstacle.⁵⁴ On top of this, SS leader Heinrich Himmler wanted a job for his protégé Rost van Tonningen, who became a problem, as this most racist Dutch National Socialist had Indonesian blood.⁵⁵ In Dutch society, this was no serious problem, but in SS circles it was fatal.⁵⁶ In the end *Verflechtung* failed. It generated unrest that could undermine production, and as long as the war lasted, maintaining production was more important. Consequently, German businesses only obtained for f240 million-worth of strategic influences in Dutch companies.⁵⁷ Including the purchases of interwar German government loans and shares in US or Indian companies, the occupier obtained assets worth f1.4 billion.⁵⁸ As after the war this could easily be corrected, it had no major influence.

German Tributes and Government Debt

During the occupation, the treasury paid occupation costs worth f6,356 million. In pre-war years the annual Dutch state budget was circa f1000 million. Nonetheless, in 1942, occupation costs of f100 million a month were no longer sufficient and were increased, using the argument that the Dutch should pay for their protection against the Soviets.⁵⁹ Although humiliating, this was not negative for the Dutch financial position, as the money needed would otherwise be obtained by exchanging *Reichsmark*.⁶⁰ The fact that in 1941 the remaining clearing deficit was paid from the Treasury, and that the Central Bank sold its *RKKS* to the Treasury, also increased the share the Treasury paid. In Table 4.4, one finds the sums

⁵⁴ Joh. de Vries, "L.J.A. Trip." In: *Biografisch woordenboek van Nederland, III* (The Hague 1989) 596–589; De Jong, *Het Koninkrijk der Nederlanden*, 4, 138–139.

⁵⁵ David Barnouw, *Rost van Tonningen, fout tot het bittere einde* (Zutphen: Walburg Pers, 1994), 14.

⁵⁶ Notities van een gesprek met dr. H.M. Hirschfeld op Maandag 16 Mei 1955, te zijnen huize Benoordenhoutseweg 70, door A.J. van der Leeuw, Niod Doc I, 702; dr. Hans Max Hirschfeld.

⁵⁷ Ulshöfer, *Einflußnahme*, 140–141.

⁵⁸ Centraal Bureau voor de Statistiek, *Economische en sociale kroniek der oorlogsjaren*, 196–197.

⁵⁹ David Barnouw, *Correspondentie van Mr. M.M. Rost van Tonningen, Deel II, Mei 1942-Mei 1945* (Zutphen: Walburg Pers, 1993), 8 and 58.

⁶⁰ De Vries, *Geschiedenis van de Nederlandsche Bank*, 5, 332.

Germany took from diverse sources in the Netherlands. Altogether, this amounted to f13,359 million. The treasury paid f8879 million. As these tributes were circa 50 % of Dutch state spending, and normal expenditures were paid from normal state incomes, a deficit of f8864 million remained. Nonetheless, normal expenditures as well increased dramatically. Apart from occupation costs, The Hague had to pay the costs of the lost war and all kinds of new public facilities, while old ones expanded. The police, air control, evacuations, a price control and rationing system—these all increased the expenditures. Balancing the normal budget was only possible by completely reorganizing finance and taxation. In 1940–41, when occupation costs were still relatively limited, the internal budget was not yet balanced, but from 1942 onwards, when the tribute dramatically increased, a modernized tax system and the prohibition to invest in non-military objects resulted in a surplus in the internal budget. Only in 1945, after the Liberation, was the deficit dramatic, as the chaos caused a complete failure of taxation, while enormous expenditures were needed to restock the country.

Before the war, Dutch public expenditures were approximately 17 to 18 % of national income. From 1940 onwards, this increased and in 1941 it was 28 %. The number of state officials grew from 63,000 in 1938 to 135,000 in 1942, that is, 115 % in less than four years.⁶¹ The state apparatus grew faster than ever before. In 1940, the cautious Trip managed to limit this development, but in 1941, when Rost van Tonningen took over, internal expenditures grew by 26 % again. This was not just the result of growing public facilities, but the new secretary-general of the Finance Department also lacked any authority among his fellow secretaries-generals—the highest officials in the ministries after the ministers left. As he was hysterical, untrustworthy and feared because he did not hesitate to ask the *Sicherheidsdienst* (Security Service/SD) to arrest anybody who he did not trust, most would have been glad if Rost's career collapsed.⁶² The secretary-general of Economics even refused to ask him for budget for his department. He just told the Germans that Rost had

⁶¹ Centraal Bureau voor de Statistiek, *Jaarcijfers voor Nederland*.

⁶² Hirschfeld, *Herinneringen uit de bezettingstijd*, 113–115; Enquêtecommissie regeringsbeleid 1940–1945, *Verslag houdende de uitkomsten van het onderzoek*, 7c, 496–497.

to pay his bills.⁶³ The 1942 surplus cannot be explained by Rost's policy. German prohibitions of investments were the most important source of economies. A new tax system did the rest.

Taxation

Expenditures dramatically increased, but huge tax rises balanced the budget. Officials of the Finance Ministry and its German supervisor, Dr. Rudolph Rinkefeil, co-operated to modernize taxation and raise the burden. According to Prof P. J. A. Adriani, a specialist on taxation, it was hard to find a tax law that remained the same.⁶⁴ Trip already initiated this. After the Liberation, he admitted that he used the absence of parliament to reform taxation according to his ideas.⁶⁵ From April 1941, when Rost succeeded Trip as secretary-general of the Ministry of Finance, the tax department was split off under the director of taxation, H. Postma. Afterwards, he was still pleased with his German supervisor, who in fact led the department. During the Trip period, the secretary-general looked to the German system, when in January 1941 he introduced a new wage and income tax. This tax, which is still at the heart of the Dutch system, increased the burden of these kinds of taxes by 235 %. In the following year, 1942, it increased again by 7 %.⁶⁶ Although this seemed a terrible aggravation, working class people with children were better off than before the reform.⁶⁷ Before the war, parliament decided that in 1941 a family support programme should be introduced. The catholic Trip used his position to implement some typical catholic social ideas. In the first one and a half years of the occupation, this, together with the disappearance

⁶³ Enquêtecommissie regeringsbeleid 1940–1945, *Verslag*, 7c, 496–497.

⁶⁴ P.J.A. Adriani, "Samenvatting" in *Fiscale ervaringen in de bezettingstijd 1940–1945*, Pieter Adriani (ed) (Amsterdam: Veen, 1946), 386–423, 386.

⁶⁵ Enquêtecommissie regeringsbeleid 1940–1945, *Verslag*, 7c, 611.

⁶⁶ Centraal Bureau voor de Statistiek, *Jaarcijfers voor Nederland 1943–1946*, 371–372; Own calculations.

⁶⁷ P.C.J. Kien, "Gewijzigde belastingdruk door de invoering van de loonbelasting", *Economisch-statistische berichten*, 27 december 1940, 784–786; Centraal Bureau voor de Statistiek, *Jaarcijfers voor Nederland 1943–1946*, 267.

of unemployment, resulted in an almost complete eradication of poverty in Dutch society.

After Trip's resignation, Rinkefeil's ideas were decisive, although once or twice Postma refused to implement taxes that his German supervisor initiated, for instance to prevent discrimination against Jews. That Postma accepted that Rinkefeil simply introduced a great number of German tax laws to replace old-fashioned Dutch regulation makes clear that he also thought the German system superior. It was Rinkefeil's duty to adapt the Dutch system to the German one, possibly to prepare for a merging of the Netherlands into a post-war Germanic *Großwirtschaftsraum* (Greater Economic Area). In a 1943 article, he declared that price adaption and economic intertwining were his objectives.⁶⁸ In 1946, Adriani thought that he had used the Netherlands as a laboratory for a *Großwirtschaftsraumpolitik*.⁶⁹ This seems logical, but is not. An adaptation of taxes is necessary when economies are merging, but during the occupation the economic relations between the Netherlands and Germany were so overregulated that what remained of markets were isolated from each other. It seems improbable that Rinkefeil did not realize this. Possibly he simply used the German system to get higher revenues. Anyway, he had to reckon with the wishes of his Berlin superiors. From 1941 onwards, German officials in occupied countries, whether Nazi or not, did everything to show Berlin how useful they were. The Eastern front was such a threat that even the most sympathetic German was ready to deal harshly with the occupied country.⁷⁰

Between 1940 and 1942, the Dutch tax burden rose from 14 % to 24 % of national income (Table 4.5), but in 1942 national income clearly decreased. Companies, in 1940 seriously taxed for the first time, had to pay a not unimportant share of the growing taxes, but as from 1942 profits dropped, they could not pay so much anymore. In 1938, companies paid only 7 % of the taxes; families 87 % in income taxes, wealth taxes,

⁶⁸ Rudolf Rinkefeil, "Das niederländische Finanzwesen" in *Die Niederlande im Umbruch der Zeiten. Alte und neue Beziehungen zum Reich. Im Auftrag der Reichskommissars für die besetzten niederländische Gebiete Reichsminister Dr. Arthur Seyss-Inquart*, Max Freiherr Du Prel and Willi Janke (ed) (Würzburg: K. Triltsch, 1942), 281–298, there 290.

⁶⁹ Adriani, "Samenvatting", 290.

⁷⁰ Hirschfeld, *Bezetting en collaboratie*, 26–27.

Table 4.5 Governmental financial developments, 1938–46 (millions of guilders)

Year	Expenditures	Minus tributes	Index real	Total revenue	Taxation in % of		Governmental deficit	In % of national income	Cumulative governmental debt		
					national income	national income			Consolidated	Floating	Total
1938	1,045	1,045	100	1,015	15		30	0.5	3,212	774	3,986
1939	1,182	1,182	111	1,071	15		111	1.7	3,140	1,077	4,217
1940	2,310	1,563	128	1,332	14		978	13.7	3,588	1,742	5,330
1941	3,666	2,232	161	1,942	19		1,724	21.8	4,463	2,394	6,857
1942	3,474	1,559	105	2,042	24		1,432	19.5	5,332	3,177	8,509
1943	3,686	1,794	117	2,148	23		1,538	20.6	6,123	4,180	10,303
1944	4,281	2,014	121	1,997	24		2,284	33.7	5,885	6,739	12,624
1945	4,439	3,815	222	1,282	12		3,157	40.3	6,082	11,400	17,482
											223

Sources: Centraal Bureau voor de Statistiek, *Jaarcijfers 1943–1946*, 366–369; Centraal Bureau voor de Statistiek, *Macro-economische ontwikkelingen 1921–1939 en 1969–1985. Een vergelijking op basis van herziene gegevens voor het interbellum* (The Hague 1987); Own calculations

capital levies and so on. The 1942 revenues of the tax system did not only increase from 14 to 24 % of national income, but the share of companies also rose to 21 %. In family taxes, direct taxation increased from 32 % to 61 %. Taxes on expenditures decreased from 68 % to 39 %. Dutch taxation was modernized. With the new system the state could pay its normal expenditures, but not the German purchases. There was still an enormous financial gap to bridge.

Banks, Financial Markets and Governmental Deficits

From May 1940, the situation in money and capital markets changed dramatically. While in 1939 the balance sheet totals of banks decreased and the share of the account payable dropped dramatically, from 1940 until the Liberation the situation was characterized by a permanent growth of unused money (Table 4.3). As overseas contacts were lost, stock building was not possible anymore. Consequently, the tightness in the money and capital markets disappeared. Companies used stocks in production and sold the output. They were often paid well for it, but could not buy new raw materials. While from 1940, companies had to accept enormous disinvestments in floating capital, from 1942 onwards investments in machinery and building also were limited. At the same time, farmers were under pressure to grow potatoes and corn to feed the population. They ploughed up their pastures, which resulted in disinvestments in livestock. As a result, the liquidity of banks dramatically increased. The only possibility to invest was buying treasury bills or government bonds. Treasury bonds, in 1938 15 % of the debit sides of the bank balances, were over 50 % of these balance sheets from 1942 onwards. The accounts receivable decreased, as nobody needed money to finance trade or industrial activities anymore. Already in 1940, the German supervisor of the Nederlandsche Bank wrote that even parts of the capital of the banks were liquid.⁷¹ Only the state needed money. It became the banks' duty to

⁷¹ Der Kommissar bei der Niederländische Bank, den 7. August 1940: Geheim. Notiz 7. August 1940, Niod 47: Devisenreferat 40–44 inv. nr. 7.

canalize the flood of money to the Treasury. After April 1941, when the *Reichsmark* became exchangeable into guilders, this became even more marked. The only thing the banks could do with the flood of useless cash was invest it in government loans and treasury bonds. As the situation seemed dangerous, Trip as well as Rost—or rather his German supervisor—kept interest rates on treasury bonds high. Helping the banks to survive seemed worth some tax money. Trip wanted to guarantee that the war would not result in a collapse of the banking system, and he used this unpractical method to prevent this.⁷² Interest rates on treasury bonds later decreased, but remained high compared with the almost zero rates on call money.⁷³

In the first year of the occupation, savings banks still lost money. During 1940 and early 1941, private households could lay their hands on some of the stocks companies had to sell.⁷⁴ From 1941, however, private households also lost interest in money, as the country was flooded with cash. German orders and the expansion of the civil services resulted in a higher level of employment than ever before. Consequently, families had more to spend, but as the occupier took what he could, it became hard to spend money on material necessities. Normally, this would result in price inflation, but the rationing and price control system was strong enough to keep 75–80 % of the food distribution, and even more of everything else, within legal markets where prices were strictly limited.⁷⁵ Even in black markets, price increases were small compared with neighbouring Belgium. There, scarcity resulted in a dramatic increase in black market prices. Until September 1944, scarcity was not that dramatic in the Netherlands.⁷⁶

Stabilized price levels, decreasing supplies and growing circulation resulted in idle money. Even private households did not know what to do with it. They wanted more food, clothing, shoes, coal and so on, and

⁷² Beauftragte für die Niederländische Bank, Junibericht 1941, den 9. Juli 1941, Niod 47: Devisenreferat 40–44 inv. nr. 7.

⁷³ Beauftragte für die Niederländische Bank, Maibericht 1941, den 12. Juni 1941, Niod 47: Devisenreferat 40–44 inv. nr. 7.

⁷⁴ A.C. Mijs, *Belevenissen van de Nederlandse spaarbanken in oorlogstijd 1939–1945* (sl 1948), 41.

⁷⁵ Klemann, *Nederland 1938–1948*, 429.

⁷⁶ Klemann, “Die koren onthoudt, wordt gevloekt onder het volk...”

all they could get were holidays and visits to the theatre and the movies. For many Dutch families, the occupation brought the first family holidays. As money was distrusted, more was spent on entertainment than ever before, just as it was on medical care, prostitution, charity, and of course black markets. Members of the public wanted to spend their money before it was too late. Even so, private savings grew. Savings banks even refused to accept money. Mortgages and loans were paid off, life insurance companies did good business, but found it hard to invest the premiums. Private pawnshops disappeared.⁷⁷ Full employment and lack of alcohol proved fatal to this sector.

Banks could hardly do anything with their money. In 1940 and 1941, there was still some demand to finance expansion in industrial sectors benefitting from German orders.⁷⁸ From 1942, however, civil building and investments in machinery were only permitted with special licences. In the same year, the first in a row in which the GDP decreased, Germany doubled its purchases in the occupied country, further increasing the money flow resulting from German acquisitions, while the supply of consumption goods further collapsed. In 1942, occupation costs were raised by introducing Dutch payments for the defence against the Bolsheviks, but in 1943, more and more was paid by *Reichsmark*. Money streamed into the country, but apart from food, there was hardly anything that could be bought with it. Savings, unused bank accounts and banknotes in circulation increased ever more. In 1943, the cash reserves of 53 important banks were over f600 million, while f100 million was enough for liquidity. Apart from this, banknote circulation increased dramatically. In 1939, the banknotes in circulation valued f1152 million; in 1943 3478 million. As a result, the money circulation (M1) increased by 150 % from f2321 to f5886 million.⁷⁹ In March 1943, f500 and f1000 banknotes were declared void to limit monetary expansion. The objective was to tax black marketeers. Circulation did not decrease, however, but many thought guilders not reliable anymore.⁸⁰ For black marketeers it was an important lesson that they

⁷⁷ Centraal Bureau voor de Statistiek, *Jaarcijfers voor Nederland, 1943–1946*, 331.

⁷⁸ “De Nederlandsche kapitaalmarkt in 1941.” *ESB*, 11 Februari 1941.

⁷⁹ Centraal Bureau voor de Statistiek, *Jaarcijfers voor Nederland 1943–1946*, 321.

⁸⁰ Kurzbericht für März 1943, den 2. April 1942, Niod 87 Beauftragte für die Niederländische Bank; Sub-inspectie Invoerrecht en Accijnzen Terneuzen. Frauderapport over Juni 1943, Niod 216 map 103^b.

remembered during the post-war money purge. In 1943–44, the circulation further increased and smaller *f*100 notes were introduced, as printing could not keep pace with the money supply.⁸¹ Only during the Hunger Winter of 1944–45, the period in which the urbanized north-western part of the country was isolated from its supply areas, did industry, and thus banknote printing, come to a halt.⁸²

Although national income decreased while the money supply rose sharply, until September 1944 the price control system managed to keep prices relatively stable. Only in the last months of the occupation, when the rationing system collapsed and the hungry population could only get what they needed by hiking through the countryside, hoping to find farmers that still had something, did the huge amount of money in circulation result in a breakthrough of the black market. Prices rose astronomically, but in fact money almost disappeared from circulation. People who had something to sell hardly accepted it anymore. For food or coal they only accepted gold, gin, sex or antiquities. Bartering became the norm, also because it became clear that after the war it would be hard to explain how one got one's money.⁸³ As in Belgium, the money purge started before the Dutch were liberated, it was known what could be expected.

During the occupation, it became the duty of the banks to finance the state, but already in 1940 it proved impossible to get all money needed from the banks. The Ministry of Finance had to sell treasury bonds to the Nederlandsche Bank, thus starting the production of new banknotes. In April 1941, the *Reichsmark* was made convertible into guilders. As a result of the fast decline of the available national income, in combination with monetary expansion, the balance between monetary demand and supply collapsed. After the war, this was an acute problem. By then, the governmental debt was more than twice as high as national income; the floating debt alone almost 1.5 times national income, and the guilder inconvertible. Only by a complete monetary and financial reconstruction this could be corrected.

⁸¹ Kurzbericht für Februar 1944, den 3. März 1942, Niod 87 Beauftragte für die Niederländische Bank.

⁸² De Vries, *Geschiedenis van de Nederlandsche Bank*, 5, 307.

⁸³ Jaap Barendregt, *The Dutch money purge. The monetary consequences of the German occupation and their redress after liberation 1940–1952* (Amsterdam: Thesis Publishers, 1993), 239–241.

Conclusions

That Germany financed its exploitation of the Netherlands in a different way than in other countries had to do with the early success of this exploitation. It resulted in growing clearing deficits in the summer of 1940 already. The simplest solution seemed to be to finance this from the treasury of the occupied country, but Fischböck chose to abolish the inconvertibility of the *Reichsmark*. Although initially Bank president Trip's strong opposition seemed effective, in 1941 the *Reichsmark* became convertible into guilders. Therefore, the occupation was financed for an important part by monetary expansion. In other Western European countries, the occupation also resulted in monetary expansion, but this was limited to the money the treasury could not obtain by increased taxation or in money or capital markets. As financial institutions, companies and families were flooded with money, it is clear that the expansion in the Netherlands was higher than strictly needed. The fact that all over Western Europe a complete post-war financial and monetary reconstruction was needed shows, however, that this difference was limited. Germany had its methods of raising the money it needed. The amount it took was not dependent on the financial situation, but on what the occupier could get in a country. The amount of money the occupier took was the dependent variable; his purchases the independent variable. If in the Netherlands the methods of financing German purchases were different than elsewhere, this resulted from a different—earlier starting—exploitation, a rather strong opposition of the financial authorities (Trip) but foremost from the necessity to get money to finance important purchases in the financial markets. It was not the different financial methods that resulted in a different exploitation; it was the exploitation that resulted in the use of certain methods to finance it.

5

Doing Business with the Hun: Dutch Business During the German Occupation, 1940–45

Martijn Lak

Introduction

After five days of combat against the *Wehrmacht*, the Dutch army surrendered, and in May 1940 the Netherlands was occupied by Nazi Germany. It thus suffered the same fate as the rest of Western Europe. To the astonishment and shock of contemporaries, France capitulated after a mere six weeks of fighting; Stalin is believed to have turned pale on hearing about it, and the fall of France caused near-panic in Washington.¹ Even Hitler himself was stunned. By June 1940, Germany had, at astonishingly low cost,² emerged victorious in continental Europe. Nothing seemed to threaten Hitler's mastery, at least not in the foreseeable future. Only Great Britain was undefeated, but by itself could never defeat Nazi Germany.³

¹David Reynolds, "1940: Fulcrum of the Twentieth Century?," *International Affairs* 66, No. 2 (1990) 334 and 336.

²Adam Tooze, *The Wages of Destruction. The Making and Breaking of the Nazi Economy* (New York: Viking, 2006), 370.

³Martijn Lak, "Hitler: briljant strateeg of spaak in het wiel van de Duitse oorlogvoering", in *Negende Bulletin van de Tweede Wereldoorlog*, ed. Perry Pierik et al. (Soesterberg: Aspekt, 2006), 9–10.

This confronted Dutch businessmen and Dutch firms with the question of what to do: adapt to the new situation or stop production entirely? In general, there was limited room for manoeuvre, as the majority of Dutch firms were either small or middle sized;⁴ the well-known Dutch multinationals are an exception. For small or middle sized companies it was difficult to refuse Germans orders for fear of going bankrupt, which would result in, for example, staff unemployment. With the memories of the Great Depression of the 1930s still very fresh in their minds, refusing German orders seemed unwise. This meant that these firms were faced with a dilemma: “not accepting the orders from the only available customer—the occupier—would threaten the companies’ continued existence”.⁵ Many firms simply couldn’t refuse working for Germany.

This was made somewhat easier, perhaps, when the Germans introduced the system of *Auftragsverlagerung* (transferred orders), in which German companies that were already overburdened by the high wartime demand, transferred parts of these orders to companies in occupied Europe. In the words of *Reichsmarschall* Hermann Göring, this was done “to relieve the German industry and at the same time use the capacity in the occupied West effectively”.⁶ The system of *Auftragsverlagerung* was systematized for the first time in the Netherlands by means of the *Zentralstelle für öffentliche Aufträge* (ZAST). As such, it provides an important example of how industries in the occupied countries were coaxed into a relationship with the German occupier. In the Netherlands alone, by August 1940, Dutch companies had already obtained orders worth 500 million *Reichsmark* or 375 million guilders.⁷

The system of *Auftragsverlagerung* was not limited to the Netherlands, but had a European-wide dimension. In all the countries occupied by the

⁴ Keetie E. Sluyterman, *Kerende kansen. Het Nederlandse bedrijfsleven in de twintigste eeuw* (Amsterdam: Boom, 2003), 86–87.

⁵ Hein A.M. Klemann and Sergei Kudryashov, *Occupied Economies. An Economic History of Nazi Occupied Europe, 1939–1945* (London: Berg, 2012), 84.

⁶ Hermann Göring, ‘Auftragsvergebungen an die Industrie in den besetzten Westgebieten’, 7 October 1941, Netherlands Institute for War Documentation, Amsterdam (NIOD), 093, Zentralauftragsstelle, inventory number 18. The original reads: “Um die deutsche Industrie zu entlasten und gleichzeitig die in den besetzten Westgebieten vorhandenen Kapazitäten einer zweckmässigen Ausnützung zuzuführen.”

⁷ Klemann and Kudryashov, *Occupied Economies*, 81.

Germans, the industry was claimed for executing military orders. The exploitation of the occupied Western European countries through military orders started shortly after the end of hostilities.⁸ The contribution of the occupied countries to the German war effort was considerable. Halfway through the war, at least one quarter of weapons and equipment for the *Wehrmacht* was produced abroad.⁹

How did the Dutch business community adapt to this system of *Auftragsverlagerung*? Did it resist, work with it or even help improve it? This question will be addressed by looking at the largest Dutch industry sector, shipbuilding.¹⁰ Potentially, it could make a great contribution to the German war economy. What was the opinion on economic collaboration?¹¹ This chapter focuses predominantly on how the Dutch industry was mobilized to work for the German industry, not on the question whether or not individual firms or businessmen were “good” or “wrong” during the war; they simply had to cope with the occupation. As a German document of November 1941 described it, “it can be said without exaggeration that the total Dutch economic life depends on *Auftragsverlagerung*”.¹² It is remarkable, however, that Dutch business accepted German orders willingly and that there is little evidence to suggest that many firms engaged in deliberate underproduction, although some examples can be found. There was some room for manoeuvre, but Dutch industry chose not to use it.

⁸Jonas Scherner, “Europas Beitrag zu Hitlers Krieg. Die Verlagerung von Industrieaufträgen der Wehrmacht in die besetzten Gebiete und ihre Bedeutung für die deutsche Rüstung im Zweiten Weltkrieg”, in *Europäische Volkswirtschaften unter deutscher Hegemonie*, ed. Christoph Buchheim and Marcel Boldorf (Munich: Oldenbourg Verlag, 2012), 73 and 714; Jonas Scherner, “Der deutsche Importboom während des Zweiten Weltkriegs. Neue Ergebnisse zur Struktur der Ausbeutung des besetzten Europas auf der Grundlage einer Neuschätzung der deutschen Handelsbilanz”, *Historische Zeitschrift* 294 (2012), 79–113.

⁹Scherner, “Europas Beitrag zu Hitlers Krieg”, 91.

¹⁰Jac. J. Baart, *Rotterdam Oorlogshaven* (Zutphen: Walburg Pers, 2010), 27.

¹¹For an elaboration on how the Dutch government in exile in London, the Dutch business community in the British capital and the illegal press in the occupied Netherlands saw the (post-war) German question, see: M. Lak, “‘Onze welvaart staat en valt met die van Duitsland’. Opvattingen over naoorlogs Duitsland bij de Nederlandse regering in Londen en de illegale pers tijdens de Tweede Wereldoorlog”, *Tijdschrift voor Geschiedenis* 123, No. 3 (2010), 410–413.

¹²Zentralauftragstelle für die besetzten niederländische Gebiete, 19 November 1941, NIOD, 249-0066A, Auftragsverlagerung, inventory number a2. The original reads: ‘Es kann abschliessend ohne Übertreibung gesagt werden, dass das gesamte niederländische Wirtschaftsleben entscheidend von der Auftragsverlagerung abhängt’.

Pre-War Dutch Industrial Preparations

As the threat of war loomed larger towards the end of the 1930s, and the future of the Continent turned darker,¹³ governments and firms started to stockpile. The Anglo-Dutch multinational Unilever, for example, started to massively stockpile whale oil.¹⁴ The Hague and Dutch companies were no exception, and stockpiled huge quantities of resources and raw materials. Although many believed that the Netherlands could remain neutral, as during the First World War, and that some acted as if the Netherlands existed in a political vacuum,¹⁵ as of 1935 measures were taken by The Hague to prepare for an eventual war. Not only were defence expenditures raised—to no avail, as it turned out in May 1940—but to prevent inflation and scarcity of raw materials and food, economic measures were taken as well. This basically meant that the Netherlands would have to become self-sufficient, to make sure that the needs of the Dutch population could be met even in times of despair, mobilization or war.¹⁶

When war did break out in September 1939, the Netherlands immediately felt the consequences. Rotterdam, the most important Dutch (and arguably European) port, as well as the gateway to the German hinterland, was hit hard by the British and French blockade of neutral ports. Great Britain and France started checking ships for contraband, which they interpreted in the strictest manner, even confiscating cinnamon and nutmeg. The number of sea ships entering Rotterdam dropped alarmingly, while ships under the German flag were absent after 1 September 1939.¹⁷ The blockade also constrained Dutch exports and hindered the supply

¹³ See, for example, Zara Steiner, *The Triumph of the Dark: European International History 1933–1939* (Oxford: Oxford University Press, 2011).

¹⁴ Ben Wubs, “Unilevers oorlogsvoorbereidingen”, in *Thuisfront. Oorlog en economie in de twintigste eeuw*, ed. Hein A. M. Klemann et. al. (Zutphen: Walburg Pers, 2003), 42. See also Wubs’ *International Business and National War Interests. Unilever Between Reich and Empire* (Ashgate: Routledge, 2008).

¹⁵ Chris van der Heijden, *Grijs verleden. Nederland en de Tweede Wereldoorlog* (Amsterdam: Contact, 2001), 84 and 86.

¹⁶ Hein A.M. Klemann, *Nederland 1938–1948. Economie en samenleving in jaren van oorlog en bezetting* (Amsterdam: Boom, 2002), 41–42.

¹⁷ Jolke Ulko Brolsma, *Havens, kranen, dokken en veren. De Gemeentelijke Handelsinrichtingen en het Havenbedrijf der Gemeente Rotterdam, 1882–2006* (Utrecht: Matrijs, 2006), 189.

of raw materials. The Dutch government also introduced certain measures. For example, it imposed production limitations on the chemical and food industries to conserve resources.¹⁸

However, this did not prevent the Dutch government and Dutch companies from building up stockpiles. From September 1939 onwards, this was no longer done through additional imports but by limiting exports. As the blockade made it impossible to import raw materials from overseas—especially the Dutch East Indies—the Netherlands bought stocks on the Continent, especially from Belgium.¹⁹ From an economic point of view at least, the Netherlands was well prepared in the event of actual war. In political circles—although not among the military,²⁰—the illusion still held that the country could remain neutral. In the event of a German attack, the Netherlands hoped it would receive military aid from abroad, most of all from Great Britain.²¹

The Hague was convinced that it could hold out within the main line of defence, the so-called Vesting Holland (Fortress Holland) or the Hollandse Waterlinie (Holland Water Line), for at least a couple of months, without any help.²² Although this amounted to little more than wishful thinking, it was paramount that large stockpiles were created, and that these had to be concentrated in Fortress Holland. Within this defensive perimeter, industrial production had to continue to meet the needs of the Dutch army and the Dutch population. Large companies were therefore stimulated to not only stockpile, “but also to reserve industrial halls within the Fortress, so that essential parts of the production could be transferred there”.²³ In practice, this policy would backfire once the German occupation started.

¹⁸ Herman J. de Jong, *De Nederlandse industrie 1913–1965. Een vergelijkende analyse op basis van de productiestatistieken* (Amsterdam: NEHA, 1999), 273.

¹⁹ Hein A.M. Klemann, “‘Belangrijke gebeurtenissen vonden niet plaats...’. De Nederlandse industrie 1938–1948”, *Bijdragen en Mededelingen Betreffende de Geschiedenis der Nederlanden* (BMGN) 114, No. 4 (1999) 509.

²⁰ See for example Herman Amersfoort and Piet Kamphuis, *May 1940. The Battle for the Netherlands* (Leiden: Brill, 2010), Chapter 3.

²¹ Van der Heijden, *Grijs verleden*, 87–88.

²² Lou de Jong, *Het Koninkrijk der Nederlanden in de Tweede Wereldoorlog 1939–1945. Deel 2: Neutraal* (The Hague: Martinus Nijhoff, 1969), 406.

²³ Klemann, *Nederland 1938–1948*, 45.

German Plans for the Dutch Industry

Although the Netherlands had been preparing for war for years, it was completely taken by surprise when the German army attacked. The Dutch royals fled the country, as did the Dutch cabinet, leaving in charge the secretary-generals as the highest officials.²⁴ The British Royal Navy tried to destroy some stocks of strategic importance, but failed.²⁵ The colossal stockpiles fell into German hands.²⁶ The most important economic asset, the industrial production facilities, fell almost completely undamaged into German hands, as no one, not even the General Staff of the Dutch army, seems to have thought about sabotaging it.²⁷ Only the majority of the Dutch merchant fleet was able to escape.²⁸ This meant that Dutch industry was ready to start producing, although production had temporarily decreased directly after the German invasion.²⁹ This also confronted Dutch companies and firms with the question of whether or not they should start producing again and in this case for Germany, thereby becoming part of the German war economy.

Hitler had already in November 1939 ordered his underlings, especially Göring, to plan the exploitation of future conquered territories in Western Europe. However, when Nazi Germany occupied France, Belgium and the Netherlands in the summer of 1940, little actual planning had taken place. Göring had in fact no idea how to incorporate their economies into the German war effort. As General Georg Thomas, head of the *Wehrwirtschafts- und Rüstungsamt* (Economic Department) of the *Oberkommando der Wehrmacht* (Armed Forces High Command/OKW), was aware, “the Plenipotentiary for the Four-Year Plan had little

²⁴ Jan Luiten van Zanden, *Een klein land in de 20e eeuw. Economische geschiedenis van Nederland 1914–1995* (Utrecht: Het Spectrum, 1997), 163.

²⁵ Hein A.M. Klemann, “Dutch Industrial Companies and the German Occupation, 1940–1945”, *Vierteljahrsheft für Sozial- und Wirtschaftsgeschichte* 93, No. 1 (2006), 6.

²⁶ Klemann, *Nederland 1938–1948*, 46.

²⁷ Johannes Th. M. Houwink ten Cate, “Generaal Winkelman, secretaris-generaal Hirschfeld en de Duitse bezettingsspolitiek in mei-juni 1940”, *BMGN* 105, No. 2 (1990), 189.

²⁸ Van Zanden, *Een klein land in de twintigste eeuw*, 163.

²⁹ H. de Jong, *De Nederlandse industrie 1913–1965*, 273.

knowledge of economics.”³⁰ By May 1940, Göring still had no plans for Dutch industry. Therefore, in the early stages of the occupation of the Netherlands, he relied on the plunder tactics that he had used in Eastern Europe, albeit in a somewhat more civilized version.³¹

The occupation plan of the *Oberkommando des Heeres* (Army High Command) stipulated that the Netherlands, France and Belgium would be placed under the control of one military administration. However, when it became clear that the Dutch Queen Wilhelmina and her Cabinet had fled to London, Hitler decided to replace the military occupation regime with a civilian administration. For that, as the economic historian Hein Klemann has observed, it needed the cooperation of the local administration. As early as 1937, the Dutch government had issued a regulation that in case of an occupation, in the best interests of the population, “officials, burgomasters and other authorities should stay at their posts. Thus, it transpired that in the occupied country the informal meetings of the secretaries-general, the highest civil servants of the ministries, de facto became a technocratic cabinet, ruling the country under Seyss-Inquart’s supervision.”³²

Hitler had personally appointed the Austrian Arthur Seyss-Inquart as Reich Commissioner in the Occupied Netherlands Territories. He had the task to win over the Dutch population to National Socialism, as the Dutch were seen as “Germanic brothers” that had diverged from their kin throughout history. It was Seyss-Inquart’s job to rectify this mistake.³³ An occupier has two main ways to exploit an occupied economy: either plunder it as the Nazi’s did in Eastern Europe and thus destroy the economy, or instead make the country’s production capacity work to the occupier’s end. Seyss-Inquart, in his quest to win over the Dutch population, chose the latter option.³⁴

Seyss-Inquart did so for another reason as well: the constant power struggle that characterized the Nazi regime and hierarchy. Although he

³⁰ Klemann and Kudryashov, *Occupied Economies*, 80.

³¹ Klemann, *Nederland 1938–1948*, 56.

³² Klemann, “Dutch Industrial Companies”, 7.

³³ Van der Heijden, *Grijs verleden*, 175.

³⁴ Hein A.M. Klemann, “Did the German Occupation (1940–1945) Ruin Dutch Industry?”, *Contemporary European History* 14, No. 4 (2008), 463.

got his orders directly from Hitler, Seyss-Inquart's authority was disputed from the moment he was appointed. In fact, when it came to the economic exploitation of the occupied countries of Western Europe, there were three major factions: Göring as the head of the Four-Year Plan, the *Wehrmacht* as represented by General Thomas as the head of the *Wehrwirtschafts- und Rüstungsamt* of the OKW, and the German governors in the occupied countries, whose main goal was to create order in line with German political goals. Göring at first had the intention of plundering the Netherlands, whereas Thomas wanted to put the Dutch economy to work for the German cause.³⁵

To achieve their goals, Göring and Thomas created an unholy alliance. This meant that when the new *Reichskommissar* arrived in the Netherlands, his opponents had already founded an office to place military orders, the *Rüstungsinspektion Niederlande* (Armaments Inspection Board in the Netherlands). Should Seyss-Inquart accept this situation, economic policy would be directed from Berlin and Göring, which would mean outright plunder, although Thomas would presumably provide some counterweight. This would destroy Seyss-Inquart's goal of winning over the Dutch population to the German side. With his intention of simply looting, Göring created a conflict with Thomas. This wasn't a real problem as the latter had relatively little influence—he has been labelled “not a negotiating partner to be taken seriously”³⁶—but it also put him on collision course with Seyss-Inquart who was indeed a force to be reckoned with. The latter was of the (correct) opinion that Göring not only threatened his mission, but was equally dangerous to his position. As a show of force, Seyss-Inquart refused “to obey Göring's order to send all raw materials to Germany. Instead, he sent limited quantities—about half the stocks”.³⁷

³⁵ Klemann, *Nederland 1938–1948*, 58–59.

³⁶ Rolf-Dieter Müller, ‘Albert Speer and Armaments Policy in Total War’, in *Germany and the Second World War. Volume VIIA. Organization and Mobilization in the German Sphere of Power: Wartime Administration, Economy, and Manpower Resources 1942–1944/5*, ed. R.D. Müller et al. (Oxford: Oxford University Press, 2015), 306.

³⁷ Klemann, “Did the Occupation”, 471; Klemann and Kudryashov, *Occupied Economies*, 80–81.

It was a fortuity for Seyss-Inquart that, contrary to the situation in France and Belgium, the situation in the Netherlands had normalized quickly. There were no streams of refugees, most Dutch people just waited to see what would happen.³⁸ The men soon returned to work, with any patriotic reluctance tempered by family considerations.³⁹ Moreover, as there was little damage to Dutch industry, from the end of May onwards normal industrial production seemed very well possible. *Auftragsverlagerung* would also make it possible to continue daily life as normally as possible, in contrast to a strategy of seizing raw materials, semi-finished products, machines and labour, which would lead to unrest.⁴⁰

Seyss-Inquart used the relatively undisturbed state of the Dutch economy to his advantage in his power struggle with Göring. In August 1940, he tried to systematize the system of *Auftragsverlagerung* to transfer German orders to companies in the occupied Netherlands. To this end, Seyss-Inquart founded the *Zentralstelle für öffentliche Aufträge*, later renamed the *Zentralauftragstelle* (Central Public Order Office/ZAST). The task of the ZAST was to stimulate *Auftragsverlagerung*, while at the same time administering and coordinating German orders, including that of the *Rüstungsinspektion*. Seyss-Inquart's policy was implemented in the Netherlands with great success, resulting in 1940 alone in orders worth 900 million guilders (1,200 million RM),⁴¹ or 14 % of the Dutch GDP. The system of *Auftragsverlagerung* sparked an economic boom in 1940 and 1941 unlike anything seen in the Netherlands since the 1920s. From a secret report of the ZAST, it becomes clear that by November 1941 orders worth around 2.5 billion RM had been transferred to the country.⁴² By 1943, the Netherlands supplied Germany with industrial goods

³⁸ Van der Heijden, *Grijs Verleden*, 129.

³⁹ Klemann and Kudryashov, *Occupied Economies*, 80.

⁴⁰ Elena Dickert, *Die "Nutzbarmachung des Produktionspotentials besetzter Gebiete durch Auftragsverlagerungen im Zweiten Weltkrieg. Staatlichen Regulierung und Verlagerungsverhalten von Maschinen- und Automobilunternehmen"* (unpublished dissertation, Norwegian University of Science and Technology Trondheim, 2009), 109.

⁴¹ Dickert, *Die "Nutzbarmachung"*, 161, Table 9.

⁴² 'Vertraulich', Zentralauftragstelle für die besetzten niederländische Gebiete, 19 November 1941, NIOD, 249-0066A, *Auftragsverlagerung*, inventory number a2.

that amounted to 2–3 % of the total German weapons production.⁴³ As of October 1943, the *Wehrmacht* alone had transferred orders to the Netherlands amounting to 723 million RM.⁴⁴

As is clear from Klemann's contribution to this book, financing this whole system was the biggest problem.⁴⁵ While Seyss-Inquart had introduced *Auftragsverlagerung* to thwart Göring, the latter was at least clever enough to recognize its potential and to copy this system for Belgium and France. When Hitler informed his subordinates in July 1940 of his intention to attack the Soviet Union the next year, it would have been even more stupid to undermine the occupied Western economies. Göring "now decided to milk the cow, not butcher her".⁴⁶ By means of the *Auftragsverlagerung*, military production could be increased considerably.⁴⁷

Continue Production?

How did Dutch business react to producing for Nazi Germany, in general, and to the *Auftragsverlagerung* in particular? From the start, Dutch industry found itself in a difficult position. In the first two months after the German invasion, businessmen and companies were confronted with a crucial question: could their projects that had a military character be continued under the new rulers?⁴⁸ (in 1940) And if they decided to do so, what would that mean for them in the unlikely event of a German defeat? Would they be prosecuted as collaborators and, as had happened

⁴³ Van Zanden, *Een klein land in de 20e eeuw*, 166.

⁴⁴ Hans Umbreit, 'German Rule in the Occupied Territories 1942–1945', in *Germany and the Second World War. Volume VIIA. Organization and Mobilization in the German Sphere of Power. Wartime Administration, Economy, and Manpower Resources 1942–1944/5*, ed. R.D. Müller et al., 203.

⁴⁵ Hein A.M. Klemann, "Financial and monetary developments in the occupied Netherlands, 1940–1945".

⁴⁶ Klemann and Kudryashov, *Occupied Economies*, 81, 82, and 85.

⁴⁷ Dickert, *Die "Nutzbarmachung"*, 36.

⁴⁸ Madelon de Keizer, *Appeasement en aanpassing. Het Nederlandse bedrijfsleven en de Deutsch-Niederländische Gesellschaft 1936–1942* (The Hague: Staatsuitgeverij, 1984), 210.

in Belgium after the First World War, possibly be shot? Dutch businessmen were basically confronted with a choice either to work for Germany or stop production, with all the consequences that came with that option, for example having to fire their employees.

This dilemma was made even more difficult as the highest remaining authorities after the fighting in the Netherlands had ended differed strongly on the matter, although it can be said that the attitude of the Dutch authorities and industry towards German orders was determined in the first month of the occupation.⁴⁹ On the one extreme stood Henri Gerard Winkelman, the commander-in-chief of the Dutch army, who after the capitulation was still responsible for order and security, and onto whom civil authority was passed on 13 May 1940 when the Dutch royals and the cabinet fled to London.⁵⁰

Winkelman realized that a clear guideline for Dutch business was necessary. Although he was of the opinion that trade and industry should be put into action as soon as possible, this did not apply to the industry that manufactured war or war-related products. This meant, in his view, producing for an enemy with which the Netherlands was still at war. Therefore, on 18 May 1940, four days after the Dutch capitulation, Winkelman let it be known via the press that work on defence orders had to stop immediately.⁵¹ Producing weapons of war was, in his view, a violation of national and international law. His position on the production of intermediate goods for the armaments production was unclear, but these made up a considerable part of the goods manufactured on behalf of the *Wehrmacht*. Hans Max Hirschfeld, secretary-general of the Department of Trade, Industry and Shipbuilding, and the most important Dutch authority on economics during the war, supported Winkelman. However, Göring would have none of it. During his first visit to The Hague he invited Winkelman for a meeting, at which he called him all sorts of names, even threatening him with a stay in a concentration camp. Shortly afterwards, Winkelman was pushed aside by Seyss-Inquart.⁵²

⁴⁹ Joggli Meihuizen, *Noodzakelijk kwaad. De bestraffing van economische bestraffing in Nederland na de Tweede Wereldoorlog* (Amsterdam: Boom, 2003), 19.

⁵⁰ Houwink ten Cate, 'Generaal Winkelman, secretaris-generaal Hirschfeld en de Duitse bezettingsspolitiek', 188.

⁵¹ Lou de Jong, *Het Koninkrijk der Nederlanden in de Tweede Wereldoorlog 1939–1945. Deel 4: mei '40-maart '41. Eerste helft* (The Hague: Martinus Nijhoff, 1972), 176.

⁵² Klemann, *Nederland 1938–1948*, 67, 505.

This basically ended resistance from the Dutch authorities and companies to work for Germany. Winkelman himself had been somewhat ambiguous, stating on 15 May, the day of the Dutch capitulation: "In the new circumstances, it is necessary that everyone, in his own profession, working circle or company, continues his life quietly and seriously. All, on whatever place they find their work, must contribute to keeping social life going."⁵³ That was in line with what most leading Dutch politicians, businessmen and most journals were thinking: the war was lost, and it would be best to adapt to the new circumstances. Former prime-minister Hendrik Colijn, for example, wrote a brochure in 1940 entitled *On the border of two worlds*, (*Op de grens van twee werelden*) in which he stated it should be accepted that Germany would determine the fate of the Netherlands until at least the turn of the century.⁵⁴ Therefore, the only way for Dutch business (and the Dutch people as a whole) *not* to collaborate with Germany would have been, as G. E. Langemeijer, former Attorney-General with the highest Dutch court stated after the war, "to collectively commit suicide on 15 May 1940".⁵⁵

Rather than considering a "collective suicide", some industrialists saw collaboration as a bargaining chip and in the best interest of the Netherlands. In business circles, the dominant opinion was that Germany was triumphant, and that this implied that Dutch business had to go along with the Third Reich economically.⁵⁶ Most entrepreneurs showed themselves to be willing to accept German orders, and the occupier generally met very little resistance from Dutch industry. Basically, life had to continue as normally as possible; accommodation was for the most part determined by economic considerations.⁵⁷ That is not to say that

⁵³ As quoted by Meihuizen, *Noodzakelijk kwaad*, 25. The original reads: 'Thans, in de nieuwe omstandigheden, is het noodzakelijk, dat ieder, in eigen beroep, werkkring of bedrijf, rustig en ernstig zijn leven voorzet. Allen, op welke plaats zij hun arbeid ook vinden, moeten er toe bijdragen, het maatschappelijk leven in gang te houden.'

⁵⁴ Hendrik Colijn, *Op de grens van twee werelden* (Amsterdam: De Standaard, 1940), 51.

⁵⁵ As quoted by De Keizer, *Appeasement en aanpassing*, 220. The original reads: "De enige wijze waarop het Nederlandse volk collaboratie zou hebben kunnen vermijden, dat was een collectieve zelfmoord op 15 mei 1940."

⁵⁶ De Keizer, *Appeasement en aanpassing*, 219, 221.

⁵⁷ Houwink ten Cate, 'Generaal Winkelman, secretaris-generaal Hirschfeld en de Duitse bezetting-politiek', 187.

individual Dutch firms and businessmen did not face dilemmas or that there was no hesitation at all to restart production. There were a few companies that refused German orders in 1940, but their number was so limited that the Germans preferred to not even pay attention to them.

A broad and persistent resistance was neither considered by the secretaries-general, nor by businessmen and the unions.⁵⁸ Fear of post-war prosecution, should Germany eventually lose the war, seems to have been largely absent. When a number of metal entrepreneurs asked the secretary-general of Justice in the first days of the occupation if they risked being punished after the war if they produced for the *Wehrmacht*, they were swiftly comforted that prosecution would not be severe, if it would happen at all.⁵⁹ There was no discussion about the principle question of whether or not to cooperate with the occupier economically: the discussion revolved around the question of the organizational form rather than the morality.

This position was strengthened by the fact that government orders ceased to exist. Sectors where these orders had made up a large percentage of total orders, such as the metal, textile and shoe industries, relapsed in 1940. In 1938 and 1939, the Dutch government spent 115 and 139 million guilders respectively on defence.⁶⁰ With the Dutch capitulation, many orders to Dutch industry, especially the shipbuilding sector, were lost. This made rising unemployment a serious threat, forcing the Dutch authorities to issue a ban on dismissals immediately after the capitulation, although without much success. As Hitler also decided to set free the approximately 300,000 Dutch prisoners of war, the pressure on the labour market increased strongly. By June 1940, unemployment had reached approximately 26 %. The second half of 1940 was characterized by the German desire to end unemployment as soon as possible.⁶¹

⁵⁸ Lou de Jong, *Het Koninkrijk der Nederlanden in de Tweede Wereldoorlog 1939–1945. Deel 7: mei '43—juni '44. Eerste helft* (The Hague: SDU Uitgeverij, 1995), 120–121.

⁵⁹ Klemann, *Nederland 1938–1948*, 70.

⁶⁰ Centraal Bureau voor de Statistiek (CBS), *Tweehonderd jaar statistiek in tijdreeksen 1800–1999* (The Hague/Voorburg 2001), 71.

⁶¹ Report by Karl Wittmann, leader of the *Zentralauftragsstelle* in The Hague, 'Twee jaar "Auftragsverlagerung" naar Nederland', 28 July 1942, NIOD, Amsterdam, 249-0066A, *Auftragsverlagerung*, inventory number a2.

In this situation, the Germans made it clear that those workers for whom no job could be found would be sent to Germany to work. This was a serious threat, as this had indeed happened to Belgian workers during the First World War, many of whom died or were seriously injured. Now that the German market finally opened after having been closed since 1931, refusing German orders would cause unemployment to skyrocket.⁶²

The system of *Auftragsverlagerung* was therefore duly welcomed in the Netherlands, and it could be effortlessly supplied by the large Dutch stockpiles of raw materials.⁶³ This meant that while France was still fighting, the Dutch weapons industry had already accepted German orders and the Dutch national railways had been put at the disposal of the German authorities.⁶⁴ As they at first were quite moderate—except towards the Jews—cooperation with the Germans did not only serve the interests of Dutch entrepreneurs, but also the interests of their employees.⁶⁵

Dutch Industry Accepts German Orders

The question still remained whether Dutch industry should produce war material for Germany. Although the armed forces had capitulated, formally the Netherlands was still at war with Germany. By producing for the Third Reich, it was possible that weapons produced in the Netherlands could in fact kill Dutch citizens. The general opinion of leading Dutch captains of industry was clear: production for Germany was necessary. Nevertheless, when it came to producing war material, the Germans had to exert some pressure. The main means by which the Germans did this, was via the so-called *Protokoll von Schrötter*, composed on 3 June 1940 by *Oberstleutnant* of the *Luftwaffe* Robert Leopold von Schrötter, *Rüstungsinspektor* (Armaments inspector) *der Deutschen Wehrmacht*.

⁶² Klemann, *Nederland 1938–1948*, 68–69.

⁶³ Report by Karl Wittmann, leader of the *Zentralauftragsstelle* in The Hague, ‘Twee jaar “Auftragsverlagerung” naar Nederland’, 28 July 1942, NIOD, Amsterdam, 249-0066A, *Auftragsverlagerung*, inventory number a2.

⁶⁴ Van Zanden, *Een klein land in de 20e eeuw*, 163.

⁶⁵ De Keizer, *Appeasement en aanpassing*, 221.

In as far as Dutch industry had any doubts about producing for Germany, this protocol made it possible for Dutch industry to comply without taking long-term risks. This document stated that the German army would take over the contracts between the Dutch navy and the Dutch shipyards, on the pre-condition that the guns on the warships to be built would not be installed in the Netherlands.⁶⁶ This German dictate allowed Dutch industrialists to paint a picture that they had been forced by the Germans. However, the former totally agreed with working for the occupier: “The dictate was the legitimation that the Germans were prepared to construct for them.”⁶⁷

Secretary-general Hirschfeld, the dominant Dutch voice on economic matters, shared the hard line on defence orders proclaimed earlier by Winkelman. So did Aarnout Marius Snouck Hurgronje, who, after the Dutch ministers had left the Netherlands in May 1940, became the head of the board of secretaries-general. He strived for loyal cooperation with the new rulers, as long as it did not conflict with international law.⁶⁸ What made Hirschfeld and Snouck Hurgronje different was that they were willing to consider the matter from the perspective of the captains of industry. Moreover, they seem to have considered Winkelman’s position as perhaps too rigid and, although correct from a military and juridical point of view, untenable in the long run.⁶⁹ Von Schrötter’s *Protokoll* was presented to the Dutch representatives for approval. Hirschfeld had on a number of occasions protested against the German demand that the Dutch metal industry should start to work for Germany. His protests had been dismissed. Therefore, he and Snouck Hurgronje asked for a meeting with Seyss-Inquart, which took place on 4 June 1940. Also present were Hans Fischböck—Seyss-Inquart’s *General Kommissar für Finanz und Wirtschaft* (Commissioner of Finance and Economy)—and von Schrötter himself.

⁶⁶ H.M. Hirschfeld, *Herinneringen uit de bezettingstijd* (Amsterdam: Elsevier, 1960), 225. The original reads: “Die Wehrmacht tritt in die Verträge ein, die zwischen der holländischen Marine und den Werften abgeschlossen waren, soweit es dem Wunsch der Marine entspricht, wobei vorausgesetzt wird, dass die Geschütz-Rohre in den Werften nicht montiert werden.”

⁶⁷ Meihuizen, *Noodzakelijk kwaad*, 89–90.

⁶⁸ De Jong, *Het Koninkrijk der Nederlanden in de Tweede Wereldoorlog 1939–1945. Deel 4: mei ‘40–maart ‘41. Eerste helft*, 143–144.

⁶⁹ Meihuizen, *Noodzakelijk kwaad*, 68.

The Dutch delegation made it clear that the German demand created a strong conflict of conscience. According to the stipulation of The Hague Convention of 1907, the German authorities could not demand that the Dutch people carried out work in the interest of the warfare of the occupant.⁷⁰ Therefore, Snouck Hurgronje strongly urged the German authorities to abstain from orders to produce war material. Von Schrötter responded to this by repeating that guns would not be placed on the ships in the Netherlands, and that “he was committed to not give new orders to finished war material, insofar it was about fire-arms”.⁷¹ This was completely unsatisfactory to Hirschfeld and Snouck Hurgronje. Seyss-Inquart stated that he understood the Dutch compunctions and that he was willing to cooperate as much as possible to prevent the Dutch industry’s conscientious objections. However, the guidelines presented by von Schrötter were to be seen as a decision of the *Reichskommissar*. Hirschfeld and Snouck Hurgronje registered the opposition of Dutch industry, but conceded that they were forced to accept the decision of the *Reichskommissar*.⁷² Dutch industry also fell into line.

This submission marked the way in which Dutch industry would work for German orders in the coming years. In practice, it meant that the Dutch economy provided an important contribution to the German war economy until the second half of 1944.⁷³ By then, half of Dutch industry was working for Germany.⁷⁴ It should be noted that Dutch companies, apart from the shipbuilding industry, mainly produced intermediate goods for armaments. In September 1942, this amounted to 63 %; a year later it had decreased to a still considerable 40 %.⁷⁵ Accepting German orders via the ZAST of course also made it easier, because of the enormous

⁷⁰ Hirschfeld, *Herinneringen uit de bezettingstijd*, 221.

⁷¹ Idem, 222. The original reads: ‘Dass er sich dafür einsetzen wird, dass der holländischen Industrie keine neuen Aufträge auf fertiges Kriegsgerät erteilt werden, soweit es sich im Schusswaffen handelt’.

⁷² The information in this paragraph is taken from Hirschfeld, *Herinneringen uit de bezettingstijd*, 223 and Meihuizen, *Noodzakelijk kwaad*, 92–93.

⁷³ Van Zanden, *Een klein land in de 20e eeuw*, 167.

⁷⁴ William I. Hitchcock, “Collaboration, resistance and liberation in Western Europe,” in *The Cambridge History of the Second World War. Volume II: Politics and Ideology*, ed. Richard J.B. Bosworth and Joseph A. Maiolo (Cambridge: Cambridge University Press, 2015), 420.

⁷⁵ Scherner, “Europas Beitrag zu Hitlers Krieg”, 83.

success of this policy, at least in the first two years of the German occupation of the Netherlands. In April 1941, the ZAST noted that a “large part of the Dutch industry believes that by carrying out orders of German industry its conscience is not burdened as heavily as it would be when carrying out orders of the army of an enemy”.⁷⁶ Consequently, the Dutch industry hardly resisted. Another contributing factor was that there were no signs from the Dutch government in exile in London that economic collaboration would be punished severely, should Germany be defeated.⁷⁷ Those Dutch firms—among them three of the four Dutch multinationals—that had evacuated to London or had shifted their ownership to off-shore offices,⁷⁸ and their directors also said little about the consequences of economic collaboration. They mostly discussed the Netherlands’ post-war economic orientation, its relationship with Germany as its most important economic partner, and possible annexation.⁷⁹

With the framework of collaboration in place, Dutch industry went to work with the German orders. As is clear from Fig. 5.1, the majority of those orders went to the shipbuilding sector, machine building, aircraft industry, electro-technical industry, construction, the wood processing industry, the chemical industry and the textile industry.

Up to 1 June 1942, German orders worth 2.9 billion RM had been transferred to Dutch industry, approximately half of which consisted of direct orders by the *Wehrmacht*, especially on behalf of the *Kriegsmarine* (the German Navy), and the *Rüstungsinspektion*.⁸⁰ German purchases in 1940 and 1941 amounted to 7 and 19 % respectively of Dutch national income.⁸¹ In the summer of 1944, the ZAST made an overview of

⁷⁶ ‘Notiz für Herrn Nimtz, “Unterbringen von Aufträgen bei holländischen Firmen, die teilweise für die Deutsche Wehrmacht arbeiten”, 10 April 1941, NIOD, 093, Zentralfauftragstelle, inventory number 1. The original reads: “Ein grosser Teil der holländischen Industrie glaubt, durch die Ausführung von Aufträgen der deutschen Industrie sein Gewissen nicht so sehr zu belasten als wenn Aufträge der Wehrmacht des “Feindstaates” Deutschland ausgeführt werden müssen.”

⁷⁷ See Meihuizen, *Noodzakelijk kwaad*, 741.

⁷⁸ Tooze, *The Wages of Destruction*, 390.

⁷⁹ See Lak, “Onze welvaart staat en valt met die van Duitsland”, 407–408 and 410.

⁸⁰ Zentralfauftragstelle The Hague, ‘Zweijahresbericht der Zentralfauftragstelle f.d. besetzten niederländischen Gebiete’, 24 June 1942, NIOD, 093, Zentralfauftragstelle, inventory number 21.

⁸¹ Klemann, “Did the German Occupation,” 473.

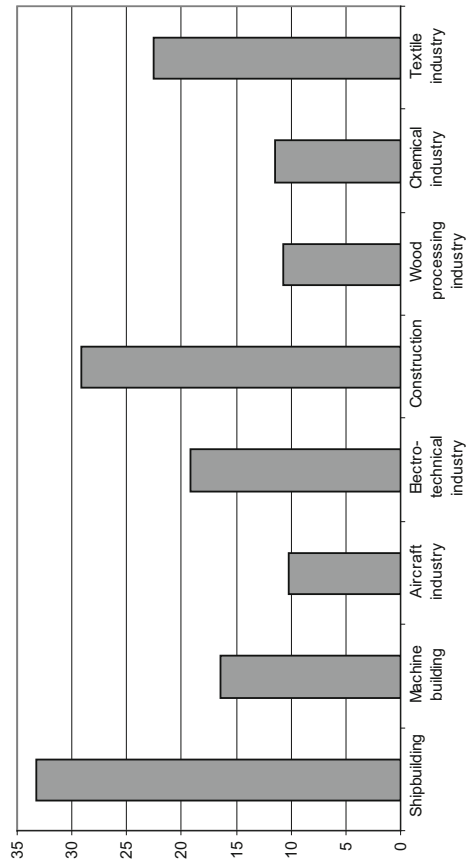


Fig. 5.1 Share in percentages of various Dutch industry sectors in the total German Auftragsverlagerung, 1940–42 (Source: Report Karl Wittmann, 'Twee jaar "Auftragsverlagerung" naar Nederland, 28 July 1942, NIOD, Amsterdam, 249-0066A, Auftragsverlagerung, inventory number a2)

German orders transferred to the Netherlands between 1 June 1940 and 31 May 1944. In total, this amounted to 5,105 million RM, 80 % of which had already been delivered.⁸² The majority of those orders had gone to Dutch shipbuilding. For example, already by June 1942, Dutch shipyards had received orders worth 619 million RM.⁸³ The German orders to Dutch firms continued until late 1944, but from September 1944 onwards, especially after Operation *Market Garden* had signalled that the Allies were targeting Hitler's grasp over the Netherlands, industry in the west and north came to an almost complete standstill.⁸⁴

Dutch Shipbuilding During World War II

In general, the Germans tried to exploit the comparative advantages of each occupied country. This meant, for example, that the General Government was mainly used for production of ammunition, while in France the truck, car and aircraft industries were targeted. In the Netherlands, shipbuilding was always in first or second place when it came to receiving German military orders.⁸⁵ The Dutch shipyards started working for the Third Reich almost from day one of the occupation. Some, as for example the firm Gusto, had already signed contracts in May 1940, a few weeks before the Dutch metal industry accepted von Schrötter's *Protokoll*. Gusto's president, N. W. Conijn, offered to finish the gun-boats and motor torpedo boats that he had had under construction for the Dutch navy for the *Kriegsmarine*. At Wilton-Fijenoord, the largest shipbuilding yard in the Netherlands, there was little hesitation to work for the German navy. Like many Dutch captains of industry, its president, the German C. H. Teschmacher, was totally convinced of the

⁸² Van der Heijden, *Grijs verleden*, 177.

⁸³ Zentralfauftragstelle The Hague, 'Zweijahresbericht der Zentralfauftragstelle f.d. besetzten niederländischen Gebiete', 24 June 1942, NIOD, 093, Zentralfauftragstelle, inventory number 21.

⁸⁴ Klemann, *Nederland 1938–1948*, 276.

⁸⁵ Scherner, "Europas Beitrag zu Hitlers Krieg", 80. For France, see for example Marcel Boldorf, "The French economy under German occupation, 1940–1944", in *Economies under Occupation. The hegemony of Nazi Germany and Imperial Japan in World War II*, ed. Marcel Boldorf and Tetsuji Okazaki (London/New York: Routledge, 2015), 99–111.

German victory and showed complacency. Even before there was a clear strategy, the shipbuilding yards adjusted to the new situation; in essence, the largest Dutch branch of industry capitulated more than two weeks before the French army did so on 22 June 1940.⁸⁶

The German occupation authorities had a strong interest in the Dutch shipbuilding industry. The ZAST even investigated whether workers were willing to work 60 hours per week in exchange for extra rations. However, orders did not only come from the *Kriegsmarine*: orders from the inland navigation were also important.⁸⁷ By the autumn of 1940, the Netherlands had already supplied the Third Reich with 750 smaller vessels and 50 tugboats.⁸⁸ In the early months of the occupation of the Netherlands, the *Kriegsmarine* was especially interested in the capacity of the Dutch shipbuilding yards to convert inland navigation vessels into landing craft for Operation *Sea Lion*, the German invasion of Great Britain that never happened. Wilton-Fijenoord built dozens of these ships.⁸⁹

Most of the Dutch shipbuilding yards were located within or in the vicinity of Rotterdam, and they fell into German hands almost undamaged. Many yards had just prior to the German invasion been working on large projects for the Dutch navy: only a few of the ships under construction were partially destroyed, most were unharmed.⁹⁰ The Germans had not been happy with Winkelman's instruction of 18 May 1940. The same applied basically to the presidents of the Dutch shipbuilding yards, as Winkelman prohibited the execution of orders by private companies.

The board of directors of Gusto, Wilton-Fijenoord and the Rotterdamsche Droogdok Maatschappij (RDM) asked Winkelman whether they were allowed to accept work for the *Kriegsmarine*. Winkelman explicitly stated on 23 May 1940, during a meeting where representatives of Koninklijke Hoogovens and other leading industrialists

⁸⁶ Baart, *Rotterdam oorlogshaven*, 26–27.

⁸⁷ Information taken from Klemann, *Nederland 1938–1948*, 267–268.

⁸⁸ 'Wirtschaftliche Leistung der besetzten niederländischen Gebiete', July 1941, NIOD, 093, Zentralfauftragstelle, inventory number 9.

⁸⁹ Giel van Hooff, 'Familie Wilton', in *Nederlandse Ondernemers 1850–1950*. Rotterdam, ed. Joop Visser, Matthijs Dicke et al. (Zutphen: Walburg Pers, 2014), 386.

⁹⁰ Meihuizen, *Noodzakelijk kwaad*, 31.

were also present, that aid to the enemy was forbidden and punishable. When Teschmacher replied that this contradicted what Winkelman had stated earlier, the latter replied:

Then you have misunderstood me and I will tell you once more. When a man is standing at a workbench, a German comes in and he puts his gun to his chest and says: “*work* and if you don’t I will shoot you”, and the man goes to work, I will not blame him for it. One can not expect, that everyone is a hero and let himself be shot. That is beyond one’s control, but accepting an order for work is not.⁹¹

The presidents of the various shipbuilding yards did not appreciate Winkelman’s refusal.⁹² When the commander-in-chief disappeared from the stage soon afterwards, the road to collaboration with the German authorities was open. As of June 1940, almost all Dutch shipbuilding yards accepted orders from the *Wehrmacht* and especially the *Kriegsmarine*. The first two who did so were Wilton-Fijenoord and Gusto, and they produced an impressive number of warships and other vessels for the German army.

During the war, Wilton-Fijenoord built minesweepers, torpedo-boat chasers and submarines. Apart from this, it produced oil tankers, merchant vessels, torpedo-tubes, flamethrowers, and performed sizable restoration works to warships and weapons. Moreover, before the war, it had commissioned the cruiser *De Zeven Provinciën* and this ship was finished for the *Kriegsmarine*. Despite von Schrötter’s ‘concession’ of 4 June 1940, Wilton-Fijenoord also installed the gun emplacements, including the barrels.⁹³ In the period August 1943 to August 1944 alone, the company

⁹¹ As quoted by Lou de Jong, *Het Koninkrijk der Nederlanden, Deel 4: eerste helft*, 177–178. The original reads: “Dan hebt u het verkeerd begrepen en zal ik het nog eens zeggen. Als een man aan een werkbank staat en er komt een Duitser, die hem een pistool op de borst zet en zegt: “werk en anders schiet ik je neer”, en die man gaat werken, zal ik hem dit niet kwalijk nemen. Men kan niet verlangen, dat iedereen een held is en zich laat doodschietsen. Dat is overmacht, maar een opdracht voor werk aanvaarden, is geen overmacht.”

⁹² Johannes Leonard van der Pauw, *Rotterdam in de Tweede Wereldoorlog* (Amsterdam: Boom, 2006), 312.

⁹³ Van der Pauw, *Rotterdam in de Tweede Wereldoorlog*, 314.

executed German orders to a total value of 32.5 million guilders.⁹⁴ The perception that Germany would lose the war, which started around the time of the massive defeat of the German army at Stalingrad in February 1943, does not seem to have played a role at all in accepting German orders. It is not precisely clear why this was so, but it probably has to do with the fact that the shipbuilding industry did not fear being severely punished. Dutch government officials had made it clear that they would (probably) not be prosecuted, enabling the yards to make huge profits and allowing their workers to keep their jobs.

As a result of the orders of the *Wehrmacht*, Wilton-Fijenoord expanded considerably during the war. The numbers of employees increased from around 4,000 to circa 6,500. The leadership of the company continued to work for the German authorities until 1945, when workers were instructed to continue working during the weekend to finish urgent orders of the *Kriegsmarine*.⁹⁵ The same applies largely to Gusto, which also built warships, tankers and cargo vessels. The companies' total revenues between 1940 and 1944 amounted to around 41 million guilders, 84 % (34.8 million) of which consisted of German orders.⁹⁶

The only shipbuilding yard that tried to fend off the German orders that came in by the dozen in late 1940, was the Rotterdamsche Droogdok Maatschappij. It succeeded in not producing any weapons for the occupier, its leadership managing to slacken production throughout the war to only 30–40 % of the real capacity, despite continuous pressure from the German authorities. Apart from two submarines and a cruiser that had fallen into German hands in May 1940, the RDM only managed to finish 15 smaller vessels. Between August 1943 and August 1944, it executed German orders to the value of 5,055,450 guilders, or only 15 % of the amount at Wilton-Fijenoord during the same period.⁹⁷ From the start, the RDM's management was fiercely anti-German. The board of directors tried to keep as many of the German orders as possible at bay,

⁹⁴ 'Overzicht van firma's die Duitse opdrachten hebben uitgevoerd bevattende de betaalde bedragen aan Gebühren à %', NIOD, 093, Zentralfauftragstelle, inventory number 136.

⁹⁵ Van Hooff, "Familie Wilton," 387.

⁹⁶ Van der Pauw, *Rotterdam in de Tweede Wereldoorlog*, 315.

⁹⁷ 'Overzicht van firma's die Duitse opdrachten hebben uitgevoerd bevattende de betaalde bedragen aan Gebühren à %', NIOD, 093, Zentralfauftragstelle, inventory number 136; own calculations.

and to delay the rest of them as much as possible. It did so, for example, by letting its employees perform tasks for the company itself, by thoroughly and for a prolonged time revising the machinery, and producing domestic appliances for its own staff. As a consequence, the production capacity of the company for executing Germans orders was significantly limited.⁹⁸ The Germans seem not to have reacted strongly to this, thus showing that under-production was possible and did take place.

However, the RDM was the exception to the rule: almost all shipbuilding yards and machine factories in the greater area of Rotterdam eagerly accepted German orders. As such, the Dutch shipbuilding industry contributed considerably to the German war effort. The Dutch historian Lou de Jong estimated (based on a German report from 1943) that 14 % of the newly-built ships that became available to Nazi Germany came from Dutch shipping yards. At the end of 1942, 89 % of the work there consisted of German orders; by the beginning of 1944 it had increased to 92 %.⁹⁹ In total, the Dutch industry received 2,235 million *Reichsmark* of the *Wehrmacht's Verlagerungsproduktion*.¹⁰⁰

All told, the Dutch shipbuilding yards built around 800 new warships, while refitting circa 2000 ships for war purposes. From a military point of view, the shipbuilding sector overshadowed all other forms of collaboration, including the thousands of Dutch *Waffen-SS* volunteers. Whereas the latter did not have any real influence on the actual fighting, the ships built in the Dutch shipyards did.¹⁰¹ As such, the latter was of considerable importance to the German war effort.

Conclusions

In May 1940, Dutch firms and entrepreneurs were confronted with the German occupation. Almost from day one, they were confronted with a difficult dilemma: either work for Germany and collaborate economically,

⁹⁸ Van der Pauw, *Rotterdam in de Tweede Wereldoorlog*, 316.

⁹⁹ Lou de Jong, *Het Koninkrijk der Nederlanden in de Tweede Wereldoorlog, Deel 7: Eerste helft*, 92–93.

¹⁰⁰ Scherner, “Europas Beitrag zu Hitlers Krieg”, 81.

¹⁰¹ Information taken from Baart, *Rotterdam oorlogshaven*, 35. More Dutchmen died in a German uniform than in Allied *khaki*. See Klemann, *Nederland 1938–1948*, 19.

or refuse and go bankrupt. As most Dutch companies were small and middle sized, they basically only had one option if they wanted to remain solvent: to accept the German orders. These came in large numbers as of June 1940. Through the system of *Auftragsverlagerung*, transferring orders the already overburdened German industry could not cope with to the Netherlands (and later on also to Belgium and France), Dutch industry did well during the first two years of the occupation. These orders were eagerly accepted.

As a consequence, and despite commander-in-chief Winkelman's explicit orders, Dutch industry needed little convincing to start working for Nazi Germany. It makes no sense to ask the question here whether or not this behaviour needs to be seen as "right" or "wrong". Dutch business and individual firms simply had to cope with the fact that from the point of view of contemporaries, Germany had won the war and would remain dominant on the Continent for years to come. Restarting production, which could be done fairly easily as there was relatively little damage in the Netherlands, and enormous stockpiles of raw materials had been built up before the war, in this context meant producing for Germany.

The Dutch shipbuilding industry is a case in point. Already in May 1940 it accepted German orders. During the war, it would make huge profits. Wilton-Fijenoord saw its number of employees increase considerably. The Dutch shipbuilding sector was of prime interest to Nazi Germany, especially from a military point of view. In all, almost 3,000 warships were built or converted to that purpose by Dutch shipyards. As such, they contributed perhaps the most to Germany's war effort of all the Dutch industries. In the end, what Winkelman had feared actually happened: ships produced in the Netherlands killed Dutchmen fighting in Allied service.

6

Seizure or Purchase? French Deliveries for German Purposes in World War II, 1940–44

Marcel Boldorf

Introduction

The French economy was the largest and most diversified among the occupied European countries, and thus it was of special interest for German warfare. Almost every important industrial sector was represented on French territory. In some respects, French industry was complementary to its German counterpart, as we will see hereafter in the case of aluminium production. It was typical for France that its industries were widely scattered across the territory; only some sectors had regional concentration in a particular part of the country. Another important aspect was the organization of the occupation. In June 1940, only the northern part of the country was occupied, representing two thirds of the territory and almost as much of the economic resources. The German *Wehrmacht* had difficulties accessing the goods and resources of southern France before it occupied the remainder of the country in November 1942. The most

noteworthy French industries were aviation or motor vehicle production, and some specialized product lines, such as tank treads.¹

If we want to find an objective term for the German exploitation, we might consider it as German demand. The relevant question was how Germany would satisfy this demand. Generally, two options were available: the seizure of goods versus the purchase of goods. The second way was financed by taking exorbitant occupation costs from the French government or by making deficits on the clearing account, which was meant to balance the account of bilateral trade. The term of exploitation is an apt description for what transpired, and does not warrant further discussion as such and shall not be put into question. Despite this, the two ways of satisfying the German demand were not equivalent: Looting only had a limited reach; after a short time, it could be expected that the stocks would be exhausted and that the motivation of French companies to produce would approach zero. Therefore, the occupier established institutions for economic regulation after September 1940. By creating monetary incentives, they sought to direct the French firms to produce goods needed by the Germans. During the course of the war, however, looting and seizure of goods remained of considerable importance in several production sectors. This contribution explores what tactics of exploitation were chosen and under which circumstances. Its aim is to clarify how the German demand was met—a question the existing literature does not answer in a satisfactory manner.²

The paper is structured as follows: First, the organizations and the institutional setting for the exploitation of France are presented; then follows an explanation for why contracting at the governmental level was of minor importance; then the ways of exploitation via seizure or via purchases in several sectors (aluminium, copper, scrap, cement, locomotives and goods wagons, cars and lorries, watches and rabbit skins) are explored, leading to

¹ Jonas Scherner, "Europas Beitrag zu Hitlers Krieg. Die Verlagerung von Industrieaufträgen der Wehrmacht in die besetzten Gebiete und ihre Bedeutung für die deutsche Rüstung im Zweiten Weltkrieg," in *Europäische Volkswirtschaften*, eds. Christoph Buchheim/Marcel Boldorf (Munich: Oldenbourg, 2012), 80–2.

² Michel Margairaz, *L'état, les finances et l'économie. Histoire d'une conversion 1932–1952, vol. 1* (Paris: Comité pour l'histoire économique et financière de la France, 1991); Arne Radtke-Delacor, "Produire pour le Reich. Les commandes allemandes à l'industrie française (1940–1944)," *Vingtième siècle. Revue d'histoire* 70 (2001), 99–115.

the conclusion that the German authorities were thinking primarily about the immediate demands of their war economy, rather than pursuing any long-term development plans for French industries.

Organizations for the Exploitation of France

Shortly after the French surrender in June 1940, the *Militärbefehlshaber in Frankreich* (High Military Command, MBF) was installed in Paris and established an economic division. Two aims were recognized as crucial for the exploitation of the occupied country: (a) using the French economy as much as possible for war purposes; in practical terms the production of war supplies, (b) exploiting France by transferring raw materials and machinery to the *Reich*.³ To achieve the first aim, a Central Office for Public Contracts (*Zentralauftragsstelle*, ZAST) was installed at the beginning of September, in order to direct French exports to Germany.⁴ Every German order worth 5,000 *Reichsmarks* (RM) or more had to be certified by the ZAST before being transmitted to a French company.⁵ Thus, the institution was supervising the exports to Germany and deliveries to the *Wehrmacht* in France. The exporting French company had priority in respect of entitlement to raw materials and other inputs.

However, it took time before the system of shifting orders to French firms was effectively implemented. Until the ZAST started its operations, requisitions carried out by the front troops of the *Wehrmacht* dominated. Property of the French army and the French state was generally confiscated

³Vereinbarung über Errichtung der Zentralauftragsstelle für den Bereich des MBF zwischen Oberkommando der Wehrmacht, dem Reichswirtschaftsministerium, dem Wirtschaftsrüstungsstab Frankreich und der Wirtschaftsabteilung beim MBF, 5 September 1940, Bundesarchiv-Militärarchiv Freiburg (BArch-MA), RW 35/774.

⁴Hans Umbreit, "Auf dem Weg zur Kontinentalherrschaft," in *Das Deutsche Reich und der Zweite Weltkrieg*, vol. 5: *Organisation und Mobilisierung des deutschen Machtbereichs*, part 1: *Kriegsverwaltung, Wirtschaft und personelle Ressourcen*, eds. Bernhard Kroener, Rolf-Dieter Müller, Hans Umbreit (Stuttgart: Deutsche Verlags-Anstalt, 1988), 234. See also: Alan S. Milward, *The New Order and the French Economy* (Oxford: Clarendon Press, 1970), 65–6.

⁵MBF, Chef des Verwaltungsstabes, Lagebericht Oktober 1940, 1 November 1940, Archives Nationales Paris (ANP), AJ 40/444.

without compensation as war booty.⁶ In breach of international law, the *Wehrmacht* also transported goods and raw materials to the *Reich* that were scarce in the German war economy, for instance by removing cotton stored in French ports, or the inventories of textile manufacturers.⁷ The demand for metals that had run out in the *Reich* was particularly high. Large amounts of non-ferrous metals had already been shipped to Germany as 1940 drew to a close.⁸ At the Wiesbaden Armistice negotiations, the German and French delegations could not reach an agreement with regard to the financing of the requisitions. As long as the requested materials did not belong to the French state, the MBF envisaged settlements according to the principles of private enterprise.⁹

Since August 1940, the *Wirtschaftliche Forschungsgesellschaft* mbH (the Economic Research Association, Wifo), a state-owned company founded in 1934 for research purposes, acted formally as intermediary buyer that was responsible for procuring raw materials vital to the war effort. As an accounting office, it shifted the materials acquired in France to German companies and to the *Wehrmacht*. The injured companies in France received acknowledgement of receipt and could turn to the local French authorities for compensation. When the German occupation administration was financially better off, as a result of its ongoing earnings from occupation costs, it paid the French authorities compensation of 540 million francs for the requisitions up to the end of October 1942.¹⁰

For the purchase of goods and raw materials, another organization, the *Rohstoffgesellschaft AG* (Raw Materials Association, Roges), was founded in December 1940. Its task was to exploit the West European occupied areas and organize the transports to Germany.¹¹ Thus, it took over the

⁶ Hans Umbreit, "Les politiques économiques allemandes en France," in *L'occupation, l'Etat français et les entreprises*, eds. Olivier Dard/Jean-Claude Daumas /François Marcot (Paris: Association pour le développement de l'histoire économique, 2000), 25–8.

⁷ Margairaz, *L'état, les finances et l'économie*, 609.

⁸ Milward, *The New Order*, 80.

⁹ MBF, Chef der Militärverwaltung, Kommandostab, Lagebericht für August 1940, 2 September 1940, BArch-MA, RW 35/10.

¹⁰ Hans Umbreit, *Der Militärbefehlshaber in Frankreich 1940–1944* (Boppard: Boldt, 1968), 213–4.

¹¹ Frank Pega, *Tätigkeit der Deutschen Revisions-und Treuhand AG von 1925 bis 1945* (Unpublished PhD thesis, Ludwig-Maximilians-Universität, Munich, 2010), 194–5. Elena Dickert, *Die*

duties of the Wifo for the occupied territories. In the course of the war, Roges became responsible for the registration, transportation and utilization of raw materials. In April 1942, the Berlin headquarters employed 480 people. It maintained branch offices and warehouses at various places in Germany and Western Europe. Some of Roges' purchases in France were paid for through the occupation costs, but most of the transactions were credited to the clearing account.¹²

The organizations that were operating in the occupied French territories had a commercial character. Whereas the Roges paid for the requested raw materials, the ZAST established commercial relations between German importers and French producers. Thus, both organizations were installed to avoid the seizure of goods. The High Command of the *Wehrmacht* even recognized in November 1940 that reckless looting would deprive France of the resources necessary to run its administration properly, and especially to pay the demanded cost of occupation.¹³

Contracting as a Means of Exploitation

As an example, the role of contracting in German–French trade can be explored for aluminium, alumina and bauxite as the basic raw material. When the French ZAST was installed in September 1940, a large number of raw materials were subjected to rationing. However, this did not apply to aluminium and its preliminary products, for which the most privileged demander was the German aircraft industry, which became more and more important during the course of the war. Yet it was no longer allowed to use aluminium for the production of products related to housing construction, the automotive industry, commodities, decorative and art objects, electric power lines and plumbing. The ZAST nevertheless

“Nutzbarmachung” des Produktionspotentials besetzter Gebiete durch Auftragsverlagerungen im Zweiten Weltkrieg. Staatliche Regulierung und Verlagerungsverhalten von Maschinenbau- und Automobilunternehmen (unpublished PhD, Norwegian University of Science and Technology Trondheim, 2013), 139.

¹² Ralf Banken, *Edelmetallmangel und Großraubbwirtschaft. Die Entwicklung des deutschen Edelmetallsektors im “Dritten Reich” 1933–1945* (Munich: Oldenbourg, 2009), 662.

¹³ MBE, Kommandostab, Abteilung Ia, Lagebericht für November 1940, 3 December 1940, ANP, AJ 40/443. Hein Klemann and Sergei Kudryashov, *Occupied Economies. An Economic History of Nazi-occupied Europe, 1939–1945* (London: Berg, 2012), 79.

allotted raw materials primarily to companies that were producing for German purposes.

Pre-war France was an important exporter of crude bauxite. While production of the raw material was rising, the industrial extension of the further processing was stagnating. Until the 1940s, only five aluminium-producing plants were operating in France.¹⁴ In Germany, the situation was the opposite. The country produced almost no bauxite but was a large producer of aluminium. Another important bauxite importer was Britain. In 1938, France exported 57 % of its 330,590 produced tons of bauxite to Britain and 25 % to Germany.¹⁵ When the war broke out, French bauxite exports to Germany dropped from an annual average of 85,200 tons between 1934 and 1938 to 52,290 tons in 1939.

After occupying France in June 1940, the main German objective was to reactivate the French aluminium-based products exports to meet German requirements. During the meetings of the economic delegations of the French and German Armistice Commission in Wiesbaden, the German side tried to exert pressure in order to achieve this aim. *Vereinigte Aluminiumwerke*, represented by Ludger Westrick, tried to impose a contract ensuring a yearly export of 250,000 tons of bauxite to Germany.¹⁶ This corresponded to the total volume of French exports to both Britain and Germany in 1938. As the British market was closed for French goods, the German objective was to shift the exports previously going to Britain to Germany. Until the end of 1942, French bauxite production was almost exclusively located in the non-occupied zone in the South of France, especially in the departments of Var (Brignolles) and Hérault. Thus, the German troops had no direct access to the coveted raw material, which restricted the opportunity to seize it as war booty.

This situation seemed to make contracting necessary. The contracts not only involved bauxite but also the intermediate product of alumina and aluminium itself. The French interest in the Wiesbaden negotiations was to fix Germany's obligation of return deliveries by a contract. Moreover, the French government tried to achieve high prices in order to

¹⁴ Milward, *The New Order*, 240.

¹⁵ Milward, *The New Order*, 236.

¹⁶ Margairaz, *L'état, les finances et l'économie*, 616–8.

draw benefits from the exports. The requested price of 195 francs per ton of bauxite was high above the pre-war level. The Germans responded by offering 60 to 65 francs per ton.¹⁷

Apparently, the German interest was to stake out a high quota in order to receive a maximum amount of the French production. In addition to the fixture of the German claims, private contracts had to be signed by German importers and French exporters.¹⁸ The MBF expected faster business processing and accurate deliveries to Germany if the French companies were able to make profits. Consequently, the German importer very often paid a better price than his French domestic competitors. When exporting to Germany, French exporters could also expect a better supply of input factors, for instance electricity and coal. The establishment of direct contacts between French and German companies was a means of minimizing the influence of the French government on the organization of trade. The German authorities promoted this procedure at an early stage of the occupation.¹⁹

The French government nevertheless wanted to influence negotiations and kept a close eye on the trading agreements. Its policy has been described as *politique des contreparties* (counterpart policy),²⁰ the aim of which was to agree on compensation transactions, for instance German return deliveries of coal. The Vichy policy largely failed in this respect because Germany, with few exceptions,²¹ refused to export the goods that were urgently needed in France. However, the French companies were not backing their government, because they opposed the fixture of excessive prices. The Germans had the intention of shifting the negotiations to a private level below the governmental talks. The *Vereinigte Aluminiumwerke*, for instance, signed a contract with the *Compagnie des*

¹⁷ Milward, *The New Order*, p. 88.

¹⁸ *La délégation française auprès de la Commission allemande d'armistice. Recueil de documents publiés par le Gouvernement français, vol. 3: 24 novembre 1940–19 janvier 1941*, ed. Alfred Costes (Paris: Imprimerie Nationale, 1952), 59.

¹⁹ Délégué spécial pour les questions économiques dans les territoires occupés. Note pour la Présidence du Conseil, 24 July 1940, ANP, F 37/1.

²⁰ Margairaz, *L'état, les finances et l'économie*, 620; Henry Rouso, *La collaboration* (Paris: M.A. Editions, 1987).

²¹ For one such exception, see the case of Hansa Leichtmetall in the chapter by Hans Otto Frøland in this volume.

bauxites for a monthly delivery of 60,000 tons of bauxite. The price was fixed at 75 francs per ton, which was far below the French suggestions in Wiesbaden.²² The French delegation disapproved of such independent actions by their own industrialists. The motives of the French company can be assumed as follows: the *Compagnie des bauxites* opted for sales to Germany, which were backed up by the agreement to send large contingents monthly. Maybe the company's executives were aware of the weakness of the French negotiation position in Wiesbaden. At the end of the negotiations, the two governments agreed on a price that was close to German expectations. Moreover, selling to Germany gave the French company the confidence that it could obtain the agreed price for its deliveries and that it would minimize looting by German troops. The German side had to accept that aluminium and its upstream products were only available through commercial channels. However, there was a clear tendency in the course of the war that the occupier bought the requested materials and goods instead of seizing them.

Thus, we have to draw a two-part conclusion with respect to the question of contracting. The German side seldom fulfilled the official governmental contracts. As we have seen with the case of aluminium, they only served as a pressure instrument to reach high quotas of deliveries. The French negotiators were aware of this difficulty of contract enforcement but had no real alternative to respond to the German demands. Thus, the governmental collaborators continued negotiations, although the *Wehrmacht* pursued its practice of looting and purchasing on the black market.

On the other hand, the contracts concluded on a private level between French companies and the German authorities or importers were mostly fulfilled. When a French exporter was working for the war economy, he could expect various advantages. The prices paid by German importers were above the French domestic prices. Thus, French companies could make more profit if they exported their goods to Germany instead of selling them on the domestic market.²³

²² Milward, *The New Order*, 88.

²³ Hervé Joly, "The Economy of Occupied and Vichy France: Constraints and Opportunities," in *Working for the New Order. European Business under German Domination 1939–1945*, ed. Joachim Lund (Copenhagen: University Press of Southern Denmark, 2006), 99.

The contracting system on two levels was suitable to the German wish to extract as much as possible raw materials and other goods from France. In the course of the war, the number of German–French trade agreements increased. Thus, the fiction of legality was maintained, and the opposition of the French collaborators diminished. By mid-1943, contracts were running for bauxite, alumina, aluminium, leather, rabbit skins, ceramics, bed springs, scrap, spices, fruit and walnut kernels. The German demand for some of these goods will be explored in more detail. The MBF's status report of 21 July 1943 emphasized that in cases when a governmental agreement could not be reached, the MBF had the right to push through the expected deliveries against the will of the French administration.²⁴ However, this raises the question of how German authorities could enforce contracts.

Transfers for German Purposes

The German demand was predominantly for raw materials and armament goods. A major problem was that the same raw materials were also needed in French armament production. The result was an ambiguous situation in which a decision had to be taken whether the raw materials should be exported or be reserved for domestic consumption. A further decision, which has already been discussed above, was whether goods should be seized or purchased. A closer investigation into several sectors will reveal the parameters that decided whether the goods were bought or not, and what kind of use was made of them.

This subchapter is based on a series of statistics set up by the MBF in April 1944, with the title “The contribution of the French territory to the war economy”. To create the statistics, the MBF used its own data compilations and information taken from the official German *Reich* statistics. In an aggregated form, Alan Milward has already presented this data.²⁵ However, Milward's documentation is rather rudimentary, as he only

²⁴ MBF, Zentralabteilung Lagebericht über Verwaltung und Wirtschaft April–Juni 1943, 21 July 1943, ANP, AJ 40/444.

²⁵ Milward, *The New Order*, 132, see table 15: Comparisons of Output of Selected French Products for German Purposes in 1942 and 1943.

intended to give proof of Germany's exploitation of occupied France. In the following, a differentiated view on several sectors will be given on raw materials (non-ferrous metals and scrap), semi-finished and finished goods. For specific products, the manner in which the Germans acquired the goods—whether purchase or booty—will be analysed. Furthermore, it will be measured how important the share derived for German purposes actually was. The techniques of transferring the commodities either to the *Wehrmacht* or to German importers will be highlighted.

The analysis must be attentive to an uncertainty with respect to the use of goods and raw materials. Jonas Scherner has shown, in a paper on the German import statistics, that for customs reasons deliveries for the *Wehrmacht* were not registered as imports.²⁶ The same applied to booty and armament products, which did not only encompass arms and ammunition but also German orders transmitted via the ZAST. This coverage problem is partly relevant for Tables 6.1 and 6.2, which record “deliveries for German purposes”.²⁷ Thus, the *Wehrmacht's* consumption in France seems to have been included, at least as far as it was known to the MBF.

Table 6.1 Production and consumption of non-ferrous metals and scrap, 1940–43 (in 1,000 tons)

	French production for German purposes	Percentage of German purchases	Percentage of booty and salvage
Alumina	114.2	100	0
Aluminium	74.8	92	8
Copper	247.6	51	49
Scrap	873	21	79
Zinc	79.6	42	58
Lead	54.5	66	34
Tin	12.6	56	44
Nickel	6.1	34	66
Magnesium	5.4	93	7

Source: MBF, Chef der Militärverwaltung, Der Beitrag des französischen Raumes zur Kriegswirtschaft. Zahlen und Schaubilder, April 1944, ANP, AJ 40/413.

Salvage were metals that were saved after air raids or in damaged zones

²⁶ Jonas Scherner, “Der deutsche Importboom während des Zweiten Weltkriegs. Neue Ergebnisse zur Struktur der Ausbeutung des besetzten Europas auf der Grundlage einer Neuschätzung der deutschen Handelsbilanz,” *Historische Zeitschrift* 294 (2012), 85–95.

²⁷ Unfortunately, the details about how the data was gathered are unknown.

Table 6.2 Production and consumption of semi-finished and finished goods (1942–43)

		French production		Percentage for German purposes	
		1942	1943	1942	1943
Cement	1,000 tons	1,455	1,945	99	99
Soda	1,000 tons	310	309	33	40
Locomotives	units	192	244	70	76
Goods wagons	units	3,667	4,241	0	47
Cars	units	3,499	206	95	85
Lorries	units	39,201	17,943	90	92
Rabbit skins	million pieces	60.5	74.5	61	60
Walking shoes	1,000 pairs	8,189	6,913	32	28
Alarm clocks	units	888,000	923,000	42	64
Watches	units	720,000	768,000	59	71

Source: MBF, Chef der Militärverwaltung, Der Beitrag des französischen Raumes zur Kriegswirtschaft. Zahlen und Schaubilder, April 1944, ANP, AJ 40/413

Table 6.1 confirms the observations made above on the aluminium contracts. The *Wehrmacht* and German importers paid for aluminium in 92 % of the deliveries. Booty hardly played any role. In the case of alumina, the whole production for German purposes was purchased. At the beginning of the occupation, regular purchases lagged behind. Until October 1940, according to the estimation of the MBF, 8,000 tons of aluminium were seized by German front troops, but only 1,000 tons transferred to the German *Reich*.²⁸ However, during most of the occupation, aluminium was exported to Germany or delivered to the *Wehrmacht* on the basis of regular purchases.

The case of copper was different because half of the amount used for German purposes was classified as booty or salvage. It has to be noted that the designation encompassed several forms of copper metal. The most sophisticated type was electrolytic refined copper, which was produced in a specialized procedure. But there also existed simple forms of copper, such as coarse copper or copper salvage. According to the type of copper, the German methods for mobilization differed. When the *Wehrmacht* entered France, it found large stocks of copper in the most important

²⁸ MBF, Chef des Verwaltungsstabes, Lagebericht für Oktober 1940, 1 November 1940, ANP, AJ 40/444.

factories. As the metal was critically scarce in the *Reich*, the *Wehrmacht* immediately seized the material. Thus, around half of the booty of copper, approximately 72,000 tons, was seized during the first seven months of occupation.²⁹

In February 1941, Germany started a metal mobilization campaign. Both French and German metal mobilization commissioners were established to pursue different sources of copper. One of the first measures taken was to melt down copper coins and to replace them by banknotes.³⁰ Until the end of 1942, the metal mobilization continued in factories but the results were increasingly disappointing. The campaign also included private households, hotels and inns. Special items such as distillation units or printing cylinders of textile machines were sought. The campaign restarted when Germany also occupied the South of France in November 1942. Booty actions against companies with copper stocks were now reinforced. The major part of the seized copper was transported to Germany, whereas the rest was allocated to domestic industries working for German purposes within France. French factories that produced electrolytic refined copper were provided with raw material, for instance the Poissy plant of the *Société française d'affinage de cuivre* in the département Seine-et-Oise, or the copper works *Société française des métaux et alliages blancs* in the Paris suburb Saint-Denis. These factories had monthly outputs of 100 or 200 tons of refined copper. They produced on the basis of contracts with German firms or sold their product to the German authorities. They did not suffer from booty actions; on the contrary, their output of best copper quality was regularly purchased. On the supply side, the inputs were guaranteed by order of the German authorities.³¹

The scrap case is similar to the observations made for the copper industry. Scrap was mainly used as input for steel production, and as much as 79 % of the amount used for German purposes was seized as booty. In September 1940, the MBF introduced a differentiation between

²⁹ MBF, Kommandostab Abteilung Ia, Lagebericht für Dezember 1940/Januar 1941, 31 January 1941, ANP, AJ 40/443.

³⁰ MBF, Kommandostab Abteilung Ia, Lagebericht für Februar 1941, 7 March 1941, ANP, AJ 40/443.

³¹ MBF, Chef des Verwaltungsstabes, Lagebericht für September 1940, 2 October 1940, ANP, AJ 40/444.

commercial scrap (*Handelsschrott*) and booty scrap (*Beuteschrott*).³² The first one should be delivered for German purposes on the basis of regular trade agreements; a quantity of 100,000 tons was to be provided until the end of 1940. The second one was to be seized in French scrap depots; an amount of 70,000 tons was expected by the end of the year. In fact, the scrap programme, as the use for German purposes was called, was entirely fulfilled.³³ Between mid-October and mid-November 1940, for instance, a quantity of 40,000 tons was seized and sent as booty to Germany.³⁴

The favoured transport route was via Ghent, as described for copper above. As the transport routes via the British Channel became more and more hazardous, the Aire canal was restored, which linked the canal system around Paris to the waterways of Nord/Pas-de-Calais.³⁵ A circular flow of goods was established: on 400 barges, coal was shipped from the Northern French departments to Paris. On the way back, a capacity of 4,000 tons daily was available for the transport of scrap and iron ore to the Northern industrial district or via Ghent to the German Ruhr area.³⁶ This circuit could be run at least until the end of 1942; afterwards it was disturbed by air raids.

The removal of scrap intensified in 1941 with the occupier's use of the inland navigation routes. Until the end of this year, there were reports on the plundering of French scrap stocks, mostly being transferred to Germany as war booty. When the stocks were emptied, other forms of mobilization were activated that were similar to the metal mobilization programme. Old private cars were scrapped because hardly any individual driving was allowed during wartime. Further sources of scrap were

³² MBE, Chef des Verwaltungsstabes, Lagebericht für September 1940, 2 October 1940, ANP, AJ 40/444.

³³ MBE, Kommandostab Abteilung Ia, Lagebericht für Februar 1941, 7 March 1941, ANP, AJ 40/443.

³⁴ MBE, Kommandostab, Abteilung Ia, Lagebericht für November 1940, 3 December 1940, ANP, AJ 40/443.

³⁵ MBE, Kommandostab Abteilung Ia, Lagebericht für Dezember 1940/Januar 1941, 31 January 1941, ANP, AJ 40/443.

³⁶ MBE, Kommandostab Abteilung Ia, Lagebericht für April/Mai 1941, 31 May 1941, ANP, AJ 40/443.

useless ammunition agents and unusable military equipment.³⁷ As in the metal sector, the invasion of southern France opened new opportunities to seize booty. When the Atlantic zone was evacuated after April 1943, scrap could be removed from closed-down factories and abandoned cities, such as Saint-Nazaire, Lorient, Brest and Le Havre.³⁸

The results from the mobilization of commercial scrap were rather poor compared to the amounts that were transferred as booty to Germany. One reason was the mode of scrap seizure: scrap was not produced but simply confiscated or collected when available as waste. No sophisticated processing was needed and only the mode of transport had to be arranged. It could be sent to the steel plants that had a high demand for it. Until 1944, no noteworthy shortages of scrap could be noticed.³⁹ The cost of acquiring the scrap was modest as compared with transport costs, as the necessary administration was already paid for by the French government. Companies were less affected by the seizure of those materials. Thus, contrary to the situation with non-ferrous metals, scrap was mainly booty for the Germans. There was no need for the German administration to offer incentives in order to stimulate acquisition of scrap.

Cement was in particularly high demand by the German *Wehrmacht*. The first construction projects initiated after the occupation were for military purposes: fortifications along the Atlantic coastline, as well as taxi tracks for heavy bombers. The military requirements of cement were met, and to a large extent also the civil demand. However, cement was increasingly scarce when the inland reconstruction started. 1,400 bridges had been destroyed and around two thirds of them were rebuilt.⁴⁰ In spring 1941, the conflict between military reconstruction and civil infrastructural programs was apparent: In rural areas, the erection of silos for stocking grain was planned, but many of those projects failed because

³⁷ Milward, *The New Order*, 81. MBF, Militärverwaltung, Zentralabteilung Gruppe Z 3, Presse und Propaganda, Lagebericht für April–Juni 1943, 21 July 1943, ANP, AJ 40/444.

³⁸ MBF, Militärverwaltung, Zentralabteilung Gruppe Z 3, Presse und Propaganda, Lagebericht für April–Juni 1943, 21 July 1943, ANP, AJ 40/444.

³⁹ MBF, Militärverwaltung, Zentralabteilung Gruppe Z 3, Presse und Propaganda, Lagebericht über Verwaltung und Wirtschaft für Januar–März 1944, 28 April 1944, ANP, AJ 40/444.

⁴⁰ MBF, Kommandostab, Abteilung Ia, Lagebericht für November 1940, 3 December 1940, ANP, AJ 40/443.

of lack of cement. Until the end of 1942, only 833 silos were erected throughout France.⁴¹

The production of cement had a seasonal component as the consumption fell in the winter months. The average production remained on an acceptable level during the war: The index (1938 = 100) was 82 in 1941, 58 in 1942, 72 in 1943 and 36 in 1944.⁴² A notable rise of military consumption began in mid-1942 with the enforced building of the Atlantic wall. Hitler gave the order to intensify the fortification in August 1942. Only 20 % of the Atlantic wall—measured by the amount of cement consumed—had been built before Hitler's order. Nine months later, 50 % of the planned constructions were completed.⁴³ In this phase of the main extension work, the production of cement strongly increased, but it was exclusively used for the fortification.

The German *Wehrmacht* and the *Organisation Todt*, which were responsible for the majority of the military constructions, classified the cement as being used for German purposes, although it was not exported to the *Reich*. On the contrary, at least until April 1941, imports of cement to France were noted in the files, originating in Belgium and Germany.⁴⁴ However, no deliveries were received from Germany during the main construction period of the Atlantic wall. Due to its military importance, German demand for cement was insatiable, marking a certain contrast to other materials such as soda, where a larger part could be reserved for French domestic purposes.

Railway transports to the *Reich* were the backbone of Germany's exploitation policy. The situation with locomotives and goods wagons is therefore a most interesting case. On 31 July 1942, as many as 3,665 locomotives and 199,000 goods wagons belonging to the French national railways, the *Société Nationale des Chemins de fer Français* (SNCF), were running in Germany.⁴⁵ Consequently, an important number of railway

⁴¹ MBF, Verwaltungsstab, Zentralabteilung, Lagebericht für Oktober–Dezember 1942, 27 January 1943, ANP, AJ 40/444.

⁴² Alfred Sauvy, *La vie économique des Français de 1939 à 1945* (Paris: Flammarion, 1978), 155.

⁴³ Marcel Boldorf and Jonas Scherner, "France's Occupation Costs and the War in the East: The Contribution to the German War Economy, 1940–1944" *Journal of Contemporary History* 47 (2012), 302.

⁴⁴ MBF, Abt. Ia Kommandostab, Lagebericht für März 1941, 5 April 1941; idem, April/May 1941, 31 May 1941, ANP, AJ 40/443.

⁴⁵ Milward, *The New Order*, 132.

vehicles had already been transferred to the *Reich* by the time the statistics of Table 6.2 had set in. Since 1940, the extensive transport of goods from France to Germany had led to a sharp increase in rail traffic. Very often, there were no goods available in Germany for the return trip to France. Without hesitation, the German authorities confiscated the French locomotives and goods wagons. For December 1940 and January 1941, reports maintained that the French wagon inventory decreased by 2,000 cars weekly.⁴⁶ The German authorities even thought that they were entitled to do so, because the railway vehicles belonged to the French state and thus were available for seizure.

Not only the French authorities but also the MBF insisted on having the railway vehicles sent back, because lack of transport capacity endangered the fulfilment of the French coal programme. In winter 1942/43, the transport deficit became even more critical. A loss of 124 locomotives in the last quarter of 1942 was due to British bombings. There were no more reserves of locomotives, and up to 120 trains stood still daily. The whole system of French inland transportation was severely disturbed and there was a shortage of coal, due to a lack of transport means. Some 30 locomotives were procured from Germany and the building programme was accelerated.

As early as in September 1940, the *Deutsche Reichsbahn* (the German railways), ordered locomotives and wagons from French manufacturers.⁴⁷ The first programme, addressed to five locomotive builders in the department Nord and three more in Alsace, two in the Nantes region and one in Le Creusot, encompassed the delivery of 250 locomotives to the *Deutsche Reichsbahn* and 180 to the French SNCF. In mid-1942, a monthly average of 12 locomotives were delivered to Germany, this number rose to between 17 and 21 engines in October to December 1942.⁴⁸ The newly-produced locomotives, whose number rose remarkably in the first quarter of 1943, were primarily used for German purposes (See Table 6.3). In the course of 1943, the production diminished but the percentage for German use

⁴⁶ MBF, Kommandostab Abteilung Ia, Lagebericht für Dezember 1940/Januar 1941, 31 January 1941, ANP, AJ 40/443.

⁴⁷ MBF, Chef des Verwaltungsstabes, Lagebericht für September 1940, 2 October 1940, ANP, AJ 40/444.

⁴⁸ MBF, Verwaltungsstab, Zentralabteilung, Lagebericht für Oktober–Dezember 1942, 27 January 1943, ANP, AJ 40/444.

Table 6.3 Locomotives delivered in 1943 to the German and French railways

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
DR	20	25	21	18	16	17	39			30		
SNCF	7	5	9	8	6	7	15					

Source: MBF, Militärverwaltung, Zentralabteilung Gruppe Z 3, Presse und Propaganda, Quartalsberichte Januar-Dezember 1943, ANP, AJ 40/444.

DR=Deutsche Reichsbahn, SNCF=Société Nationale des Chemins de fer Français

still remained high. Although the crisis intensified, the German occupier succeeded in directing more locomotives to its side. This could not only be noticed for railway vehicles but also for a variety of other goods.

Cars and lorries were, of course, also vital to enhance transport capacity. In July 1940, all French automobile constructors replied positively to the German request for the resumption of production. The *comité d'organisation* of the automobile industry was the first of its kind to be founded in France.⁴⁹ After the occupation, the number of private cars fell dramatically. In Paris, which had a pre-war level of 250,000 cars, the number of circulating cars dropped in October 1940 to some 10,000, that is, it fell to 4 % of the initial value. This decline was more pronounced than, say, in Berlin, where a decline to 16 % was recorded.⁵⁰ On 1 July 1941, 78,522 passenger cars were registered on the occupied French territory.⁵¹ In most cases, the immobilization was executed by force, and some cars were transferred to Germany. By the end of 1941, the fuel supply declined steeply. By an order of January 1942, the consumption of fuel was restricted to essential uses, which led to a further decline of private cars in 1942. Another peak of confiscations followed the occupation of the French South from November 1942 onwards.⁵²

The restriction of private motor transport was accompanied by a decrease in the number of produced vehicles. Before the war, the automotive indus-

⁴⁹ Synthèse des rapports des préfets, 6 December 1940, ANP, AJ 41/397. See also the following chapter.

⁵⁰ MBF, Chef des Verwaltungsstabes, Lagebericht Oktober 1940, 1st November 1940, ANP, AJ 40/444.

⁵¹ MBF, Kommandostab, Abteilung Ia, Lagebericht für Juni/Juli 1941, 31 July 1941, ANP, AJ 40/443.

⁵² MBF, Verwaltungsstab, Zentralabteilung, Lagebericht für Oktober–Dezember 1942, 27 January 1943, ANP, AJ 40/444.

try was amongst the fastest growing industries in France,⁵³ but in 1942 only 3,500 cars were produced. In 1943, the production came almost to a standstill as not more than 200 were produced that year. From these vehicles, between 85 and 95 % went into German hands. The French producers transformed their car factories into armaments production facilities.

The number of lorries that were in operation on 1 July 1941 was significantly greater than it had been prior to the occupation; 134,586 lorries compared to 263,000 before the war.⁵⁴ Among these, small types with a lifting capacity of two tons dominated. Since lorries were essential for military transport, the production remained at a relatively high level. 39,201 vehicles were produced in 1942, but fell steeply to 17,943 lorries in 1943, that is, less than half of the production of the previous year. Again, around 90 % of produced vehicles were reserved for German purposes. The majority of the orders came from the armaments department of the *Wehrmacht*.⁵⁵ The German authorities maintained close contacts with the automobile manufacturers, who responded to their needs. The transfer of orders was arranged by the main committee of the German automotive industry (*Hauptausschuss Kraftfahrzeugindustrie*). The relocation of the production of single components lay in its hands until mid-1944, and the core business was also oriented towards German interests.⁵⁶

In 1941, a monthly average of 13,000 watches was used for German purposes. One year later, the *Wehrmacht* planned an increase to 40,000 units per month, that is, 480,000 wristwatches and pocket watches per year. As we can see in Table 6.2, this ambitious goal was not achieved. But the French production still increased to 423,000 watches, of which 59 % were delivered for German purposes. Thus, the French production for German purposes rose from 156,000 units in 1941 to approximately 250,000 in 1942. That year, the Germans requested around 70 % of the French production—this aim was not quite reached—and in 1943, when Germany claimed two thirds of a rising production, French companies provided more than 71 % for German

⁵³ Margairaz, *L'état, les finances et l'économie*, 482.

⁵⁴ MBE, Kommandostab, Abteilung Ia, Lagebericht für Juni/Juli 1941, 31 July 1941, ANP, AJ 40/443.

⁵⁵ Margairaz, *L'état, les finances et l'économie*, 597.

⁵⁶ Orders from various car producers (Daimler, NSU, Ford; Hanomag, MAN) and suppliers (Borsig, Bosch) to French firms, June-August 1944, ANP, AJ 40/1186.

Table 6.4 Average of monthly deliveries of watches for German purposes (1941–43)

1941	13,000 units
1942	20,800 units
1943	31,800 units

Sources: Milward, *The New Order*, 132; MBF, Chef der Militärverwaltung, Der Beitrag des französischen Raumes zur Kriegswirtschaft. Zahlen und Schaubilder, April 1944, ANP, AJ 40/413

purposes.⁵⁷ The strategy of permanently increasing demand seems to have been a successful way of achieving German aims. In spring 1943, for example, the German *Wehrmacht* demanded a monthly delivery of 66,000 pocket watches and wristwatches. This production programme was fulfilled, despite the lack of qualified manpower and the shortage of glass due to the closures of glaziers.⁵⁸ Table 6.4 summarizes the rise in the number of watches delivered for German purposes.

The German *Reichsverband* of the watch wholesalers was in direct contact with the French *comité d'organisation* of the watch industry to sign a delivery contract. The French producers depended on imports of Swiss clockworks, which at the end of 1941 were used for about 60 % of the watches produced in France.⁵⁹ After a slow start, the import of pieces from Switzerland reopened the possibilities of production for French watch manufacturers. There might have been a certain German supervision by the watch wholesalers, and by the administration for import controls, but apparently the French watchmakers were willing to sell their production to the *Reichsverband*. Probably, they received higher prices than on the domestic market and their supply of Swiss clockworks was ensured. Even in France as an occupied country, the producers rapidly adapted their sales strategy to the requirements of the German war economy.⁶⁰ The

⁵⁷ MBF, Militärverwaltung, Zentralabteilung Gruppe Z 3, Presse und Propaganda, Lagebericht für Januar–März 1943, 22 April 1943, ANP, AJ 40/444.

⁵⁸ MBF, Chef des Verwaltungsstabes, Lagebericht für September 1940, 2 October 1940, ANP, AJ 40/444; see below for factory closures.

⁵⁹ MBF, Kommandostab Abteilung Ia, Lagebericht für Dezember 1941/Januar 1942, 31 January 1942, ANP, AJ 40/443.

⁶⁰ See for the entrepreneurial strategies in Germany: Christoph Buchheim, "Unternehmen in Deutschland und NS-Regime: Versuch einer Synthese," *Historische Zeitschrift* 282 (2006), 358.

production for German purposes allowed them to keep their production profile and to ensure their sales.

Since the beginning of the occupation, rabbit skins were requested by the German authorities. The first documented purchase for 20 million RM took place in December 1940.⁶¹ For raw skins, three German–French supply agreements were concluded for the period 1941–43, the last one of January 1943 being the most extensive. Among the deliveries for German purposes, the *Wehrmacht* got the lion's share. French producers provided two kinds of rabbit skins: (a) raw skins, which needed further processing (*Schneidekaninfelle*), and (b) skins that were already tanned by furriers (*Kürschnerkaninfelle*). The German demand rose at the beginning of the winter war against the Soviet Union. In the course of this armed conflict, the deliveries were channelled to the *Waffen SS*, which was fighting on the Eastern front.⁶²

In the fulfilment of the three supply agreements, France delivered 112 million rabbit skins for German purposes, of which more than two thirds were supplied in 1942 and 1943.⁶³ Although this was a matter of top priority, the German *Wehrmacht* only succeeded in reserving around 60 % of the total French production for its own consumption. To explain this, we should have a closer look at the unequal distribution of the purchases throughout the year. In 1943, for example, the German side claimed around 60 % of the annual deliveries between July and September. This corresponded to the requirements of the *Wehrmacht*, which needed to be clothed during wintertime. The furs and the clothes were produced in the autumn; it can be regarded as a kind of “seasonal component”. During the rest of the year, the German pressure to furnish rabbit skins was presumably weaker, thus allowing the manufacturers to sell on the French domestic market. Rabbit skins also were sold to a large extent on the black market, where the German *Wehrmacht* was a good customer,

⁶¹ MBE, Kommandostab Abteilung Ia, Lagebericht für Dezember 1940/Januar 1941, 31 January 1941, ANP, AJ 40/443.

⁶² MBE, Militärverwaltung, Zentralabteilung Gruppe Z 3, Presse und Propaganda, Lagebericht für Juli–September 1943, 6 November 1943, ANP, AJ 40/444.

⁶³ See Table 6.2 above.

too.⁶⁴ However, the *Wehrmacht's* procurement office always paid for the skins; there were no cases of seizure. The black market sales were financed by the occupation cost funds in order to disguise their amount. But in spring 1943, the *Wehrmacht's* budget was cut and the Berlin ministries put a stop to illegal purchases. As a consequence, the purchases on the black market clearly diminished.⁶⁵

The companies in the sectors that we have studied in this chapter were among the war profiteers. We have seen that even some consumer goods industries profited from the German occupation. However, this was not the rule in the war economy. An order for the reorganization of the economy from 17 December 1941 was used by the occupying power to plan the closure of a large number of factories.⁶⁶ Some months later, in May 1942, the French Ministry of Industry had to present a list of almost 2,000 companies for closure.⁶⁷ At the top of the agenda was the preservation of coal and non-ferrous metals, resulting in the closure of 16 glaziers, 40 tin-making factories and 50 foundries. The majority of companies that were designated for closure manufactured consumer goods, including 300 pharmaceutical companies, 154 textile factories, 135 soap manufacturers and about 100 factories in the areas of paint, crafts and toy manufacture. This closure of factories made clear that the German authorities were concentrating on the war economy and did not follow any long-term development plans for France's economy.

Conclusions

Military requirements had priority in occupied France. This did not only affect the fortification works, but also the extensive supply of goods for German purposes. Large parts of materials and goods transports were

⁶⁴ Paul Sanders, *German Black Market Operation in occupied France and Belgium, 1940–1944* (Unpublished PhD thesis, University of Cambridge, 1999), 62.

⁶⁵ Boldorf and Scherner, "France's Occupation Costs," 299–308.

⁶⁶ Loi du 17 décembre 1941 relative à l'établissement d'un plan d'aménagement de la production, in *Journal Officiel*, 23 December 1941, 5500.

⁶⁷ French Ministry of Industrial Production. First list of factory closures referring to the decree from 17 December 1941, 21 May 1942, ANP, AJ 37/4.

directed to Germany, with considerable negative effects on the French domestic transport system, as has been shown by the shortage of locomotives and goods wagons. The results were significant supply gaps for French industry and thus, all companies were in permanent competition for scarce resources, including those in the armament sector. The German seizure and purchase of raw materials and goods made France suffer from shortages in all sectors of consumption. Raw materials or scrap were often taken as war booty; in particular the German *Wehrmacht* had no scruples when the materials were regarded as property of the French state. With regard to the acquisition of semi-finished or finished products, the incentive system built into commercial contracts played the decisive role.

The Vichy government, as well as the collaborating Paris ministries, failed to exercise influence on the trade policy. This is evidenced by the unequal trade agreements, as well as by the repression against the entrepreneurs' associations, the *comités d'organisation*. Instead, German organizations, such as the ZAST or the buying offices of the Roges, acted relatively successfully in the occupied territories.

The assumption must be rejected that the occupation began with a round six-month phase of looting, followed by period of "long-term utilization" of the French economy lasting to 1942/43, and finally another phase of pure looting towards the end of the war.⁶⁸ The findings of this paper show that the nature of the goods was the important factor for the decision on whether to seize or purchase. Raw materials, which easily could be seized, such as scrap or raw copper, were taken as war booty. Semi-finished goods and finished goods were rather included in the incentive system established by the ZAST. The effective installation of the institutions for economic supervision from September 1940 suggests that the German authorities had already elaborated their concept of economic regulations beforehand, and that it did not emerge via ad-hoc decisions while establishing the occupation regime.

⁶⁸ Hans Umbreit, "Die Verlockung der französischen Ressourcen: Pläne und Methoden zur Ausbeutung Frankreichs für die kriegsbedingten Bedürfnisse und die langfristigen Ziele des Reichs," in *La France et l'Allemagne en guerre. Septembre 1939–novembre 1942*, eds. Claude Carlier, Stefan Martens (Paris: IHAP, 1990), 437; Radtke-Delacor, Arne: "Produire pour le Reich," 99–103; Margairaz, *L'état, les finances et l'économie*, 593.

7

Shades of Collaboration: The French Automobile Industry Under German Occupation, 1940–44

Talbot Imlay

Introduction

In the economic realm, the dominant impression of the German occupation of France is exploitation. Thanks to a variety of tools—massive occupation costs, a highly distorted exchange rate, the manipulation of clearing arrangements, widespread pillaging of material, the placing of contracts with French companies, and the conscription of French men and women for labour in Germany—the occupiers succeeded in extracting considerable resources. In what remains the best overall study of the subject, Alan Milward estimated that in 1943, Germany was using at least 40 % of French resources. A more recent study estimates that the transfer of wealth to Germany amounted to slightly over one-third of France's GDP in 1941–42, before peaking at over one-half in 1943—levels the authors term “stunning”. Focusing on German contracts to French industry, Arne Radtke-Delacor calculates that 34 % of French production went to the Germans in the first half of 1942, rising to 40 % in the second half of 1943 and 45–50 % in early 1944. Equally striking is the increase in delivery rates of French industry, climbing from just

over 50 % of the total value of contracts between September 1940 and December 1943 to 70 % in 1943. During the last two years of the occupation, Radtke-Delacor argues, French industry became an “indispensable element of the German war economy”, accounting for some 40 % of the industrial production that Germany obtained from occupied Europe as a whole.¹ Contemplating such figures, it is little wonder that Peter Liberman, a political scientist, concluded that “conquest still pays”.²

In recent years, however, the impression of successful economic exploitation has been challenged by another view that emphasizes Germany's relative failure. In a book chapter that appeared in 1999, Johannes Houwinck ten Cate suggested that absolute figures did not tell the whole story. Comparing armaments production in Germany and in Western Europe, he estimated the latter's contribution to German production at the end of 1941 to be 10–12 % at most. During 1942, this gap would widen; while German armaments production rose by 80 %, deliveries from occupied Western Europe dropped by 15 %, a divergence Houwinck ten Cate attributed in part to the lower productivity of Western European workers. French workers, moreover, appeared to be particularly unproductive, as France's share of armaments deliveries from occupied Europe fell from 43 % in the first quarter of 1942 to 29 % in the last quarter.³ More recently, Adam Tooze has elaborated on this picture of relative failure. In his award-winning study of the Nazi economy, Tooze reassesses its achievements not only for Germany but also for occupied Europe. Describing the latter as an economic “basket case”, he highlights the yawning gap between pre-war and wartime production in order to underscore Germany's failure during the war to mobilize

¹ Alan Milward, *The New Order and the French Economy* (Oxford: Clarendon Press, 1970), 111; Filippo Occhino, Kim Oosterlinck and Eugene N. White, “How Much Can a Victor Force the Vanquished to Pay? France under the Nazi Boot” *Journal of Economic History* 68 (2008), 7; and Arne Radtke-Delacor, “Produire pour le Reich. Les commandes allemandes à l'industrie française (1940–1944)”, *Vingtième siècle* 70 (2001), 114–115.

² Peter Liberman, “The Spoils of Conquest”, *International Security* 18 (1993), 125–153.

³ Johannes Houwinck ten Cate, “Die rüstungswirtschaftliche Ausnutzung Westeuropas während der ersten Kriegshälfte” in Gerhard Otto and Johannes Houwinck ten Cate, “Die rüstungswirtschaftliche Ausnutzung Westeuropas während der ersten Kriegshälfte” in *Das organisierte Chaos. “Amsterdardarwinismus” und “Gesinnungsethik”: Determinanten nationalsozialistischer Besatzungsherrschaft*, eds. Gerhard Otto and Johannes Houwinck ten Cate (Berlin: Metropol 1999), 173–198.

the economic potential of Western Europe. And this failure proved fatal given Germany's own limited resources, as well as the combined economic strength of its enemies from 1941 onwards.⁴ To be sure, Hein Klemann has questioned Tooze's conclusions, maintaining that the gap between pre-occupation and occupation production was smaller than claimed, because the figures used exclude clandestine output. Calculating the latter is fraught with uncertainty, but even if one accepts Klemann's estimates, the total production of occupied Western Europe declined during the war, sometimes sharply.⁵ When it came to occupied Western Europe, the Germans might have succeeded in seizing a growing share of the productive pie, but it was nevertheless a shrinking pie.

From this perspective, the French case appears especially interesting. Using reworked statistics on German imports, Jonas Scherner recalculated the yearly value of occupied Europe's wartime production for the *Wehrmacht*, showing that France's contribution was not, as is often assumed, the single largest among the occupied territories. That distinction belonged to the Protectorate (Bohemia and Moravia), despite its having a smaller pre-war industrial capacity than France. Still more intriguingly, while the value of France's contribution stagnated and even declined from 1942, that of occupied Western and Northern Europe in general saw considerable increases over the second half of the occupation. Germany's failure to exploit more fully occupied Europe appears to have been greater in France than elsewhere.⁶ If so, the question is why. Much of the answer undoubtedly lies in the particular ways in which a variety of generalized phenomena—growing shortages of all factors of production, bureaucratic infighting among the occupiers, transportation problems, and so

⁴ Adam Tooze, *The Wages of Destruction: The Making and Breaking of the Nazi Economy* (London: Penguin, 2006), 411–420.

⁵ Hein Klemann and Sergei Kudryashov, *Occupied Economies: An Economic History of Nazi-Occupied Europe, 1939–1945* (London: Berg, 2012), 330–331.

⁶ Jonas Scherner, "Europas Beitrag zu Hitlers Krieg. Die Verlagerung von Industrieaufträgen der Wehrmacht in die besetzten Gebiete und ihre Bedeutung für die deutsche Rüstung im Zweiten Weltkrieg" in Christoph Buchheim and Marcel Boldorf, eds., *Europäische Volkswirtschaften unter deutscher Hegemonie, 1938–1945*, eds. Christoph Buchheim and Marcel Boldorf (Munich: Oldenbourg, 2012), 69–92. See also *Idem*. "Der deutsche Importboom während des Zweiten Weltkriegs. Neue Ergebnisse zur Struktur der Ausbeutung des besetzten Europas auf der Grundlage einer Neuschätzung der deutschen Handelsbilanz", *Historische Zeitschrift* 292 (2012), 79–113.

on—impacted the French economy. In the wake of Liberation, however, French companies pointed to another cause—deliberate under-production (*sous-production*). Although under-production attracted little scholarly attention at first, the claim has been revived in recent years, particularly for the French automobile industry. Referring to Peugeot, François Marcot talks of “a deliberate strategy of putting the brakes on production (*freinage de production*)”, while Laurent Dingli states that Renault and, indeed, all automobile companies, pursued a “politique de freinage” (policy of braking). The decisive question is not whether French automobile companies worked almost exclusively for the Germans, but how they worked. For Marcot, Dingli and others, French industrialists should be seen not simply as businessmen, and still less as collaborators, but rather as resisters working to sabotage the German war effort.⁷

The claim of under-production raises the question of whether the French automobile industry should be considered as a collaborator or resister. In an influential study, Philippe Burrin criticized the resister–collaborator dichotomy, arguing that it did not capture the attitude or activities of the vast majority of the French under occupation. Instead of resistance or collaboration, the French accommodated themselves to the realities of occupation, avoiding the dangers as best they could while seizing the opportunities that emerged. For Burrin, French industry offered a telling example of accommodation.⁸ Yet for all its usefulness, accommodation offers little help in assessing the claim of under-production, which centres on distinctions between resistance and collaboration. Accordingly, in discussing the response of the French automobile industry to the German occupation, this chapter will focus on the activities, as well as the evolving interests of various actors, in an effort answer the question of whether companies did deliberately under-produce. The chapter does so by dividing the occupation period into two relatively distinct phases. During the first

⁷ François Marcot, “La direction de Peugeot sous l’Occupation: pétainisme, réticence, opposition et résistance”, *Mouvement social* 189 (1999), 27–46; and Laurent Dingli, *Louis Renault* (Paris: Flammarion, 2000), 443. For a similar argument, see Jean-Louis Loubet, *La Maison Peugeot* (Paris: Perrin, 2009), 251–255; Monika Riess, *Die deutsche-französische industrielle Kollaboration während des Zweiten Weltkrieges am Beispiel der Renault-Werke (1940–1944)* (Frankfurt am Main: Lang, 2002), 339–343; and Emmanuel Chadeau, *Louis Renault* (Paris: Orban, 1998), 290.

⁸ Philippe Burrin, *La France à l’heure allemande 1940–1944* (Paris: Seuil, 1995).

phase, running from the summer of 1940 to sometime in 1942, French industry appears to have collaborated willingly with the Germans, producing as much as it could under difficult conditions. All the principal French and German actors shared an interest in industrial collaboration. As the course of the war turned against Germany, however, interests diverged: while the Germans desperately needed French industry to work wholeheartedly for them, French companies began to reconsider their interest in doing so. During 1943–44, with the French economy engulfed in a crisis brought about by growing shortages of all kinds, French companies possessed not only an interest but also the means to scale back (but not abandon) their efforts on behalf of the German war effort. A circumstantial case can therefore be made that French companies did engage in under-production—that is, that they worked less than wholeheartedly for the Germans, thereby producing less than they might have. Just as importantly, however, this under-production did not constitute resistance as it did not reflect any principled opposition to working for the occupiers.

1940–42: Converging Interests in Collaboration

Following France's crushing defeat in the summer of 1940, collaboration between the French and Germans established itself quickly in the automobile industry. All the principal actors, it quickly became clear, had an interest in getting French industry working for the occupiers. On the German side, Hermann Göring, the head of the Four-Year Plan and Germany's economic tsar at the time, favoured a two-pronged approach. The first and longer-term prong consisted of increasing the presence of German companies in Europe in general, either through the purchase or confiscation of local companies, or through unequal partnerships between local and German companies. From the beginning, moreover, he manifested a particular interest in France. "I ask you to pursue during the war with all available means the acquisition for the German economy of leading economic positions in France," he instructed Walter Funk, the German economics minister, in August 1940.⁹ The second

⁹ Göring to Funk, 17 August 1940, Bundesarchiv, (BArch) R 2501/7017.

and more immediate prong was to harness French industrial capacity to the German war effort. Accordingly, in August 1940, Göring issued a decree calling for the “systematic exploitation” of the economies of occupied Western Europe, effectively clearing the way for the placement of German contracts with French companies. To facilitate this process, the Germans created a *Zentralauftragstelle* (ZAST) within the occupation administration to act as a clearing house, overseeing and coordinating the placing of contracts. Göring initially sought to restrict contracts to “indirect war material”, by which he meant parts rather than complete products; and Scherner has shown that, generally speaking, occupied Europe produced mostly parts for the *Wehrmacht*.¹⁰ In this respect, the French automobile industry counted as something of an exception, as from early on companies produced not only parts but also complete vehicles—cars and trucks. Renault’s production programme, for example, called on it to build 1,650 two-ton trucks for the occupiers during the fourth trimester of 1940, of which 985 were delivered.¹¹ This points to the difficulties that Göring—and the German authorities in general—experienced in trying to control the growing flow of contracts. By the end of August 1940, over 30 automobile companies in the Paris region alone had already received contracts.¹² Despite firm instructions to work through the ZAST, many German companies and governmental procurement officials preferred to deal directly with French companies. Several major companies, including Auto Union and Daimler-Benz, would eventually establish offices in Paris, partly in an effort to by-pass what German industrialists viewed as cumbersome administrative procedures.¹³

¹⁰ BAL R 3010/30839, RWM circular, “Planmässige Ausnutzung der Wirtschaft der besetzten westlichen Gebiete für die deutsche Kriegswirtschaft”, 28 August 1940, BArch, R 3010/30839. See also Radte-Delacor, “Produire pour le Reich”, 99–108.

¹¹ “Rapport de MM Caujolle et Fougeray, Experts-comptables”, 23 October 1945, Archives Nationales, Paris (AN) Z/6NL/3 dossier 9SP.

¹² Rüstungsinspektion Paris, “Firmenbelegung durch Wehrmachtteil Heer”, 25 September 1940, National Archives and Records Administration, Washington DC (NARA). T 77/1255.

¹³ See Elena Dickert, “Die Rolle der Auto Union AG bei der ‘Nutzbarmachung’ ausländischer Unternehmen: Auftragsverlagerungen in die besetzten Gebiete während des Zweiten Weltkrieges”, *Zeitschrift für Unternehmensgeschichte* 58 (2013); and MBA, Zentralbüro Paris, Haspiel (Daimler-Benz) to Herrn Oberfinanzpräsidenten Württemberg – Devisenstelle, June 29, 1943.

On the German side, collaboration in the automobile industry would be overseen neither by Göring's staff nor by the military authorities, but by the *Generalbevollmächtigten für das Kraftfahrwesen* (General Plenipotentiary for Motor Transport/GBK). Created in November 1938, and comprised of both government and industry representatives, the GBK was in charge of the German automobile industry. Its biggest challenge was to meet the Nazi regime's ever-expanding demands. By the summer of 1940, the German automobile industry informed the GBK that they were already over-stretched and that without an influx of new capacity and resources, the production programme for 1940–41 simply could not be met.¹⁴ This situation explains the GBK's haste in the summer of 1940 to set up an office in Paris under Major (later General) Max Thoenissen, who was determined to integrate the French automobile industry not only into Germany's war effort, but also into the larger German-led European automobile industry that he envisaged for after the war. Unlike Göring, Thoenissen believed that collaboration could not simply be imposed on the French; it had to be a partnership, albeit one dominated by the Germans. The French automobile industry, he explained in Berlin in November 1940, cannot be "crushed", adding that "[w]e must recognize that it is a factor with which we must work". In Paris, meanwhile, Thoenissen wasted little time, appointing German commissioners to all of the principal French automobile companies in the summer of 1940. The task of these commissioners, as he informed representatives of the leading French automobile companies in July 1940, was to facilitate and not to dictate collaboration. More generally, the role of the Germans would be to assist the French in their efforts to "re-start" production.¹⁵

The response of German companies was admittedly more ambiguous. The German automobile industry as a whole was concerned about the revival of a potential rival—a concern that Göring predictably shared. A lengthy report in September 1941 by Auto Union, a leading German company, presented the French automobile industry as a competitor, even

¹⁴ Kissel (Daimler-Benz) to General von Schell (GBK), 25 July 1940, Archiv der Mercedes-Benz AG, Stuttgart, (MBA) Bestand Kissel, 9.27.

¹⁵ For Thoenissen, see Wirtschaftsgruppe Kraftfahrzeug, "Niederschrift über die Beiratssitzung am 28.11.1940", 4 December 1940, MBA, Bestand Kissel, 9.28; for the July meeting, see "Note de M. de Peyrecave" 30 June 30, 1947, AN Z/6NL/3, dossier 9SP.

if it also evinced interest in France as a potential market.¹⁶ At the same time, German companies, as already noted, were eager to find additional capacity and resources. As early as July 1940, Daimler Benz expressed an interest in Renault in this regard; two months later, it cast its gaze towards Peugeot.¹⁷ This eagerness appears to have trumped concerns about possible rivals: military officials in France were soon complaining of a flood of representatives of German companies, all of whom sought to place contracts with French companies. To be sure, tensions quickly emerged. The GBK strove with little success to impose some control on the placing of contracts, rightly fearing that the developing free-for-all would hinder the rational exploitation of French industry. With no more success, the GBK also sought to make contracts dependent on French companies supplying the necessary raw materials. For the GBK, the goal was to tap new resources, not to shift production from Germany to France. Underpinning this goal was the belief (or at the least the hope) that large reserves of raw material existed in France. This hope would quickly be contradicted by the evidence of mounting shortages, compelling German companies to promise to furnish materials to French companies—promises that were not always kept. Nevertheless, during 1940–41 these problems seemed manageable and German automobile companies were happy to place a growing number of contracts in France.

The same general eagerness to collaborate could be found on the French side. In the economic realm, corporatists, syndicalists and modernizers, each group with its own vision of France's future, vied to shape the policies of the new Vichy regime. But early on, the regime faced a more pressing task—that of devising a response to the wave of German contracts washing over French industry. This wave presented several dangers, including the risk of British reprisals and that of alienating French opinion that was unprepared for collaboration. Consequently, French officials initially sought to place limits on German contracts, for example forbidding goods of an “offensive [military] character” or war material

¹⁶ Frankreich-Bericht der Wirtschaftsgruppe Fahrzeugindustrie (Sept. 1941)” Sächsische Staatsarchiv, Chemnitz, (SäSC), Auto-Union, 31050/315, See also Dickert, “Rolle der Auto Union”.

¹⁷ Kissel (Daimler-Benz) to P.A.E. Martin, 8 July 1940; Kissel to Staatsminister Pflauer, 18 September 1940, MBA, Bestand Kissel, 11.3.

altogether. However, these limits proved ineffective, partly because they were ill-defined and partly because French companies ignored them; but even more so because Vichy was not committed to enforcing them. The regime, and the *Ministère de la production industrielle* (Ministry of Industrial Production/MPI) in particular, did not want to limit industrial production so much as to control it. Following France's defeat, Vichy officials embraced the prospect of industrial collaboration, confident that it provided one of France's few bargaining chips with the Germans. Here, longer and shorter term considerations co-mingled. Looking forward to the post-war period, Vichy hoped to negotiate an important place for France in a post-war dominated Europe. Meanwhile, during the war itself, the chip could be used to extract political and economic concessions (*contre-parties*) from the Germans that would alleviate the heavy burdens of the occupation and help to prepare a more promising future. When the Germans refused even to discuss a political agreement, Vichy fell back on more limited demands to be attached to individual contracts. Accordingly, in November 1940, the MPI authorized French automobile companies to accept German contracts in return for concrete concessions such as the release of French POWs for labour and the supply of raw materials.¹⁸

If Vichy was to retain some control over industrial collaboration, it would need an instrument for the task. Hence, in part, the August 1940 decree regarding the creation of *comités d'organisation* (COs) in various industrial and commercial sectors. Headed for the most part by prominent businessmen, and placed under the MPI's authority, the COs were charged with guiding and coordinating the activities of their various member companies.¹⁹ One aim was to combine elements of corporatism and state direction in the management of the economy, but another and more immediate one was to oversee collaboration with the Germans. This was certainly the case with the first CO, that for the automobile industry, the *Comité d'organisation de l'automobile* (COA), which was created in September 1940. Led by François Lehideux, a young and ambitious

¹⁸ MPI (Service des commandes allemandes) to COA, no. 781/SCM, 12 November 1940, AN F 12/9962.

¹⁹ Hervé Joly, ed., *Les comités d'organisation et l'économie dirigée de Vichy* (Caen: Centre de Recherche d'Histoire Quantitative, 2004).

former top cadre at Renault, the COA would pursue two related projects. One was to modernize and rationalize the French automobile industry, which was widely perceived as archaic, with too many companies building too many models, employing artisanal methods for a market that was too small. The other project was to work with the occupiers. Indeed, Lehideux was committed to collaboration, not so much out of ideological affinities as out of the belief that to do so was in the best interests of France, the French automobile industry and himself. That said, Lehideux conceived of collaboration as a genuine partnership. Together, the GBK and the COA would manage the collaboration between the German and French automobile industries for mutual benefit, with each responsible for its own industry and with each respecting the authority of the other. On these terms, Lehideux offered the occupiers his (and the French automobile industry's) "constructive collaboration".²⁰

Generally speaking, French automobile companies did not need to be coaxed by the COA into working for the Germans. In many ways, they had little choice. During the run-up to war, many of the companies had been integrated into France's expanding rearmament effort, becoming dependent on government contracts and financing. With Vichy unable to play this role, automobile companies needed to find a substitute buyer, and this could only be the Germans. In this context, justifications for collaboration were not difficult to find. A refusal to accept German contracts meant idle factories, leaving the workforce destitute and the company threatened with liquidation and/or confiscation. Realism also played its part: in 1940 it appeared that Germany had won the war, and to reject this reality made little business or other sense. As German armaments officials reported in November 1940, French industrialists were eager to collaborate not only for reasons of profit but also because the future supposedly pointed towards "Franco-German cooperation".²¹ Admittedly, some companies sought political cover from the Vichy authorities, which for example explains Renault's initial hesitations regarding offers to repair German military vehicles. But once it became clear that Vichy would

²⁰ Cited in Michel Margairaz, "Les politiques économiques *sous et de Vichy*", *Histoire@politique* 9 (2009), 14.

²¹ Wi-und Rü Stab Frankreich, "Lagebericht des Wehrwirtschafts- und Rüstungsstaabes Frankreich für November", 28 November 1940, BArch-MA RW 24/15.

not meaningfully object, French companies readily accepted German contracts in increasing numbers.

With all the principal actors willing and even eager to work together, the remaining task was to establish a framework for collaboration. During the course of several meetings in late 1940 and early 1941, the GBK and the COA negotiated a framework for the French automobile industry, resulting in a protocol initialled by Thoenissen and Lehideux in March 1941. On the German side, Thoenissen agreed to curtail severely the authority of the commissioners that has been appointed to French automobile companies; the directors of the latter would now be free to manage their factories as they deemed best, subject to loose oversight from the COA. On the French side, Lehideux offered his committed support to industrial collaboration, promising that the COA would do all it could to help French companies to fulfil the terms of their contracts. Together, the COA and the GBK would establish production programmes on a trimester basis for the industry as a whole and for individual companies, and would work to resolve disputes involving issues such as the price and quality of goods produced as well as the supply of machine tools, raw materials and labour.²² This cooperation between the two organizations is worth emphasizing, because it highlights the inability of the Germans to dictate unilaterally the terms of industrial collaboration. During 1940–41, the German occupation authorities obstructed Vichy's efforts to endow the COs with a strong centralized authority, insisting that the comités should have no control over the allocation of scarce resources or any "decision-making power" in the placing of contracts with French industry. The German aim was to eliminate all intermediaries between German companies and agencies on the one hand and French companies on the other.²³ But this aim was never achieved in the case of the French automobile industry. Instead, the COA emerged as a vital intermediary, linking German buyers with French producers, locating raw material

²² Lehideux to Barnaud (MPI), 1 April, 1941, with attachment: "Conditions pour la passation de commandes par l'industrie allemande à l'industrie française", undated, AN 3W/52. See also "Aktenvermerk. Besprechung mit Herrn Lehideux am 15. und 16.12.1940," AN 3W/230.

²³ See the file in AN AJ 40/776, as well as Arne Radtke-Delacor, "La position des Comités d'organisation face aux autorités d'occupation: la pomme de discorde des commandes allemandes en 1940–1941" in Joly, ed., *Les Comités d'organisation*, 63–71.

supplies, investigating disputes and gathering the statistical information needed for the rational exploitation of the French automobile industry. As Thoenissen recognized, effective collaboration required a central French interlocutor equipped with some authority; and this requirement created space for the COA to demonstrate its value and, in so doing, to expand its authority. In an early testimony to this dynamic, in November 1940 Thoenissen was already referring to Lehideux as “our partner”.²⁴

With the COA and GBK as partners, industrial collaboration flourished during the first two years of the occupation. Production for the Germans climbed from 7,615 military vehicles and 2,584 automobiles in 1940 to 33,927 military vehicles and 9,471 automobiles in 1941; the respective figures for 1942 were 35,621 and 3,336. In monetary terms, the value of vehicles delivered to the Germans rose from 1,250,000,000 francs in 1940 to 3,411,000,000 francs in 1942; the value of parts and accessories from the COA's member companies also rose significantly, from 696,000 francs in 1940 to 5,735,000,000 francs in 1942.²⁵ Given that some 85 % of the French automobile industry's output went to the Germans, and that the automobile industry accounted for about a quarter of total French industrial output at the time, the Germans had good reason to be pleased with the COA–GBK partnership. No less pertinently, there are no signs during this period that the French were deliberately under-producing. Lehideux and the COA were too invested in establishing themselves as trustworthy partners, while individual companies eagerly sought German contracts, no doubt for want of alternatives, but also because the occupiers offered attractive prices (and thus profits) as well as autonomy in the running of their factories. Speaking to a German audience in September 1942, Thoenissen could praise the French automobile industry for having “most loyally cooperated” with the occupiers, cooperation he attributed to the respect shown to “legitimate French interests”.²⁶

²⁴Wirtschaftsgruppe Kraftfahrzeugindustrie, “Niederschrift über die Beiratssitzung am 28 November 1940,” MBA, Bestand Kissel, 9.28. See also Patrick Fridenson, “Les entreprises automobiles sous l'Occupation” in eds., *L'Occupation, l'Etat français et les entreprises*, eds. Olivier Dard et al, (Paris: Association pour le développement de l'histoire économique, 2000), 320–324.

²⁵Jean-Louis Loubet, *Histoire de l'automobile française* (Paris: Seuil, 2001), 185; and “L'industrie automobile française, 1938–1942”, undated, AN 19830589/17.

²⁶“Niederschrift der Ansprache des Chefs des Deutschen Beschaffungsamtes in Frankreich”, September 2, 1942, NARA T 77/638. Underlining in original.

1942–44: Diverging Interests and the German Response

To flourish, industrial collaboration required a convergence of interests among the principal actors. During 1942–44, however, French and German interests appeared to diverge, compelling the two sides to readjust their activities. As we shall see, it is in the context of diverging interests that the phenomenon of under-production needs to be understood.

In many ways, the immediate interests of the Germans remained unchanged after 1942: to exploit the French automobile industry to the greatest extent possible. If anything, the interest in doing so increased during the course of the occupation. As its military fortunes darkened, Germany desperately needed the additional output of occupied Europe. All occupation authorities, announced General Georg Thomas, the head of the German armed forces economic staff, “must make the maximum effort to supply German war production to a greater extent than before with the economic resources from their territories”.²⁷ In this expanded effort, moreover, the French automobile industry was expected to play a key role. With the *Wehrmacht* facing a Soviet army that was not only growing in strength but was also increasingly motorized, thanks partly to American Lend-Lease equipment, the Germans looked to French companies such as Peugeot, Renault and Ford SAF to help close the widening mobility gap on the Eastern front by producing trucks. A decisive moment came during 1942–43. Unhappy with the performance of the German automobile industry, the Nazi regime scrapped the GBK, replacing it with an industry committee, the *Hauptausschuss Kraftfahrzeuge* (main committee for motor vehicles) under the direct control of Albert Speer’s ministry of armaments and production.²⁸ In December 1942, Speer ordered the committee to increase truck output as quickly as possible, handing it authority for production in occupied Europe. Wasting little

²⁷ OKW Wi Rü, no. 210342, “Vortrag des Herrn Amtschef...Thomas...am 21.1.1942”, undated, BArch-MA RW 19/562.

²⁸ Martin Pesch, *Struktur und Funktionsweise der Kriegswirtschaft in Deutschland ab 1942 – unter besonderer Berücksichtigung des organisatorischen und produktionswirtschaftlichen Wandels in der Fahrzeugindustrie* (Cologne: Müller Botermann, 1988), 80–91.

time, the *Hauptausschuss Kraftfahrzeuge* elaborated a series of ambitious production programmes for Western Europe as a whole—programmes in which French companies prominently figured.

The *Hauptausschuss Kraftfahrzeuge* recognized that the success of their production programmes would depend on the whole-hearted cooperation of French industry. In an environment of growing shortages of energy, raw materials, labour and transport, such as existed in occupied France (and Europe), results would depend on French help in overcoming a myriad of obstacles. The problem was that German officials had begun to have serious doubts regarding the likelihood of such cooperation. During 1940–41, the occupation authorities believed that the material gains of collaboration would trump any qualms French industrialists might have about working for Germany. An April 1941 report from armaments officials in France, for example, asserted that that French industrialists could be relied upon to collaborate because of their “naked profit interests”.²⁹ The tone, however, soon changed. Rather than optimism, reports increasingly struck a pessimistic note, as the Germans grew convinced that the French commitment to industrial collaboration was waning. A January 1943 survey thus claimed that expanding circles in France opposed cooperating with the occupiers. Several months later, local armaments officials in Paris commented on the “strong reservations” of factory directors, adding that “more than ever formal complaints against the acceptance of contracts as well as hesitations are being advanced”.³⁰ In a retrospective report the same year, General Franz Barckhausen, hitherto the highest ranking armaments official in France, warned readers to always keep in mind the following:

that in France we [German armaments officials] are in an enemy country in which every day difficulties of a personal and material nature have to be overcome and in which the vast majority of the population confronts German measures with more or less veiled and open resistance, with the result that increasing delays [in production] must inevitably be accepted.³¹

²⁹ “Lagebericht des Wehrwirtschafts- und Rüstungsstabes Frankreich für März”, 4 April 1941, BArch-MA RW 24/15.

³⁰ Wehrwirtschaftsstab Frankreich, “Vierteljährlicher Überblick Kriegstagebuch”, 15 January 1943, BArch-MA RW 24/5; and Rü Kdo Paris Ost, “Kriegstagebuch für die Zeit vom 1.7. – 30.9.1943”, 30 September 1943, BArch-MA RW 24/93.

³¹ General Franz Barckhausen, “Die deutsche Wehr- und Rüstungswirtschaft in Frankreich vom 3.7.1940 bis 31.3.1943”, NARA T 77/1221.

German officials occasionally mentioned the dangers of sabotage, by which they meant attempts to damage machinery, material and goods produced. But such direct action was quite rare during 1942–43 and even into 1944. Instead of sabotage, the occupation authorities pointed far more often to what they termed “passive resistance” on the part of French officials, industrialists and workers. Although never precisely defined, passive resistance became a catch-all term to describe anything short of enthusiastic cooperation on the part of the French. Its scope was huge, encompassing everything from workers grumbling over wage and living conditions to protests from French companies that production programmes were unrealistic. But if passive resistance was frustratingly vague, the frequent recurrence of the terms in reports highlights a fundamental dilemma confronting the occupiers. Desperately in need of the whole-hearted collaboration of French industry, the Germans were at the same time increasingly convinced that they could not count on such collaboration.

The question was thus how to resolve this dilemma: how to prod the French to recommit themselves to industrial collaboration? Over the course of 1942–44, the occupation authorities would pursue several options, all of them reflecting the goal of exerting greater control over French industry. One option was to overhaul the German armaments administration in France, which occurred over the course of 1942–43, as the armaments ministry under Speer consolidated its authority.³² If this consolidation constituted one small chapter in Speer’s much larger project of creating his own political-economic empire within the sprawling Nazi regime, it also needs to be seen as an attempt to bring the French into line. Speer hoped that a more centralized administration would not only prevent French actors from playing off one German agency against another, which German officials viewed as an endemic problem, but that it would also provide the Germans with a firmer grip on the reins of industrial collaboration. Yet these hopes went largely unrealized. One problem was that the centralization of authority always remained partial.

³² See Milward, *The New Order and the French Economy*, passim; and Talbot Imlay and Martin Horn, *The Politics of Industrial Collaboration: Ford France, Vichy and Nazi Germany* (Cambridge: Cambridge University Press, 2014), 122–129, 156–166.

Speer's officials, for example, failed to control the placing of contracts with French companies as German companies and agencies continued to engage in what one official described as a "wild chase".³³ But another and more basic problem concerned Speer's administrative system. As is well known, the latter centred on industrial "self-responsibility", in which leading industrialists would manage production programmes in various sectors, subject to some governmental oversight and guidance. The *Hauptausschuss Kraftfahrzeuge* for the automobile industry offers a prime example. Underpinning the system was the belief that the best results would be achieved by permitting free enterprise considerable room to function. From the outset, the Germans applied a version of the system of industrial "self-responsibility", together with its underlying assumptions, in France (and in occupied Western Europe more generally).³⁴ Hence the considerable freedom accorded to the COA and, through it, to French automobile companies. In many ways, the Germans had no choice: if nothing else, they lacked the resources and expertise to run French industry themselves. Recent research has called into question the success of Speer's system in Germany, refuting the earlier belief that Hitler's industrial tsar engineered a production "miracle".³⁵ But at least in Germany Speer could count on the national-patriotic sentiments of industrialists and workers, both of whom had reasons to desire a German victory. The obvious problem for the occupation authorities was that such sentiments appeared to be in increasingly short supply in France.

Recognizing the limits of industrial "self-responsibility", Speer's ministry combined its centralization of the armaments administration in France with an effort to pair French industries and companies with their

³³ "Sitzung des Ausschüsse und Ringe von 5. Juni 1943. Neuregelung in Frankreich", 10 June 1943, BAArch R 3101/31166.

³⁴ Helpful here is Marcel Boldorf, "Die gelenkte Kriegswirtschaft im besetzten Frankreich (1940–1944)" in Buchheim and Boldorf, eds., *Europäische Volkswirtschaften unter deutsche Hegemonie*, 109–130.

³⁵ For recent research, see Tooze, *The Wages of Destruction*, 552–589; Jonas Scherner and Jochen Streb, "Das Ende eines Mythos?: Albert Speer und das so genannte Rüstungswunder", *Vierteljahrshefte für Sozial- und Wirtschaftsgeschichte* 93 (2006), 172–196; and Lutz Budraß, Jonas Scherner and Jochen Streb, "Fixed-Price Contracts, Learning and Out-Sourcing: Explaining the Continuous Growth of Output and Labour Productivity in the German Aircraft Industry during World War II", *Economic History Review* 63 (2010), 107–136.

German counterparts. The aim was not to take over French companies but to provide the German authorities with a measure of direct oversight of French production—a measure that was vitally necessary to ensure that French industry fully collaborated. At the industry level, existing German organizations (such as the *Hauptausschuss Kraftfahrzeuge*) would appoint representatives who, working with Speer's officials, would help to organize and rationalize production. Meanwhile, individual French companies would be assigned a “sponsor” company (*Patenfirma*) from the corresponding German industry, charged with supervising their activities, with ensuring that German interests were respected, and with invigorating them by introducing what one official called “German experience and German practices”.³⁶ Once again, however, Speer's hopes were dashed. On the one hand, the scheme met a mixed reception among German companies, which feared that overly close collaboration might lead to an unwanted transfer of experience and practices to French industry, thereby augmenting the latter's potential as a future rival. On the other hand, as German officials recognized, the scheme aroused fears on the French side that the real motive was to take over French companies. In the case of the French automobile industry, both Lehideux's COA and individual companies vigorously opposed the scheme, helping to gut sponsorship of almost all authority; and this, in turn, persuaded German companies that the scheme promised more burdens than benefits.³⁷ More generally, the scheme was arguably flawed in conception. The wholehearted collaboration of French industry could only come from the French themselves. No more than Speer's armaments officials could German companies and industrial organizations dictate this cooperation.

A similar problem bedeviled another option for resolving the dilemma posed by diverging German and French interests: for officials to work more closely with French companies. During 1942–43, Speer expanded

³⁶ “Sitzung des Ausschüsse und Ringe von 5. Juni 1943. Neuregelung in Frankreich”, 10 June 1943, BAArch R 3101/31166; as well as Speer, “Einschaltung der Ausschüsse und Ringe bei der rüstungswirtschaftlichen Nutzbarmachung Frankreichs”, no. 460/43, 1 June 1943, BA-MA RW 35/721.

³⁷ For two cases studies in the automobile industry, see Peter Leßmann, “Ford Paris im Zugriff von Ford Köln 1943”, *Zeitschrift für Unternehmensgeschichte* 38 (1983), 217–233; and Hans Mommsen and Manfred Grieger, *Das Volkswagenwerk und seine Arbeiter im Dritten Reich* (Düsseldorf: ECON, 1996), 650–676.

the military's tiny armaments inspection staff, expanding the size and duties of the *Rüstungskommandos* (armaments teams), which were based in all regions of France. Their task was to interface directly with French companies possessing German contracts, aiding them in acquiring the needed raw materials, energy and labour supplies, while also prodding and even bullying them to work harder. Operating at ground level, the teams and sub-teams would strengthen the position of the occupiers by providing them with detailed knowledge of conditions and activities within factories. Yet their expansion notwithstanding, the armaments teams continued to function on a shoe-string basis; they therefore lacked the resources to carry out their assigned tasks. In 1942, the team for the centre of Paris consisted of four officers as well as 21 sub-officers and enlisted men, who were responsible for 227 factories.³⁸ Not surprisingly, the armaments teams constantly complained of being understaffed. But even with greater resources, the armaments teams would have been stymied by the overriding need for the goodwill of French industry. Given that it was never remotely feasible for armaments officials to take over and run French companies themselves, in the industrial realm at least, the occupiers remained dependent on the occupied. And this left the Germans with little choice but to try to win (or win back) French goodwill.

Most obviously, this meant backtracking on efforts to impose greater control over French industry. In the case of the French automobile industry, the COA would remain the privileged interlocutor and “partner” of Speer’s armaments administration, even if German officials had begun to question Lehideux’s commitment to collaboration. Here, the example of Ford SAF—the French affiliate of Ford USA and a company of growing importance in the French automobile industry—is telling. In early 1943, the *Hauptausschuss Kraftfahrzeuge* elaborated a European truck production programme under the direction of Ford-Werke, Ford Dearborn’s German affiliate, in which Ford SAF would assume a prominent part. Ford-Werke, which had ambitions to take over Ford’s European empire,

³⁸ BA-MA RW 24/98, “Kriegstagbuch des Rüstungskommandos Paris-Mitte...für den Zeitabschnitt 1.8.1942–30.9.1942.” See also Riess, *Renault-Werke*, 91–101.

hoped to use the programme to gain control of Ford SAF. But although Ford-Werke's ambitions enjoyed the support of both the *Hauptausschuss Kraftfahrzeuge* and several leading German officials, Lehideux's veto ensured that Ford SAF remained independent: its contribution to the truck programme would be overseen by the COA and not by Ford-Werke. Faced with Lehideux's threat to end all collaboration, the Germans backed down, effectively agreeing to Ford SAF (and the COA's) terms.³⁹

Winning the goodwill of the French automobile industry also meant reinforcing the material incentives for collaboration of companies. For much of the occupation, the German authorities in principle sought to force down the prices offered to French companies. In practice, however, their success was limited, as German officials and companies often used price increases as an incentive to persuade French companies to accept and to fulfil contracts.⁴⁰ In the case of Ford SAF, the Germans thus granted the company not only sizeable profits but also substantial financial advances—a policy extended beyond Ford SAF to include French automobile companies in general. The example of Ford SAF suggests that, during the second half of the occupation, automobile companies enjoyed a considerable say in determining the terms of industrial collaboration. Indeed, given the growing desperation of the occupiers for French production, the French automobile industry as a whole found itself in a stronger position vis-à-vis the Germans than during 1940–42.

1942–44: Diverging Interests and the French Response

From 1942 onwards, as we saw, the Germans grew increasingly convinced that the French automobile industry's commitment to industrial collaboration was waning—that the industry was no longer cooperating wholeheartedly. But was this true? Although some uncertainty surrounds the

³⁹ For Ford SAF, see Imlay and Horn, *The Politics of Industrial Collaboration*, 148–233.

⁴⁰ See Elena Dickert, "Die 'Nutzbarmachung' des Produktionspotentials besetzter Gebiete durch Auftragsverlagerungen im Zweiten Weltkrieg: Staatliche Regulierung und Verlagerungsverhalten von Maschinenbau- und Automobilunternehmen", (Unpublished PhD manuscript, Norwegian University of Science and Technology, 2014), 55–62.

question of French interests during the second half of the occupation, there are reasons to believe that some French actors at least were reconsidering the advantages of working for the Germans. This was arguably not true for the Vichy regime and in particular for Jean Bichelonne, the minister of industrial production. Opposed to German efforts to conscript French labour for work in Germany, Bichelonne in 1943 embraced with renewed vigour the promise of industrial collaboration in order to keep French workers in France. At an inter-ministerial meeting in April 1943, he thus argued that French companies must accept any and all German contracts; three months earlier he had appealed directly to Thoenissen to direct additional contracts towards the automobile industry.⁴¹ As is well known, in September 1943 Bichelonne would sign an agreement with Speer calling for significant increases in French production for the German war effort in return for protecting French workers from labour drafts.⁴² Less well known perhaps is that the agreement implicitly reconfirmed the existing terms of industrial collaboration in which the COs and individual companies would be responsible for managing the production programmes in their respective industries.

But if Bichelonne recommitted himself to industrial collaboration, the same was not necessarily true of the French automobile industry. During 1942–43, there were signs that Lehideux was reconsidering the benefits of working for the occupiers. Addressing a German audience in Berlin in May 1942, the COA's chief complained that Vichy's considerable investment in collaboration had produced no "political benefits", a situation he implied that could not continue.⁴³ Little changed in the coming months, and in 1943 Lehideux effectively withdrew his participation in German-inspired designs to create a Franco-German-Italian automobile cartel after the war; Lehideux now conceived of the French automobile industry's future in French rather than Franco-German or

⁴¹ "Extraits du compte-rendu du 3 avril 1943", undated, AN AJ 41/530; and "Aktenvermerk über den Besuch von General Bronchard am 9.1.1943 beim Deutsche Beschaffungsamt", 11 January 1943, NARA T 77/1254.

⁴² Milward, *The New Order and the French Economy*, 147–80; and Bernd Zielinski, *Staatskollaboration: Vichy und der Arbeitskräfteeinsatz im Dritten Reich* (Münster: Westfälisches Dampfboot, 1995).

⁴³ "Résumé de l'exposé fait par Monsieur François Lehideux au cours des entretiens qu'il a eus à Berlin les 18 et 19 mai 1942 avec le Maréchal de l'air Milch et le Général von Loeb", undated, AN 3W/217.

European terms. Underlying Lehideux's reassessment was the changing course of the war—a factor that French automobile companies could not ignore. A whole-hearted commitment to industrial collaboration might make sense when a German victory seemed inevitable; it made less sense when a German defeat emerged as a possibility and then a probability. If the Allies won the war, French companies might be called to account for their material contribution to Germany's war effort. And this scenario was not simply an abstract one. During 1943, for instance, armaments teams reported that French industrialists working for the Germans had received miniature coffins from the resistance with their names inscribed on them.⁴⁴

A more concrete indication that French companies would face a post-war reckoning came in the spring of 1942, when the British air force launched a series of raids against French automobile companies working for the Germans, the most notable of which was the attack on the Renault complex at Boulogne-Billancourt that killed almost 400 people and caused some 400 million francs of damage. Leaflets dropped by the British, moreover, made it clear that the companies were targeted precisely because they were producing for the Germans. One such leaflet dropped during the raid on the Ford SAF plant in Poissy, for example, not only underscored the company's contribution to the German war effort, but also identified its director, Maurice Dollfus, accusing him of being a committed collaborator.⁴⁵ To be sure, the automobile companies quickly set about repairing the damage, partly because the Germans insisted on this and partly because the companies themselves were unwilling to remain idle and to accept the losses and risks entailed.⁴⁶ Nevertheless, following the air raids company directors could not pretend that collaboration was strictly a business proposition, devoid of political implications.

⁴⁴ Rü Kdo Paris-Mitte, "Lagebericht", 18 October 1943, BAArch-MA RW 24/102.

⁴⁵ Michael Schmiedel, "*Sous cette pluie de fer*": *Luftkrieg und Gesellschaft in Frankreich, 1940–1944* (Stuttgart: Steiner, 2013), 205–206; and Bibliothèque de documentation internationale contemporaine, Nanterre, "Les usines Ford à Poissy travaillent pour l'Allemagne", 1942.

⁴⁶ "Extraits de conférence faite par Me. [sic] de Peyrecave aux directeurs chefs du départements et chefs de service de l'usine, le 13 avril 1942", Société d'histoire de groupe Renault, archives Renault, 21.

Assuming that the interest in collaboration did, in fact, wane from 1942 onwards, can this be taken as evidence that the French automobile industry engaged in deliberate under-production? The answer must be no, as an interest in under-production alone was insufficient: one also had to possess the means. And on this subject the existing scholarship is weak. When arguing that French automobile companies under-produced, scholars point to two phenomena. The first and minor one is direct sabotage: the deliberate destruction or damaging of machines, complete vehicles, parts, and so on. Neither the German nor French records, however, indicate that this occurred on anything close to a systematic scale. The few recorded cases of sabotage appear to have been isolated acts.⁴⁷ In the best known example, that of the Peugeot works in Montbéliard in late 1943 and early 1944, it is clear that a sabotage campaign occurred, most likely in collusion with the resistance and amounting to some 18 separate incidents. The consequences of this campaign for production at Peugeot have likely been exaggerated: its effectiveness quickly declined as the German and French police intervened, rendering sabotage attempts increasingly difficult and less damaging. But the more important point is that the campaign was exceptional—there is no evidence of anything similar elsewhere.⁴⁸ Overall, sabotage had practically no effect on French automobile production during the occupation.

The second and seemingly more widespread phenomenon is that of an intentional and concerted effort by company directors, cadres and workers to work less—for everyone to “go slow”. There is a certain plausibility to this claim: with the interest in collaboration waning, companies and their personnel laboured grudgingly and therefore at a reduced rhythm. It is quite possible that workers in a factory collectively colluded to reduce the pace of piece-work, applying social and even physical pressure on any worker who exhibited excessive zeal. Such practices have been well documented in France and other countries during the nineteenth and twentieth centuries, and there is little reason to believe that the occupation

⁴⁷ For an entertaining novelistic treatment of an isolated case in the Protectorate, see Josef Skvorecky, *The Engineer of Human Souls* (New York: A.A. Knopf, 1984).

⁴⁸ See the discussion in Talbot C. Imlay, “Résistance ou Collaboration de l’industrie automobile française pendant la Seconde Guerre mondiale”, *Vingtième siècle* 125 (2015), 45–48.

period was an exception.⁴⁹ This practice, however, arguably differs from what is entailed in the claims of under-production. The latter presume the existence of what amounted to a collective conspiracy at the industry and company levels to slow down production. Yet the scholars advancing this claim say almost nothing about how such a conspiracy was organized and maintained: who directed it; who was (and who was not) involved; and how did it manifest itself concretely? There is also the question of how such a conspiracy could escape the notice of the occupiers. It is striking, for instance, that the German armaments teams never accused the French of such a conspiracy. True, the teams lacked the resources to keep a close eye on most factories; yet even in those cases where the teams worked most closely with companies, such accusations are notably absent. The Germans identified a myriad of factors handicapping the French automobile industry in 1943–44, but a collective effort to slow down production did not figure among them.

Instead of an explanation of under-production, scholars echo the arguments of Lehideux and French companies in the wake of the Liberation. Arrested in 1944 and charged with collaborating with the enemy, Lehideux centred his defence of his activities as head of the COA on deliberate under-production. Under his watch, he maintained, the French automobile industry had undermined the German war effort by producing less than it could have. For evidence, Lehideux pointed to the huge gap between pre-defeat and wartime production. More recently, Jean-Louis Loubet, the doyen of historians of the French automobile industry, noting that Peugeot produced 23,833 vehicles during the “Phoney War” (September 1939 to June 1940) but only 27,415 during four years of occupation, asserted that such figures “speak for themselves”.⁵⁰ But Lehideux and Loubet’s reasoning takes no account of the fact that Vichy France’s economy was in marked decline: due to the growing shortages of practically all factors of production, the economy was an ever shrinking version of its earlier self. Put simply, even with the best of wills, French automobile companies could not have reached anything near their

⁴⁹ On this point, see Patrick Fridenson and Jean-Louis Robert, “Les ouvriers dans la France de la Seconde Guerre mondiale: Un bilan”, *Mouvement social* 158 (1992), 142–144.

⁵⁰ Lehideux deposition, 10 March 1945, AN 3W/221; and Loubet, *La Maison Peugeot*, 253.

pre-defeat output. A drop in production, however sharp, cannot itself constitute evidence of under-production.

At the same time, this does not mean that under-production did not occur. Indeed, there is an argument to make that French companies possessed not only an interest but also the means to produce less for the Germans than they could have. Here, what economists call information theory can be helpful in understanding the dynamics involved. Information theory focuses on principal–agent relations. The principal is the actor who contracts an agent to furnish some good or service in return for a recompense. At the most basic level, the theory posits tensions due to asymmetric information: the agent possesses knowledge about his commitment to fulfilling his contractual obligations (for example, how much and what kind of effort he will expend), to which the principal is not privy. Consequently, the principal strives to design contracts that reduce this asymmetry, most often by including conditions regarding the quantity, quality and rhythm of goods or services provided by the agent.⁵¹

If asymmetric information is a constant in contractual relations, the asymmetry is arguably greater in crisis conditions, which was precisely the situation afflicting the economy of occupied France. Mounting shortages of labour, materials, energy and transport created endless bottlenecks and untold disruption. By one estimate, France's GDP dropped from 107 (100 = 1938) in 1939, to 60 in 1943 and to 50 in 1944.⁵² In this situation, the ability to keep producing depended in good part on the *débrouillardise* of French companies—on their ability to adapt and to improvise, to be cunning and creative. It was companies who possessed the supply networks, the knowledge of local conditions and the general know-how that was essential to overcome the many obstacles to production. From this perspective, the economic crisis empowered companies while disempowering the Germans. More than ever, the Germans suffered from information asymmetries: they needed the French to

⁵¹ Inés Macho-Stadler and J. David Pérez-Castrillo, *An Introduction to the Economics of Information: Incentives and Contracts* (Oxford: Oxford University Press, 2001); and Adam Przeworski, *States and Markets: A Primer in Political Economy* (Cambridge: Cambridge University Press, 2008), 55–75.

⁵² Even if one adds what Hein Klemann calls “educated guesses” for clandestine production, the drop in GDP is still significant though less marked (80 in 1943 and 66 in 1944). See Klemann and Kudryashov, *Occupied Economies*, 325, 331.

do everything possible to keep producing and yet found themselves unable to verify the extent to which companies did so. Unable in the end to devise a workable system of factory supervision, the Germans were unable to determine with any confidence the potential productive capacity of French companies, an assessment that was vitally necessary in assessing the efforts of the latter. Similarly, quality control, which normally provided one means of assessing effort, became all but useless at a time when crippling shortages compelled companies to resort to makeshift methods, including second- and third-best substitutes. In the end, the Germans had little choice but to rely on financial incentives (high profits and hefty advances) in the hope that these would stimulate French companies to do their utmost. But if such incentives proved effective during the first two years of the occupation, afterwards they became less so and even counter-productive as they reduced the need for companies to work full out. One reason is that in the short-term companies found themselves flushed with cash, which reduced the immediate pressure on them to produce. Another reason concerned inflation: the Germans financed their demand by printing money, with the result that the latter's value rapidly fell. With financial incentives less attractive, French automobile companies, which remained largely in control of their productive processes, possessed considerable scope in determining the extent of their productive efforts for the Germans.

To be sure, companies could not reject all collaboration with the Germans. An outright refusal risked the imprisonment of company directors, the loss of workers and the confiscation of productive capacity. Automobile companies thus had to produce enough to keep their factories running and to appease the German (and French) authorities. But they did not have to do much more than that. Companies had no incentive to work wholeheartedly on behalf of the Germans—to make extraordinary efforts to locate scarce supplies, to pressure suppliers, to drive their workforce or to improve the quality of their products. To under-produce, they did not have to do something actively; they merely had to manifest less *débrouillardise* than they could have and that they appeared to have done during the first half of the occupation. Equally pertinent, under-production in this sense ran little risk of provoking sanctions for the simple reason that the Germans could not say with any

certainty what French companies could produce with the best of wills. Admittedly, definitive proof of under-production is lacking. Given the multiple factors influencing wartime production, scholars today are no more able than the German authorities were during the occupation to establish what the French automobile industry as a whole could have produced. If we accept that the under-production occurred, we know only that the totals presumably lie somewhere between those for the pre-defeat period and those for the occupation years. But that is not a fatal problem. To conclude that French automobile companies did not under-produce is to suggest that they were so committed to collaboration that they ignored their political and business interests. Yet there is nothing in their conduct during the first two years of the occupation to indicate that they would do so.

If French automobile companies did under-produce, this did not constitute resistance. Their decisions and activities do not appear to have been motivated by any principled opposition to the occupiers, or by a desire to undermine the German war economy. To reiterate, during the early years of the occupation automobile companies had eagerly accepted German contracts. What changed during 1943–44 were not the political convictions of company directors but their understanding of their interests. This change, together with the opportunities provided by an increasingly chaotic economic situation, made it both sensible and feasible to offer something less than their whole-hearted collaboration. In this sense—and this sense alone—is it possible to argue that French automobile companies sabotaged the German war economy.

8

A Faustian Bargain: Denmark's Precarious Deal with the German War Economy

Joachim Lund

Introduction

There were no German plans for the economic exploitation of Denmark when the *Wehrmacht* attacked its defenseless neighbour on 9 April 1940. Denmark was occupied for purely military reasons, and the Danish government accepted the German offer to stay in power if it could guarantee the safety of the *Wehrmacht*. Although the *Wehrmacht's* economic department had pointed to a few Danish industrial plants that might be of military interest, Berlin's expectations of Denmark's industrial capacity were limited. The situation economic changed as the *Wehrwirtschaftsstab Dänemark* (the Danish office of the economic branch of the *Wehrmacht*) began to disclose the potentials, and in summer 1941, German authorities and the Danish government reached an agreement on the "Extraordinary Industrial Deliveries," according to which Danish industrial enterprises were to supply Germany with a wide range of manufactured products. Yet in the plans of the *Auswärtiges Amt* (Foreign Ministry) and the Four-Year Plan which followed the *Blitzkrieg* victories of 1940, Denmark was primarily to be regarded as a producer and exporter of agricultural goods.

During the five years of occupation, Denmark fulfilled and expanded this role, covering relatively large parts of the German (especially *Wehrmacht*) consumption of mainly meat, pork, butter and fish. In order to finance industrial and agricultural deliveries, the occupying power made use of the existing clearing account in Denmark's National Bank, which would cover the growing German deficit on the trade account. Moreover, a newly established *Wehrmacht* account financed military construction works in the country, mainly in the shape of the Atlantic Wall on the west coast of Jutland. This chapter establishes the varying German demands in the Danish economy and explains how Denmark's industry was kept going because of German orders (*Auftragsverlagerung*). The Danish government tightened already existing monetary, production and distribution regulations and chose to cooperate with the occupation authorities, and deliberately used Denmark's increasing food exports as a means to soften up growing political demands from Berlin.

The Institutional Framework

The Danish experience during World War II offers a case that is very different from the general picture of German presence and domination in Western Europe. In Denmark, a lenient German occupation policy prevailed, the reasons for which should be found in German efforts to win over the Danish population and to preserve peace and quiet and a steady flow of Danish manufactured goods to the *Wehrmacht* and the German population.

On 9 April 1940, German armed forces moved against Denmark and Norway, violating the German–Danish non-aggression agreement of 1939, and putting an end to the “Phoney War” that had lasted since the occupation of Poland the previous fall. While the coastal defense at Oslo would fire away at the German vessels, sinking the *Blücher* and slowing down the German attack, the Danish cannon at the entrance of Copenhagen Harbor jammed, and German troop transports could berth unhindered. It added to the irony that as a tug boat forming part of a German flotilla bound for Korsør on the west coast of Zealand started to sink, its crew was picked up by a Danish naval vessel, which then carried

them safely ashore, only to realize they had just performed a modern revival of the Trojan horse.¹ German forces also crossed the border in the south of Jutland, and parachuted into strategic strongpoints. After a couple of hours of fighting, sufficient to demonstrate that Danish neutrality had been breached, Denmark surrendered.

Before the war, the only challenges to a peaceful relationship with the unpredictable Nazi regime to the south were the border issue—Northern Schleswig along with its German minority population having been ceded to Denmark in 1920—and a widespread, harsh and often publicly articulated criticism of Hitler's government in both left and right wing newspapers, as well as left wing material support for German political refugees arriving in Copenhagen. Berlin, however, never raised the border question (not even during occupation), and critical voices in the press were mostly subdued by the Danish Foreign Ministry. A staunch refusal on the part of the Danish social democrat and social liberal coalition government to give in to conservative demands for a stronger defense, served to assure Berlin that Denmark had no intentions of becoming a military tool for Germany's enemies.

The Danish government had hoped in this way to be able to keep their neutral country out of the war, just like during the Great War, and to most people the invasion came as a surprise. But this time the situation was different: The German naval command had learned from the war of 1914–18 that in order to avoid an Allied blockade, it would need submarine facilities on the Atlantic, and so Norway entered their plans. In order to extend the range of *Luftwaffe* aircraft, it was decided to occupy the airport of Aalborg in Northern Jutland, but the decision to occupy the whole of Denmark was not made until the beginning of March. Pragmatics would characterize the German policy towards Denmark for the next five years.

Denmark's almost immediate surrender paved the way for a unique occupation regime based on a fiction that the country, albeit "under protection of the *Wehrmacht*", would be treated as a neutral, independent state and that Germany would not interfere with the way the Danes ran their

¹Wehrwirtschaftsstab Dänemark, Kriegstagebuch (KTB) Nr. 1, 9 April, 1940. Bundesarchiv/Militärarchiv, Freiburg (BArch-MA) RW 27/2.

society, as long as the security of the *Wehrmacht* forces was not jeopardized. In questions regarding political and economic cooperation, the foreign ministries of the two countries would therefore be in the driver's seat. The Danish Foreign Ministry centralized and coordinated most contacts and negotiations with the Germans, although military, judicial and transport issues would be handled by the ministries of War, Law, and Transport respectively. The arrangement of April 1940, which the Danish government accepted under protest, was soon to be put under pressure in questions regarding jurisdiction, censorship, German acquisitions of Danish military equipment, and the government set-up. But it still allowed the Danes to retain their monarchy and democratic institutions, unions and political parties (before 22 June 1941 even the Communist Party), as well as courts, police (until September 1944), and a clipped defense (until August 1943). No other occupied country was allowed to have parliamentary elections like the one that took place in Denmark in March 1943.

On the part of the Germans, the *Oberkommando der Wehrmacht* (OKW) posed an inherent danger to the position of the German Foreign Ministry and actually took charge during the five weeks of martial law that followed the "August Rising" of 1943, when, in a wave of strikes and sabotage, the cabinet stepped down because of a German demand for the introduction of the death penalty. The events in summer 1943 also prompted the SS to install a *Höherer SS und Polizeiführer* (Higher SS and Police Leader) in the country, who would for the remaining one and a half years of the occupation impede the German plenipotentiary Werner Best's attempts at a coherent German policy. The *Auswärtiges Amt*, however, was mostly able to reject interference from other Reich agencies in questions regarding Denmark.

It was an arrangement that Werner Best, a doctor of law, had already named *Aufsichtsverwaltung* ("administration of monitoring"), placing it as the one solution in his system of different occupation regimes that would disrupt local government the least.² In November 1942, Best, an *SS-Obergruppenführer*, chief organization architect of *Gestapo* and the *Reichssicherheitshauptamt* (Reich Main Security Office) and director of

²Ulrich Herbert, *Best. Biographische Studien über Radikalismus, Weltanschauung und Vernunft. 1903–1989*. 3. Auflage. (Bonn: Dietz, 1996), 282–284.

the *Innere Verwaltung* at the German administration in Paris since 1940, would replace the German ambassador in Copenhagen, Cecil von Renthe-Fink, and become German plenipotentiary in Denmark. Embodying his own theory that would praise the benefits of low key management of occupied countries, Best would not occupy his seat in Copenhagen as a *Reichskommissar* (High Commissioner), as did Terboven in Norway and Seyss-Inquart in the Netherlands, but instead as a diplomat and representative of the *Auswärtiges Amt*.

Because of the unparalleled institutional continuity, the setting was basically different from that of any other occupied Western country. It had profound consequences with respect to the efficiency of German economic exploitation. Despite increasing levels of strikes and resistance in occupied Denmark, something that called for regular German counter measures and caused a constant deterioration of political collaboration, Best—like Renthe-Fink before him—pursued an economic policy of negotiation that was based on an institutional framework that had been established well before the war. Denmark was a small, open economy with no minerals or underground fuel deposits to speak of. For decades, the country had built its wealth on the exports of refined agricultural products such as bacon and butter, which constituted three quarters of Danish exports between the wars and enabled imports of industrial raw materials and fuel. It relied heavily on foreign markets, especially the British consumers, and thus suffered from the collapse of international trade and the growing protectionism of its trading partners during the Great Depression. During those years, the shortage of foreign currency was stifling free trade, and so bilateral agreements were established in order to secure a minimum supply of goods. In 1934, Denmark's trade with Germany was channeled into a joint trade committee, which would meet every quarter and decide on the kind, amount and prices of goods that were to be exchanged. The agreement was based on the principle of clearing, and although it left some space for import bulges—the so-called *Devisenspitze*—the basic principle was to not buy more than one could sell. Payments would then be cleared with the exporter's own central bank, and precious foreign currency would be saved. Until the occupation of April 1940, the Danish economy was able to survive on a strict diet of agricultural exports to mainly Britain, and

imports of British, German and Polish coal and coke, as well as German fodder, fertilizer, and industrial raw materials, mainly metals.

Import regulation and restrictions had been introduced already in 1931–32, as a result of the British floating of sterling, and the establishment of the *Valutacentralen* (Central Currency Office) in January 1932 proved an efficient tool with which to prioritize and steer supplies to those sectors where they were most needed. Following the outbreak of war in September 1939, a special advisory committee on trade issues was set up in the Foreign Ministry, with special reference to the most pressing coal question, and the following summer the currency office was converted into the so-called *Direktoratet for Vareforsyning* (Directorate of Supplies) with extended powers to distribute the increasingly scarce raw materials and fuels for industry, agriculture and transport, in close coordination with trade associations, the industrial and agricultural councils and so on. Its main task, however, would be to implement and oversee the system of rationing, which had been introduced in fall 1939, and included an increasing number of essential consumer goods; although it should be noted that the Danish population enjoyed higher food rations than any other European country during the war, including Germany. This was due to a highly efficient agricultural sector, a relatively efficient and centrally planned distribution, and a lenient German policy of extraction, which was built on price policy rather than confiscations.

Corporative elements and a hitherto unseen level of state planning thus characterized the Danish economy in 1939. It would define the scope of Denmark's vital foreign trade too, to which the outbreak of war posed a deadly threat. Dismal politicians expected a severe fuels crisis, factory close-downs and a dramatic rise in unemployment the following winter. But then the Foreign Ministry struck a double deal with the German and British governments, allowing for Danish steamers to continue their sailings to British ports on the grounds that not only Great Britain but also Germany would benefit from Denmark's exports, which were only possible if the import of British coal could be sustained. It should be noted, though, that Danish ships would be attacked on a regular basis by the German Navy. The *Oberkommando der Marine* did not care much for dubious political arrangements that undermined the blockade of British ports.

When this deal was ended on 9 April 1940, the prospects for the Danish economy looked black. It was easy to see that cutting off 80 % of Denmark's coal and coke supplies would have disastrous effects on the economy. But the basic institutions of Denmark's trade with Germany carried on uninterrupted, and they continuously worked in Denmark's favor. No other German agency had better knowledge of the workings of the Danish economy than the members of the German trading committee. It was headed by senior official of the Reich Ministry of Food and Agriculture, Dr Alex Walter, and furthermore consisted of Waldemar Ludwig of the Reich Ministry of Economics and Albert-Hilger van Scherpenberg of the *Auswärtiges Amt*, a son-in-law of Hjalmar Schacht.³ Backed by the economic ministries as well as the intergovernmental *Handelspolitischer Ausschuss* (Trade policy board), the committee was now reinforced by a new economic division of the German legation in Copenhagen headed by Dr Franz Ebner of the Reich Ministry of Food and Agriculture, a colleague of Dr Walter, which was to keep a check on the Danish economy between the quarterly trade negotiations. It added to the stability that the obvious potentials for conflicts of interest with the economic branch of the OKW and its local representatives in the *Wehrwirtschaftsstab Dänemark* never materialized. Even the *Führer* had announced, before the opening of German–Danish trade negotiations on 18 April 1940, that economic relations with Denmark would be conducted in “the friendliest manner.”⁴

The German trade committee would in effect set the agenda for Danish exports and imports for the next five years. It had one goal: to keep the Danish economy running as smoothly as possible in order to fulfill the needs of the German war economy. It also had the power to approve or reject Danish trade agreements with other nations and occupied territories within the German *Grossraumwirtschaft*. Denmark was thus able to conclude a trade agreement with the Soviet Union in September 1940,

³ Van Scherpenberg belonged to the Solf Circle; a Berlin-based resistance network most of whose associates were executed late in the war. He survived and pursued a postwar career in the economic ministries of Bavaria and the Federal Republic, returning to the trade department of the *Auswärtiges Amt* in 1953. He was secretary of state 1958–61 and ambassador to the Vatican 1961–64.

⁴ Philip Giltner, *In the Friendliest Manner. German–Danish Economic Cooperation During the Nazi Occupation of 1940–1945*. (New York: Peter Lang, 1998), 33.

and trade with German allies as well as the other Nordic countries was allowed too: for instance, Denmark was able to roughly uphold pre-war levels of trade with Norway, which was now being handled by the *Abteilung Ausfuhrwirtschaft* (Export trade division) of the Norwegian *Reichskommissariat*. Norway supplied Denmark with paper, fish, aluminum, chemicals and pulpwood, but first of all it provided fertilizer in the form of saltpeter to the Danish agricultural industry, filling a gap that Germany was not able to bridge, and at the same time enabling Denmark to produce large, extra amounts of sugar, which could then be exported to Norway and Finland along with the occasional shipment of butter and rye. Ebner, who never missed an opportunity to emphasize the benefits of the collaboration with Danish authorities, commented: "If Denmark had not completed these deliveries, Germany would have had to do it at the expense of the Germans' rations."⁵

Auftragsverlagerung: "Special Industrial Deliveries"

On April 9 1940, coal deliveries, of which Great Britain had been the main supplier, had been cut off, and the main concern during a meeting in the Danish Foreign Ministry on 10 April was to try and open up other channels. The trade attaché at the German legation, Dr Krüger, proved helpful as he agreed to try and get in contact with the Stinnes Corporation, which was partly controlling Germany's coal exports. In this way, German–Danish industrial networks were activated. Already on the evening of the 10 April, Albert Jensen, managing director of Copenhagen coal importing company KKKK, met with the chief of the economic division of the *Wehrmacht* in Denmark, Fregattenkapitän Dr Forstmann, to inform him of the petrol and diesel oil stocks in the

⁵ "Wenn Dänemark diese Lieferungen nicht vorgenommen hätte, so hätten sie aus Deutschland kommen müssen zu lasten der deutschen Rationen." *Politische Informationen für die deutschen Dienststellen in Dänemark*, 24 November 1942. Bundesarchiv R 901/67735. See also Sigurd Jensen, *Levevilkår under besættelsen*. (Copenhagen: Gyldendal, 1971), passim, and John T. Lauridsen and Joachim Lund (eds), *Samarbejdets mand. Minister Gunnar Larsen—Dagbog 1941–1943*, vol. 1, (Copenhagen: Historika, 2015), 355–56.

occupied country. Jensen, who had been recommended to Forstmann by the German legation as “a friend of Germany,” was also the Danish representative of the Stinnes Corporation and happened to be married to Hugo Stinnes Junior’s daughter.⁶ Stinnes himself apparently traveled to Copenhagen a couple of weeks later, as he is reported to have paid Forstmann a visit, during which they discussed coal deliveries to the Danish industry and, on 7 June, Forstmann hammered out the details regarding an extension of the coal deliveries to Denmark together with Director Weidtmann of *Rheinisch-Westfälisches Kohlsyndikat*—of whose board Hugo Stinnes was a member. The prospects were an extra 1 million tons of coal, which was quite an increase from the 1.1 million tons that had been agreed on during talks in March—aggregate Danish imports of coal and coke in 1938 being 5.4 million tons. Trade negotiations in May finally concluded that Germany would provide a total of 3 million tons of coal and 1 mill tons of coke.⁷

Berlin never doubted that in Denmark, one was dealing with a fragile economic structure, which, unlike Nazi Germany, had not at all moved in the direction of self-sufficiency during the interwar years. But economic experts did not agree on the scope of this. The *Institut für Weltwirtschaft* at the University of Kiel considered that under normal circumstances, Danish agriculture would be able to cover large amounts of Germany’s imports of butter, cheese, eggs, pork and meat.⁸ To the economic experts, however, Danish society, if occupied, was likely to become a burden, and so far, the fuels question was proving them right.⁹ But as for production output, they would soon have to change their view, not least with respect to Denmark’s industrial performance. In fact, the agricultural report of the *Institut für Weltwirtschaft* had already mentioned the considerable opportunities for

⁶ Jensen, *Levevilkår under besættelsen*, passim; Lauridsen and Lund, *Samarbejdets mand*, vol. 1, 62.

⁷ Wehrwirtschaftsstab Dänemark, KTB Nr. 1, 1 and 7 June, 1940, BArch-MA, RW 27/2. Sigurd Jensen, *Levevilkår under besættelsen* (Copenhagen: Gyldendal, 1971), 20–21; 43.

⁸ Dänemarks Landwirtschaft im Umbruch. Institut für Weltwirtschaft an der Universität Kiel, Mai 1940. Osobyj Archiv, Moscow, 1458/21/9, p. 26.

⁹ Zur Frage der Einfuhrabhängigkeit Dänemarks von Englischer Kohle, Institut für Weltwirtschaft an der Universität Kiel, Februar 1940. Osobyj Archiv, Moscow, 1458/21/13. See also Giltner *Freundlied Manner*, 13ff. Giltner’s focus on industrial cooperation leads him to a series of one-sided conclusions about the character of economic relations. See my review in *Scandinavian Journal of History* 26/4 (2001), 350–53.

Germany's war industry, stating that the Danish shipyards in particular but also the machine industry might prove valuable, especially for cement machines, electronics, and food production related machinery.¹⁰

On 9 April 1940, the chief of *Wehrwirtschaftsstab Dänemark*, Fregattenkapitän Forstmann had arrived with his staff in Copenhagen. Forstmann soon began systematically inspecting Denmark's industrial structure. Well before the invasion of Denmark and Norway, the OKW had pointed out the well-reputed Dansk Industri Syndikat as the primary producer of machine guns and 20mm cannons, and already on 18 April 1940, Forstmann confirmed that Dansk Industri Syndikat was indeed able to supply its first class weapons to the *Wehrmacht*, including anti-aircraft guns. The factory's own price proposition followed a few days later.¹¹ Further inspections by the *Wehrwirtschaftsstab* would reveal that the Burmeister & Wain Engine Works in Copenhagen were both able and willing to produce submarine engines, while the Atlas Works, which were also based in the Danish capital, had the potential for constructing air compressors for submarines and torpedo boats. Everything was to be delivered to the Germania shipyards in Kiel.¹²

Forstmann was, in other words, beginning to uncover a considerable amount of opportunities in Danish industry, and it soon proved necessary to make some kind of permanent arrangement with the *Rüstungsstab* of the OKW, since German orders were now floating into Danish factories at a steady pace, threatening to exhaust stocks of raw materials that had been laboriously built up since the outbreak of war. The result was the agreement on the so-called Extraordinary Industrial Deliveries Program, according to which German negotiators could place orders at Danish industrial firms—*Auftragsverlagerung*—on the condition that Germany provided the necessary fuels and raw materials.¹³ Making a *Zentrale*

¹⁰ Dänemarks Landwirtschaft im Umbruch. Institut für Weltwirtschaft an der Universität Kiel, Mai 1940. Osobyj Archiv, Moscow, 1458/21/9, p. 29–30.

¹¹ Oberkommando der *Wehrmacht*, Die wehrwirtschaftliche Lage der nordischen Staaten and cover letter, 15 August, 1939; Wehrwirtschaftsstab Dänemark, KTB Nr. 1, 18 and 23 April, 1940 BArch-MA, RW 27/2. The case of DISA has been described in Christian Jensen, Tomas Kristiansen and Karl Erik Nielsen, *Krigens købmænd*. (Copenhagen: Gyldendal, 2000).

¹² Wehrwirtschaftsstab Dänemark, KTB Nr. 1, 29 April, 1940 BArch-MA, RW 27/2.

¹³ Wehrwirtschaftsstab Dänemark, KTB Nr. 1, 4 June, 1940 (talks with German head of Copenhagen legation Renthe-Fink) and 7 June, 1940 (proposal to OKW) BArch-MA, RW 27/2. Giltner Friendliet Manner, 37–43.

Auftragsstelle (ZAST) superfluous, the *Wehrwirtschaftsstab Dänemark* would represent the German contractor, be it the military or individual companies. Order placements would also need the approval of a range of agencies and associations of Danish industry, including the Industrial Council, the National Bank and the Office of Price Control, which was set up in May 1941 to forestall the imminent inflation.

Forstmann's preliminary "shopping list" from June comprised industrial deliveries worth 19 million *Reichsmarks* (RM), mainly dealing with machine tools and parts, presses, drills, radios, weapons, and work at shipyards. In July, numbers had grown to 25.3 million RM, and in October it was expanded by an additional 4.3 million RM, adding among other things cement machines and refrigerating systems for fish.¹⁴ The *Institut für Weltwirtschaft* and the *Forschungsstelle für Wehrwirtschaft* had already pointed to shipyards and the machine tool industry with its diesel engines, milking and cement machines, as well as the electro mechanical industry (telephones, batteries, radios) as the most rewarding areas.¹⁵

For the five years to come, German *Auftragsverlagerung* did indeed concentrate on those areas: weapons, shipyards, clothing, and the machine tool industry, as well as communications, navigation and optical equipment. Ship and submarine repairs would soon take up approximately half of the shipyards' capacity, which is a characteristic feature: In Denmark, German orders would hardly ever dominate any given industry sector but on the contrary would be careful and show moderation. There were no confiscations, a few expansions of stock capital among fuel companies that were already controlled by German corporations, and only two documented attempts at hostile takeovers (*Kapitalverflechtung*), namely BMW's investments in the Nordværk company and a failed attempt by the Stinnes Corporation to purchase

¹⁴ Giltner *Freundlied Manner*, 39; Ergebnisse der Besprechungen der deutsch-dänischen Regierungsausschüsse vom Juli 1940 and October 1940. Osobyj Archiv, Moscow, 1458/21/43 and 1458/21/106. The *Institut für Weltwirtschaft* had already drawn up a report that called attention to the Danish shipyards as one of the most important sectors of Denmark's industry from a German point of view. Zur Frage der Leistungsfähigkeit der dänischen Werften für deutsche Aufträge. Februar 1940. Osobyj Archiv, Moscow, 1458/21/84.

¹⁵ Die Einsatzfähigkeit dänischer Industriekapazitäten für das Deutsche Reich. Februar 1940; Forschungsstelle für Wehrwirtschaft, Die Möglichkeit des Einsatzes der dänischen Industrie für Deutschland. Februar 1940. Osobyj Archiv, Moscow, 1458/21/94.

stocks from the Burmeister & Wain Shipyards and Machine Works through before-mentioned Albert Jensen, who acted as a straw man.¹⁶

If German orders had begun at 19 million RM in June 1940, they would reach a cumulated 100 million RM at the end of 1941, going for 500 million RM at Liberation in May 1945.¹⁷ It placed great strain on the German–Danish clearing account, since the Germans never came close to providing Denmark with sufficient goods and raw materials to balance the sheets. But to the Danish economy as a whole, it was crucial to keep industry going.

One special area of intense German spending could be found on the west coast of Jutland, where the construction of the Atlantic Wall by the *Organisation Todt* (OT) would involve tens of thousands of workers and hundreds of Danish companies, great or small, from the cement producing Aalborg Portland Cement Works monopoly to local contractors.¹⁸ It was the single most expensive project of the *Wehrmacht* in Denmark and would be paid by the *Wehrmacht* account in the National Bank of Denmark. Production for Germany, widespread substitute production, local production of low yield coal and peat, and the OT construction of air strips and coastal fortifications, combined to keep the economy going. Profits were relatively high, and business enterprises experienced increasing stock prices. More importantly, for those same reasons, by 1942–43 unemployment ceased to be a problem.¹⁹

Because of fuel and raw material shortages, Denmark's industrial output fell by approximately 20 % during the war. German order placement, which by 1943 took approximately 15 % of total industrial production,

¹⁶Ole B. Jensen, *Besættelsestidens økonomiske og erhvervmæssige forhold*, (Odense: Syddansk Universitetsforlag, 2005), 121–34; Lauridsen & Lund, *Samarbejdets mand*, vol. I, 62, 182, 325; vol II, 70–73. Nordværk assembled *Luftwaffe* engines and/or produced rotors for the V-2 rockets. It was perhaps the most important new *Wehrmacht* contractor in Denmark in 1943. In 1944, *Wehrmacht* orders to Nordværk amounted to 2.4 million RM. Part of the factory was blown up by the resistance in both January and June, 1944. Rüstungsstab Dänemark, *Jahresübersicht 1944/Lagebericht Januar 1945*, 31 January, 1945. Osobyj Archiv, Moscow, 1458/21/124; Esben Kjeldbæk, *Sabotageorganisationen BOPA 1942–1945*. Copenhagen 1997, 190–92, 267–72.

¹⁷Giltner *Friendly Manner*, 40–41.

¹⁸Claus Bundgård Christensen, Niels Bo Poulsen and Peter Scharff Smith, *Dänische Arbeitskraft—Deutsche Befestigungsanlagen*, (Blåvandshuk: Blåvandshuk Egnsmuseum, 1997). Jensen *Besættelsestidens*, 268–75.

¹⁹Per H. Hansen, “Modgang eller fremgang? Industriens forhold under besættelsen”, in *Besættelsen i perspektiv*, eds. Knud J.V. Jespersen and Thomas Pedersen (Odense: Odense Universitetsforlag, 1995).

saw to it that it did not get a lot worse: In the ready-made clothing industry, where production output fell by more than 40 % between 1938 and 1945, German orders took 37 % of menswear in 1943. In that same year, in the metal working industry (including shipyards), where output decreased by almost 30 % in 1938–45, output for the German war economy amounted to 28 % of production figures. In cement production, German orders took 62 %. Other branches beyond German interest, such as the vegetable oil/margarine and superphosphate industry, would sometimes come to a complete stand-still because of failing supplies.²⁰

Still, Denmark's industrial exports to Germany were insignificant from Berlin's point of view. In March 1943, Waldemar Ludwig of the German trade committee estimated that Danish industrial deliveries were at only 3 % of total German industrial imports.²¹ The Allies, too, were aware that Denmark's industrial deliveries to Germany were limited. The only intentional air raid on a Danish factory during the war happened on January 27 1943, as British bombers hit the Burmeister & Wain machine works in Copenhagen Harbor with full force, destroying large parts of the buildings and machinery. The aim of the attack, however, was psychological, as it was first and foremost meant to deter other Danish industrial companies from working with the Germans, and to encourage the resistance. Sabotage of collaborating business enterprises was already underway, led by the Communist resistance groups, which carried out most of the 862 attacks on industry plants recorded between 1942 and 1945.²²

Despite the efforts of the resistance, industrial collaboration went on. On January 31 1945, a short annual review of the *Rüstungsstab Dänemark* stated that to the 488,406,000 RM worth of *Rüstungsaufträge* (armaments orders) of May 1940 to December 1943, another 112,783,000 RM had been added in 1944. In fact, deliveries had been 8 % higher than in 1943, perhaps vaguely reflecting the German so-called *Rüstungswunder*

²⁰ Jens Otto Krag, "Byerhvervene og krigsøkonomien", in, *Danmark besat og befriet* vol. II, eds. Hartvig Frisch et al (Copenhagen: Økonomi og Kultur, 1947), 5–89, particularly 60–61. Per H. Hansen, "Dansk økonomi under besættelsen: Ved vi nok?" *Den jyske Historiker* 73, (1996), 33–54; Jensen *Besættelsestidens*, 368–83.

²¹ Giltner (1998), 164.

²² Kjeldbæk *Sabotageorganisationen; Gads leksikon om dansk besættelsestid 1940–1945*. Copenhagen, 2002, 238–42. If we include attacks on repair shops and garages, the number reaches 1093, which is remarkably higher than comparable Norwegian figures. Ibid.

(Armaments miracle).²³ But problems were mounting. The report pointed to the fact that, “Despite all the difficulties caused by increasing sabotage, strikes, and passive resistance on the Danish side as well as troubles with supplies, fuel, and transport on the German side, an increase in deliveries on armament orders has been achieved in 1944.”²⁴ This, however, did not express any general increase in the number of companies working for Germany but rather the fact that a few prominent companies and associations had extended their facilities and promoted collaboration in order to meet German demands. These included shipyards and the so-called *Liefergemeinschaft der Deutschen Berufsgruppen* in Nordschleswig.

In 1944, 325 Danish companies were working directly for the *Wehrmacht*, to which a far greater number of sub-suppliers should be added. Thirty clothing industry plants had produced 1,273,000 uniform pieces, including trousers, capes and tunics, while the leather goods industry had produced 145,000 cartridge pouches, 400,000 steel helm straps, 100,000 military belts and 200,000 bayonet frogs. Between May 1 1940 and December 21 1944, 11,001 armaments orders and 1,263 war related (*kriegswichtige*) civilian orders had been placed in Denmark, representing a total value of 590,387,453 RM. The *Rüstungsstab* did not fail to mention that supplies from Danish factories could have been even more plentiful, “if first of all raw materials and supplies from the Reich had not been arriving at such a slow pace.”²⁵

The *Rüstungsstab* also pointed to the crucial task of fighting the wave of sabotage attacks on companies working for the *Wehrmacht*. Industrial sabotage forced economic collaborators to take expensive precautions and hire sabotage protection—and protection in fact became obligatory by Danish

²³ *Rüstungsstab Dänemark, Jahresübersicht 1944/Lagebericht Januar 1945* BArch-MA, RW 27/2. The *Wehrwirtschaftsstab Dänemark* had been changed into *Rüstungsstab Dänemark* in Spring 1943, as Albert Speer moved local *Rüstungsinspektionen* (Armaments Inspection Boards) from the OKW to his own Ministry of Armaments and War Production. Gregor Janssen, *Das Ministerium Speer*. Berlin: Ullstein, 1968, 54. For the implications of the term *Rüstungswunder*, which should be used with care, see Adam Tooze, *The Wages of Destruction*. (London: Penguin, 2006), 555–57.

²⁴ “Trotz aller Erschwerungen durch zunehmende Sabotage, Streiks, passiven Widerstand dänischerseits sowie Material-, Betriebsmittel- und Transportschwierigkeiten deutscherseits ist eine Steigerung der Auslieferung von Rüstungsaufträgen auch im Jahre 1944 erreicht worden”. *Rüstungsstab Dänemark, Jahresübersicht 1944/Lagebericht Januar 1945* BArch-MA, RW 27/2.

²⁵ “(...) wenn vor allem Rohstoffe und Zulieferungen aus dem Reich nicht so schleppend eingegangen waren.” Ibid.

law in December 1942.²⁶ As of September 1 1944, however, sabotage insurance could be effected by Danish companies taking on German orders. Sabotage was sufficient to annoy the German authorities, and it added to the everyday tensions between soldiers and civilians in the big cities—and to the increasing confidence of the Danish population. From fall 1944, German security forces had to systematically protect Danish shipyards from sabotage. Economically speaking, however, sabotage had little effect, yet the *Rüstungsstab Dänemark* was obliged to conclude that the “tense political situation” in the country had made Danish companies reluctant to take on further German orders. They were slowing down production or even asking to be released from contracts. Due to this and increasing difficulties in providing raw materials and coal, the *Rüstungsstab* expected a decrease in industrial output for Germany.²⁷ This was no exaggeration. The report was finished on 31 January. During the following month, German coal supplies to Denmark more or less broke down completely.

Food Exports

Sabotage did not affect the one sector that made up the far most important Danish contribution to the German war economy: agriculture. Denmark's Prime Minister Erik Scavenius put it clearly during the difficult government talks during the August crisis of 1943. When a colleague suggested that sabotage might actually have a positive impact on Denmark's reputation amongst the Allies, Scavenius replied that only the future interests of the Great Powers would be decisive and not some Danish acts of sabotage which, on the crucial issue, being agricultural exports to Germany, did not have any effect whatsoever.²⁸

German exploitation of Denmark's agriculture had begun in Esbjerg Harbor two days after the invasion, as *Wehrmacht* troops confiscated

²⁶ Niels Alkil (ed.), *Besættelsestidens Fakta vol 1*, (Copenhagen: Schultz, 1945), 801–10; Kjeldbæk *Sabotageorganisationen*, 79–80.

²⁷ *Rüstungsstab Dänemark, Jahresübersicht 1944/Lagebericht Januar 1945*. BAArch-MA, RW 27/2.

²⁸ Erik Scavenius, *Forhandlingspolitikken under besættelsen*. (Copenhagen: Steen Hasselbalch, 1948), 181.

two shiploads of Danish bacon bound for England.²⁹ A few days later, Fregattenkapitän Forstmann began talks with representatives of the Danish butter, bacon, egg and pork producers' associations concerning deliveries to *Wehrmacht* troops in Denmark. These events marked the beginning of a fruitful German exploitation of Denmark's agricultural industry.

While the government trade committees were drawing up Danish industrial exports to Germany at less than 30 million RM for the second half of 1940, agricultural exports had risen to greater heights. Trade talks opened just nine days after the occupation, and would soon reveal German wishes to take over whatever agricultural products had been meant for the British market. To the relief of the Danish negotiators, the German trade committee also proved willing to supply Denmark with as much raw materials as could be spared. Products were immediately redirected across the border. In July 1940, the trade committees were expecting exports at more than 120 million RM—for the third quarter alone. Although the figures included for a nearly 60 million RM one-off decimation of pigs, responding to decreasing imports of fodder, it still shows how food exports came to dominate the picture of Denmark's economic collaboration.³⁰ Despite a decrease in overall production figures, which could hardly be helped, Danish agriculture still produced a surplus, of which most was sold to the *Wehrmacht* or exported to Germany. Berlin did not hesitate to encourage Danish farmers by way of a lucrative price policy—exports being paid for by the German clearing account in the Danish National Bank.

Danish agricultural deliveries to Germany during the next five years can be summarized as follows: Butter exports were at a yearly 50,000 tons while meat and pork would reach 150,000 tons per year. In 1940–43, fish from Danish waters contributed 23.4 % of German fish imports and 17.4 % of German consumption, Danish fishermen doubling their catches and multiplying exports to Germany by five.³¹ Danish butter

²⁹ Wehrwirtschaftsstab Dänemark, KTB Nr. 1, 11 and 16 April, 1940. BAArch-MA, RW 27/2.

³⁰ Ergebnisse der Besprechungen der deutsch-dänischen Regierungsausschüsse vom Oktober 1940. Osobyj Archiv, Moscow, 1458/21/106.

³¹ See also chapter 3, p. 80 regarding Danish fish exports to Germany.

contributed 39.3 % of German imports, an equivalent of 5–6 % of German consumption or 3 % of German consumption of fats. In the same period, Denmark supplied 17.3 % of Germany's meat and pork imports or 3–6 % of German consumption. In 1943–45, as Germany's territorial basis was dwindling, Danish food became even more important. In this period, Danish meat and pork covered approximately 14 % of consumption in German cities and more than 20 % of that of the *Wehrmacht*, while Danish butter would satisfy approximately 9 % of city and around one third of *Wehrmacht* consumption.³²

Most of the time, the German negotiators were happy with the results, and few from within the economic agencies in Berlin ever doubted that the current system was by far the most beneficial to Germany. The issue of confiscations was never on the table, and in those few instances when the German trade committee would pressure for greater deliveries, the Danes proved capable of that as well. When, for instance, during trade negotiations in spring 1941, Germany was offered 130,000 live cattle and yet asked for an increase—pointing to the fact that German meat rations were about to be cut from 500 to 400 grams a week—the Danes quickly raised prices and produced an additional 45,000 pieces.

In this way, Denmark fulfilled a role in the German food supply system that was not originally scheduled. While, roughly, France and the occupied eastern territories were the main suppliers of grain and beef, and Norway dominated most of Germany's fish imports, the 200,000 Danish farmers provided bacon and butter. There is no mistaking the political importance of the Danish food exports to the Nazi regime, which had since the mid-1930s been intent on building up a continental, self-sufficient supply system that would make Germany immune to an

³² Denmark's agriculture and food exports to Germany during the occupation have been investigated in Mogens R. Nissen, *Til fælles bedste. Det danske landbrug under besættelsen*. Copenhagen 2005; Joachim Lund, *Hitlers spisekammer. Danmark og den europæiske nyordning 1940–1943*, Copenhagen 2005, and Joachim Lund, "The Wages of Collaboration: The German Food Crisis 1939–1945 and the Supplies from Denmark", in *Wars, States and Economic Change in Scandinavia, 1600–2000*, eds Harald Espeli and Joachim Lund, *Scandinavian Journal of History* (special issue) vol. 38/4 (2013), 480–501. It has also been subject to controversy; see Ole B. Jensen, "Hitlers spisekammer?", in (Dansk) *Historisk Tidsskrift* 108/1 (2008), 66–105; Joachim Lund, "Hitlers spisekammer, den tyske fødevarerkrise og de danske leverancer", in (Dansk) *Historisk Tidsskrift* 108/2 (2008), 505–31; Mogens R. Nissen, "Fødevarerleverancernes betydning", in (Dansk) *Historisk Tidsskrift* 108/2 (2008), 532–51.

Allied blockade. During the war, Germany still had to import 17 % of its food, and German rations were under permanent pressure.³³ Denmark soon found herself in the midst of those efforts. Between 1939 and 1941, Germany increased its share of total Danish exports from 23 to 76 %, of which three-quarters were made up by agricultural products.³⁴ During the 1930s, Denmark's trade with Germany had gradually increased, but from 1939, according to official statistics, it virtually exploded.³⁵ Statistics, however, first of all reflect a generous German price policy. Actually, exports would follow the considerable decrease in production that took place because of a lack of fodder and fertilizer, and exports of products such as butter, meat and pork were considerably lower in 1941–45 than the 1935–39 average.³⁶

Nevertheless, German economic planners in the Ministry of Food and Agriculture and the Ministry of Economics formed a strong alliance with the *Auswärtiges Amt* and the German legation in Copenhagen, feeding decision makers with a flow of numbers and figures that would prove the value of Danish supplies to the German economy. When during the recurrent crises in the Danish–German relationship, Berlin would threaten to replace the *Auswärtiges Amt* by an *SS Reichskommissariat* or military rule, economic experts would see to it that information reached the highest decision levels, warning that any change in the occupation regime would jeopardize food supplies from Denmark.

The Danish government and foreign ministry joined in, perfectly aware that in the constant fight to preserve Danish sovereignty, unexpectedly high food exports could prove to be its best card if played well.³⁷ A few months before prime minister Scavenius' statement about food deliveries, minister of education Jørgen Jørgensen, during a government debate on the increasing public criticism of industrial collaboration, argued that the whole discussion was pointless since, as everybody knew, Danish agriculture was many times more valuable to

³³ Lund "wages of collaboration".

³⁴ Lund *Hitlers spisekammer*, 283.

³⁵ Nominal terms. Hans Chr. Johansen, *Dansk historisk statistik 1814–1980*, (Copenhagen: Gyldendal, 1984), 209, 213.

³⁶ Nissen *Felles Bædste*, 178–81.

³⁷ Lund "wages of collaboration".

the Germans than industrial production.³⁸ But industrial collaboration added to the argument of economic collaboration. In fall 1942, at the height of the so-called Telegram Crisis, during which the German envoy to Denmark, Renthe-Fink, had been recalled, Scavenius (then foreign minister) suggested to his colleagues that one obviously had to remind the Germans that it was in their best interest to keep the Danish government. Only a Danish government could maintain order and thereby secure the biggest possible agricultural and industrial production. The next day, at a private dinner party, Mrs. Renthe-Fink told minister of public works Gunnar Larsen that her husband, meeting Hitler at the *Führerhauptquartier*, had succeeded in explaining to the *Führer* the scope of Denmark's agricultural and industrial contributions, and that apparently Hitler was on his way to accepting an arrangement that kept Denmark within the field of responsibility of the *Auswärtiges Amt*.³⁹ She was proven right. On 5 November, Werner Best arrived in Copenhagen as new German plenipotentiary. Although his orders were to introduce a tough line with the Danes, he would still represent the *Auswärtiges Amt* as the chief agent of the German policy in Denmark. Best later recorded how Hitler had explicitly instructed him to maintain economic contributions from Denmark.⁴⁰ The *Führer* counted on Denmark's food deliveries: When he met with foreign minister Scavenius in connection with the signing of the Antikomintern Treaty in Berlin in November 1941, he remarked that in the future, Denmark would have to sell its agricultural surplus production within a cooperating Europe, and in April 1944, the *Führer* again communicated that Denmark must be supplied with whatever raw materials necessary to keep its production going.⁴¹

³⁸ Government meeting of March 25 1943. Lauridsen and Lund (eds), *Samarbejdets mand*, vol. 3, 136.

³⁹ Lauridsen and Lund (eds), *Samarbejdets mand*, vol. 2, 426; 431.

⁴⁰ Hans Kirchhoff, *Augustoprøret 1943* vol. I, Copenhagen 1979, 106.

⁴¹ Lauridsen and Lund (eds), *Samarbejdets mand*, vol. 1, 471; Handelspolitischer Ausschuss, Protokoll vom 25 April, 1944, quoted in Berthold Puchert, "Der deutsche Aussenhandel im Zweiten Weltkrieg", in Dietrich Eichholtz, *Geschichte der deutschen Kriegswirtschaft* vol. 3, (Berlin: Akademie Verlag, 1996), 393–507 (494). For a further assessment of the political significance of the Danish food exports to Germany during World War II, see Nissen, *Felles Bædte* 253–67.

Concluding Remarks

In August 1944, head of the *Rüstungsstab Dänemark* Dr Forstmann concluded: “Although a higher output in certain businesses might have been possible by way of different methods of management and work, it is beyond doubt that, given the total efforts for the benefit of German interests (agricultural produce, industrial produce, *Wehrmacht* assignments, and labor contributions in the Reich), by means of the system which was used we have achieved everything which was possible for the Danish economy to produce under the circumstances.”⁴²

Forstmann’s historical counterfactual of course reflected his awareness of his personal responsibility for extracting whatever industrial goods and services from Danish society as were needed. But if one compares with the economic results from other occupied Western European countries, the *Fregattenkapitän* probably had a point. The efficiency of economic exploitation in Denmark was a result of German local knowledge, diplomatic flexibility, willingness to provide the raw materials needed, and acceptance of a considerable degree of local autonomy at all levels of Denmark’s economic life, from farms and local businesses through organizations and trade associations to the government level.

To the Danes, economic collaboration became a matter of national urgency. By giving the Germans what they wanted—and more, if possible—one was hoping to keep things in hand and avoid harsher German measures. It was the realist strategy of a small state with an open economy. Even without Germany occupying the country, Denmark was at the mercy of international trade conditions. Should supplies vanish, difficulties would soon become insuperable. In this sense, it is difficult to

⁴² “Wenn auch durch andere Methoden der Lenkung und der Arbeit aus einzelnen Betrieben höhere Leistungen hätten herausgeholt werden können, so ist—wenn man alle Leistungen für deutsche Interessen (landwirtschaftliche Erzeugung, gewerbliche Erzeugung, *Wehrmacht*sarbeiten und Arbeitseinsatz im Reich) zusammennimmt—durch das angewendete System zweifellos das Optimum dessen erzielt worden, was die dänische Wirtschaft unter den gegebenen Verhältnissen zu leisten vermag”. Aufzeichnung des Chefs des Rüstungsstabes Dänemark, 15 August 1944, für den Chef des Rüstungsamtes. Quoted in Hans-Erich Volkmann, “Landwirtschaft und Ernährung in Hitlers Europa 1939–45”, *Militär-geschichtliche Mitteilungen* 1 (1984), 9. Also published in Bernhard Chiari (ed.), *Ökonomie und Expansion. Grundzüge der NS-Wirtschaftspolitik. Ausgewählte Schriften von Hans-Erich Volkmann*. (Munich: Oldenburg Verlag, 2003), 365–442.

conclude otherwise than that the strategy was successful. Economically, the situation worked to both parties' benefit. While Germany's big cities and *Wehrmacht* soldiers enjoyed their Danish bacon and butter, the Danish population was eating its way through food reserves that were higher than in any other European country, including non-occupied countries and Germany herself. At the same time, unemployment almost disappeared and Denmark's industry survived to such extent that production was back at pre-war levels already by 1947.⁴³

The combination of a shortage of goods and generous German price policies was bound to create problems, however. This was more than obvious to contemporary observers. Price control was introduced on April 9 1940 as an immediate response to the occupation, followed by a price law that fixed profits at a maximum. But prices were difficult to control, and they were often ignored by the occupying power and its Danish partners. Employment figures rose between 1942 and 1943, which added to the upward pressure on wages, and Germany's industrial *Auftragsverlagerung* and demand for agricultural goods also threatened to undermine the arrangement and inflate the money supply. In January 1943, the Ministry of Finance established the so-called "Professor Committee" with the purpose of fighting inflation and preparing for a possible German collapse. As a result, in summer 1943, the parliament passed a series of laws in order to absorb so-called "idle money", followed by a compulsory money exchange in the summer of 1945, and a one-off tax on fortunes a year later.⁴⁴ The main underlying problem was

⁴³ Hansen "Modgang eller fremgang?", 84. This narrative of the special Danish case is slowly beginning to penetrate international literature. See for instance Mark Mazower, *Hitler's Empire*, (London: Penguin, 2009), 277; Hein Klemann and Sergei Kudryashov, *Occupied Economies*, (London: Berg, 2012), passim. Overviews of the Danish economy during occupation and economic relations to Germany are given in Per H. Hansen, "The Danish economy during war and occupation", in Richard J. Overby, Gerhard Otto & Johannes Houwink ten Cate (eds), *Die "Neuordnung Europas". NS-Wirtschaftspolitik in den besetzten Gebieten*. (Berlin: Metropol, 1997), 63–81, and Joachim Lund, "Det økonomiske forhold mellem Tyskland og Danmark 1940–45", in Hans F. Dahl et al (eds), *Danske tilstande—norske tilstande. Forskelle og ligheder under tysk besættelse 1940–45*. Danish ed. (Copenhagen: Gyldendal, 2010), 151–74; Norwegian ed. (Oslo: Forlaget Press, 2010), 169–93.

⁴⁴ Niels-Henrik Topp, *Udviklingen i de finanspolitiske ideer i Danmark 1930–1945*. (Copenhagen: Jurist- og økonomforbundet forlag, 1987), 230–360; Hansen "økonomi under besættelsen", 48–49; Joachim Lund, "Nordic Destiny or European Solidarity—The Scandinavian Countries at a Crossroads After the Second World War", in Joachim Lund & Per Øhrgaard, (eds), *Return to Normalcy or a New Beginning? Expectations and Concepts for a Postwar Europe around 1945*, eds. Joachim Lund and Per Øhrgaard, (Copenhagen: CBS Press 2008), 93–111.

the financial arrangement that supported the Danish–German relationship during occupation: a clearing account and a *Wehrmacht* account in the Danish National Bank granting unlimited credit to the intruders, and accumulating a German deficit of a total of eight billion *kroner* or approximately five billion RM. Such involuntary injections of purchasing power in Danish society were worrying but not catastrophic.

The price of the considerable Danish contributions to the German war economy in the long run was a domestic one and should be found in the field of morals and politics. Contrary to national and political sentiments, Denmark had been supporting an occupying power and a National Socialist system that a large majority of the population found repulsive. However, to contemporary decision makers there was hardly any alternative. Since this type of collaboration was not enforced by the occupying *Wehrmacht* but only by the situation, it triggered resistance in the population—first among political outsiders such as communists or radical conservative groups, and then, later on, in growing parts of the population. As the Allies started winning instead of losing on the battlefield, it became increasingly difficult to acknowledge how the kind of collaboration Denmark was pursuing could be politically sustainable. It was a stated goal in the resistance to rid the country of the collaborationist government and call for “Norwegian conditions”, and during the last half of the war, illegal resistance papers condemned economic collaboration.

To the Danish governments and administration during the occupation, a high level of cooperation with the occupying power represented the only feasible way to keep society intact and protect its citizens from German measures and Nazi influence. But because of the Allied victory and the accompanying resistance point of view, proponents of this concept were hard to find in the public debate of the postwar years. The resistance umbrella organization, the so-called Freedom Council, had been preparing the punishment of political and economic collaboration since late 1943, and laws were passed by the liberation government in the summer of 1945. Members of the collaborating governments were protected by immunity and could sit back and wait while a parliamentary committee spent ten years investigating their actions during the war. It found no reason to impeach any of them on the grounds of treason.

A number of civil servants fared worse and were discharged for having behaved in a manner “incompatible with the interests of the nation,” and 1,148 industrialists received prison sentences for having been too eager in attracting German orders and expanding their business to meet German demands. Among them was Gunnar Larsen, minister of public works 1940–45 and manager of the market leading cement and machine corporation F. L. Smidth & Co.⁴⁵ Just over 10,000 businesses were found to have violated the price laws and were made to repay profits exceeding 5 % to the National Bank. There were no legal steps against decision makers in agriculture and related organizations, which is perhaps a paradox.

⁴⁵Larsen was later acquitted by the High and Supreme Courts. He was, however, expelled from F. L. Smidth & Co. and went into exile. Joachim Lund, “Cement og politik. Gunnar Larsen som minister 1940–43”, *Historisk Tidsskrift* vol. 112 no. 2 (2012), 469–511. Individual trade organizations such as the Engineers’ Association chose to establish courts of honor in order to weed out collaborationists. How Danish industrial firms dealt with their wartime collaboration in general awaits further investigation.

9

Corporatist Institutions and Economic Collaboration in Occupied Belgium

Dirk Luyten

Introduction

Shortly after the invasion in May 1940, the German military administration initiated institutional economic reform in cooperation with the Belgian trade organizations: this interaction gave a corporatist turn to economic institutional reform from the start of the occupation. The aim was to replace economic liberalism with German-style economic dirigisme, in order to facilitate the exploitation of the Belgian economy for the war effort and to prepare its integration in the *Grossraumwirtschaft* (Greater Economic Area). By 1941, the Belgian economy was covered by a network of corporatist institutions: *warencentrales* (commodity offices) and groups. These corporatist organizations became key institutions, enabling the actors involved to impact economic policy. These corporatist institutions therefore provide a good vantage point to analyse economic collaboration. Three sectors useful for the German war economy will be compared: coalmining, the metal industry and textiles. These sectors differed as to the size of the companies, political profile and the dependency on the financial sector, all iso and factors impacting the policy regarding production for Germany.

The central question concerns the differences in economic policies of these corporatist organizations, particularly regarding production for Germany. To what extent was there room for manoeuvre vis-à-vis the occupant? Which factors influenced the policy of the corporatist institutions: economic, political or ideological? Did the corporatist institutions have other economic policy goals? To answer these questions it is necessary to look at pre-existing institutions and structures, especially trade organizations and informal centres of policy making, since they played a leading role in the creation and the decision making in the corporatist institutions. A more general question concerns the autonomy of the new corporatist institutions.

New Economic Institutions

In the summer of 1940, the German and Belgian administration created the commodity offices to allocate raw materials, organized on product lines (steel, textiles and coal). In February 1941, the Belgian administration introduced the “groups”—statutory trade organizations with compulsory membership, which had the monopoly of interest representation for business. The commodity offices were copies of the German *Reichsstellen*, the groups of the German *Wirtschaftsgruppen* and both worked according to the *Führerprinzip* (leadership principle). The Nazi inspiration was clear, and these organizations were naturally incompatible with economic liberalism.

The creation of these organizations sheds light on their importance for the Belgian actors involved. The concrete form of these organizations and their position in economic policy making resulted from negotiations between the German military administration and the Belgians. The German military administration had to guarantee the contribution of the Belgian economy to the German war effort, but was free to delegate this to specific organizations called *Warenstellen*, in which local authorities could participate.¹ By allocating the raw materials, the *Warenstellen*

¹ “Verordnung über Bewirtschaftung gewerblicher Waren vom 27.5.1940” in *Verordnungsblatt des Militärbefehlshabers in Belgien und Nordfrankreich für die besetzten Gebiete Belgien und Nord Frankreichs vom Militärbefehlshabers*, 1940, p. 37–38.

determined for which clients products were made. The German military administration obtained the cooperation of the Belgian decision makers in the creation of the *Warenstellen*. The Ministry of Economy was not chosen as the Belgian partner, it was a young department in a state of disarray when the Germans entered Brussels. This created room for the private sector: the German administration proposed that private trade organizations should play a role in the new *Warenstellen*. The *Comité Central Industriel* (CCI), the central trade organization, was prepared to participate, and its sector federations acted as go-between for the German administration with the sector; for example, to collect statistics on the stocks.²

The private federations and leading industrialists were actively involved in the creation and the management of the new institutions. In some sectors, private trade organizations even substituted the *Warenstellen*, by establishing cooperatives for the distribution of raw materials. In June 1940, the voluntary steel cartel *Cosibel* (Comptoir de Vente de la Sidérurgie Belge) was transformed into *Sybelac* (Syndicat Belge de l'Acier). All the steel producers had to participate to put *Sybelac* in a position to act as a *Warenstelle*. Belgian steel producers negotiated the creation of *Sybelac* directly with the representatives of the German steel industry in the military administration, who made clear that the autonomy of *Sybelac* was limited. The federation was in charge of distributing the orders for production, according to German instructions, but the final decision was with the German officer in charge of the steel sector. The director of *Sybelac* was a leading Belgian steel industrialist, the administrators of the pre-war cartel became members of the advisory board, but the pre-war outsiders were also included.³ The same configuration resulted from negotiations between the German military administration and the trade organization of the metallurgical industry: the new cooperative with

²Lagebericht nr 2 16.6.1940 des Militärbefehlshabers in Belgien und Nordfrankreich, CEGESOMA—Brussels (Centre for Historical Research and Documentation on War and Contemporary Society), *Microfilm collection*. GRMA, T 501 Roll 102 Frame 157–158. Activité du CCI depuis le 10 Mai 1940, KADOC-Leuven, *Papieren Victor Leemans* (PVL), nr.2.13.

³Notes établies en vue de la réunion du 21.6.1940. Compte rendu de la réunion tenue à Cosibel le vendredi courant à 10h, CEGESOMA, *Papieren De Launoit*, AA 628, nr.18. Engagements des membres du Conseil de Sybelac 28.6.1940, ARAB (Algemeen Rijksarchief Brussel), *Administratie van het Mijnwezen*. Oranje Etiketten Letter D nr 5.

compulsory membership, *Sycobel* (Syndicat des Constructeurs Belges) was an umbrella organization of the private trade organization.⁴

This symbiosis gave the *Warenstellen* a corporatist character: membership of a private trade organization was a necessary condition in order to have raw materials allocated. Or, as a leading financial newspaper put it: organizations like *Sybelac* were “the organizations of interest or corporatist representation desired for so long.” The initiative was now with the industrialists to avoid direct state intervention and neither private property nor the management of the companies were put into question.⁵ The newspaper implicitly refers to the debate on corporatism in the 1930s in Belgium, initiated by Catholic politicians and organizations. Corporatism was a broad concept and the concrete interpretation differed from one group to another. For the extreme right and fascist movements like the Flemish Nationalist Vlaamsch Nationaal Verbond (VNV), Rex, and Verdinaso, corporatism was limited to general concepts or even simple slogans as a vague alternative to parliamentary democracy.⁶ As far as business was concerned, the most elaborate proposals came from the Catholic employers’ organizations. They evolved from an authoritarian political corporatism, inspired by Italian fascism toward a socio-economic corporatist model compatible with parliamentary democracy.

For some actors, the corporatist tradition played a role in their implication in the building of corporatist structures under the occupation and explains their cooperation with the German projects. This was obvious for the Catholic employers: they were convinced that the occupation provided the opportunity to put into practice the old, authoritarian corporatist ideas. Therefore, they wanted to be involved in the negotiations on the *Warenstellen*, just like the CCI, arguing that their long dedication to corporatist ideas gave them a certain expertise.⁷ These experts, such as René

⁴Fédération des constructeurs. Compte rendu succinct de l’entretien du 7.7.(1940) à la Wirtschaftsabteilung, CEGESOMA, *Overtuigingsstukken auditoraat-generaal (OSAG)*, AA 1314, nr.714, map 1.

⁵“Nos groupements professionnels” in *L’Echo de la Bourse*, 18.10.1940, p. 1. The original reads ‘créent l’organe longtemps désiré de la représentation des intérêts professionnels ou corporatif’.

⁶Dirk Luyten, *Ideologisch debat en politieke strijd over het corporatisme tijdens het interbellum in België* (Brussel, Koninklijke Academie, 1996).

⁷Dirk Luyten, “Het katholieke patronaat en het korporatisme in de jaren dertig en tijdens de bezetting” in *Bijdragen van het Navorsings- en Studiecentrum voor de Geschiedenis van de Tweede Wereldoorlog*, 1990, nr.13, 91–148; 107–108.

Goris, viewed Italian and Nazi corporatism in positive terms, and considered them compatible with capitalism and Catholicism.⁸ To enhance their position in the negotiations with the Germans, the Catholic employers prepared corporatist reform in the sectors where they held a strong position, such as breweries and brickmaking, sometimes in cooperation with the Catholic trade union. The hope was that these undertakings could put a Catholic mark on the corporatism the Germans would introduce.⁹

The Flemish-nationalist Victor Leemans, the new head (secretary-general) of the Ministry of Economy, was appointed with the support of the German military administration, and became responsible for integrating the *Warenstellen* into the Belgian legal order. Leemans was a long-time proponent of New Order ideas, who believed the liberal era had come to an end. He considered the *Warenstellen* to be parts of a necessary institutional reform, not only to manage scarcity but also to prepare the integration of the Belgian economy in the Nazi New Order.¹⁰ Leemans viewed the *Warenstellen* as agencies to implement the decisions of the Ministry and therefore wanted to allot the director extensive powers. The CCI on the other hand, wanted to circumscribe the director's powers by giving the advisory board, the emanation of the private trade organizations, a more important role. The German military administration was of a different opinion, which was reflected when the statute of the commodity offices was published in September 1940. However, the private employers' organizations were to be consulted on the designation of the members of the advisory board, although it was not obligatory.¹¹

Ideology prevailed in the textile sector as well. Next to the early nineteenth-century textile cities of Ghent and Verviers, newer textile centres had emerged in Flanders—the Dutch-speaking, northern and

⁸R. Gooris, *Corporatisme en bedrijfsorganisatie* p. 1, 15–17, CEGESOMA, *OSAG*, AA 1314, nr.861.

⁹ACVW—Aartsbisdom Mechelen. Ontwerp-verslag der vergadering van den Beheerraad van 30. VIII.1940, p. 1; 6.IX.1940 2; 20.IX.1940, p. 2–3, KADOC-Leuven, *Archief VKW-Antwerpen*, nr.2.1. Centrale der Christene tabaksbewerders, *De bedrijfsorganisatie in de tabaksnijverheid*, 24. VIII.1940, 1. Universiteit Antwerpen, Centrum voor Bedrijfsgechiedenis, *Papieren René Goris*, P 16/1.

¹⁰V. Leemans, Note pour les secrétaires généraux octobre 1940, KADOC Leuven, *PVL*, nr.2.2.

¹¹“Arrêté portant le statut organique des Offices Centraux de marchandises” in *Pasinomie*, 2.9.1940, 306–307.

agrarian part of Belgium. Many of these industrialists were Flemish-nationalists and supported New Order ideas.¹² Leo Meersseman, an official of an employers' organization in the textile sector, who had published on corporatism in the 1930s, was convinced that the time for corporatist reform had come. The *Warenstellen* were but a first step, they were still too statist, but could eventually be used to defend the sector against the state.¹³ Unlike the other key sectors, textiles lacked a unified federation affiliated to the CCI. The CCI, encouraged by the policy of the occupier, succeeded in making a unified textile federation in June 1940, too late to have a decisive impact on the foundation of the *Warenstellen*. The first leader was a civil servant of the Ministry of Economy, Fritz Donckerwolcke. He was appointed with the support of the new federation, but was also a member of the Verdinaso.¹⁴ The politicization became even more obvious in 1941, when Donckerwolcke was replaced by the Flemish-Nationalist Willem Van Hee, an official of one of the many Flemish employers' organizations in the textile sector.

It is not surprising that the authoritarian character of the commodity offices did not prevent the CCI from participation: ideological considerations were secondary to politics for the economic elite who wanted a say in the new institutions. Participation in the commodity offices gave the federations the opportunity to extend their power since membership was compulsory. Another political incentive for the CCI to participate was the competition with the Vlaams Economisch Verbond (VEV—Flemish Economic League). This employers' organization strived for the economic emancipation of Flanders and had vied for influence with the CCI since the mid-1930s. In line with the policy of the German military administration to favour Flanders, the VEV and the CCI were put on equal footing. This facilitated the cooperation of the CCI with the commodity offices, since the organization feared losing control over the new institutions to the VEV.¹⁵

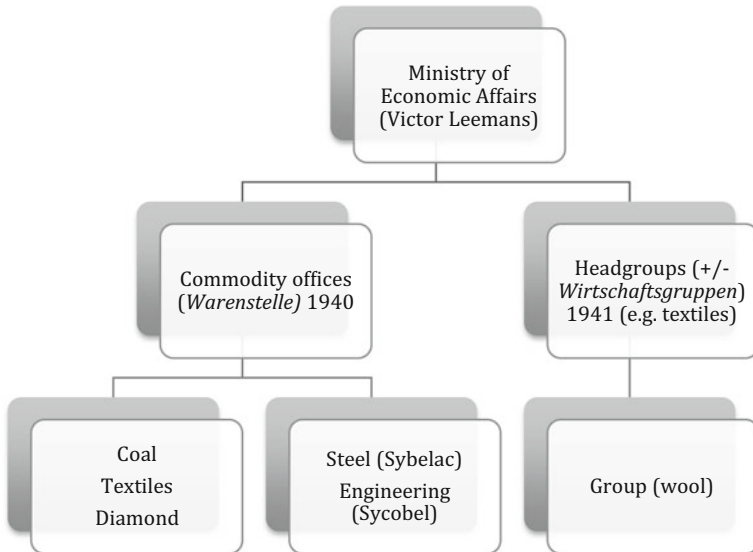
¹² Bart De Wilde, *Witte boorden blauwe kielen. Patroons er arbeiders in de Belgische textielnijverheid in de 19^e en 20^e eeuw* (Gent: AMSAB-Profortex, 1997), 76–108.

¹³ L. Meersseman, *Functies van de warencentralen en de beroepsfederaties in België* 6.IX.1940, CEGESOMA, OSAG, AA 1314, nr.861.

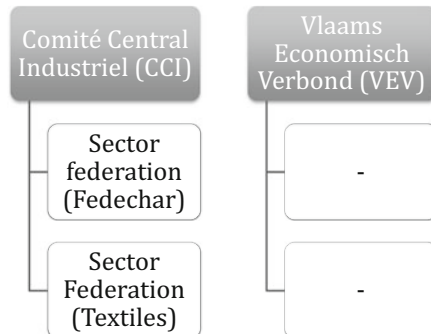
¹⁴ Note sur la réunion des industriels textiles belges tenue au CCI le 19.6.1940; The CCI to Raven 4.7.1940, KADOC-Leuven, *Papieren Gaston Craen*, nr.176.

¹⁵ Confer D. Luyten, *Ideologie en praktijk van het corporatisme tijdens de Tweede Wereldoorlog in België* (Brussel: VUBPRESS, 1997), p. 123–127.

The corporatist organization of the Belgian economy during WWII



The private trade organizations



Production for Germany: A Political Issue

The Belgian economy was dominated by holding companies that controlled key economic sectors like coalmines, steel and the metallurgical industry. The representatives of these companies joined bankers and key industrialists in an informal committee, the Galopin committee, named after Alexandre Galopin, the governor of the Société Générale, the main holding company. The committee acted as a shadow government for economic policies after May 1940, and laid down a policy regarding production for Germany in July (the Galopin doctrine).¹⁶ Industrial production for Germany was a punishable offence under Belgian law, and after the First World War, industrialists had been punished for economic collaboration. But due to the British blockade and the fact that Belgium was not self-sufficient with food, export of industrial products was necessary to pay for food imports. Also, stopping industrial production would lead to conscription of Belgian workers as forced labourers in Germany. The Galopin doctrine therefore allowed industrial production for Germany, with two restrictions: weapons and ammunition should never be produced and there was a quantitative limit to the export to Germany, determined by the necessary food import.

The doctrine included a political mechanism to limit production for Germany: the decisions to accept German orders were not taken individually, but were the outcome of consultation in the federations. This procedure could avoid that competition influenced the acceptance of an order, and also provided political cover for the industrialists in the event of a post-war trial. The export of industrial products was to be compensated by food imports on the basis of reciprocity. Participation in the commodity offices was essential to implement the Galopin doctrine, since they decided on the distribution of raw materials and production quota. This explains the efforts of the CCI and its federations to take the lead of the new institutions. The policy

¹⁶ Devons-nous reprendre la production industrielle? Dans quelle mesure?, CEGESOMA, *Papieren C. Gutt*, AA 1624, nr.48.

of the commodity offices can show to what extent the Galopin doctrine was put into practice.

In the key sectors of the economy, dominated by the holding companies and organized in the CCI, the directors of the commodity offices were chosen among traditional industry leaders.¹⁷ Economic considerations, inspired by the Galopin doctrine, guided them more than politics. For instance, the commodity offices in coalmining and the metal sector did not fit Leemans' political view on the role of the commodity offices.

In textiles, the lack of a united CCI-controlled trade federation, combined with a strong presence of Flemish-nationalists, paved the way for men with clear pro-German agendas to assume leadership of the commodity office. For Donckerwolcke, the future of the Belgian textile industry lay in an economic order dominated by Nazi Germany and he tried to open the German market for Belgian firms.¹⁸ The commodity office placed *Wehrmacht* orders directly with Belgian firms, which were eager to accept them.¹⁹ Donckerwolcke's commitment to the New Order was limited to the economy, but his successor Willem Van Hee, the candidate of the VEV and a confidant of the Flemish Nationalist Party VNV, openly sympathised with military and political collaboration.²⁰ Van Hee and the commodity office were prepared to participate in the liquidation of Jewish textile firms, while the official group for textile wholesale and retail had refused. Van Hee also used the new administrative tribunals to repress black marketers through fines and internment. These tribunals violated the Belgian constitution, as the Court of Cassation (the Belgian Supreme Court) stated in 1942. The directors of the other commodity offices did not use the system, which naturally led to conflict with Leemans, one of the initiators of the tribunals.²¹

¹⁷ Confer Luyten, *Ideologie*, 114–121.

¹⁸ Circular letter of Donckerwolcke to the professional organizations of the textile sector, 25.9.1940, KADOC-Leuven, *PVL*, nr.2.11.5.1/1.

¹⁹ Donckerwolcke to the president of the textile federation, 3.2.1941, ARAB, *Textielcentrale*.

²⁰ Note Van Hee for his staff CEGESOMA, *OSAG*, AA 1314, nr.694. Daily order 42-12-21, ARAB, *Textielcentrale*.

²¹ PV of the inquiry commission on the commodity office for textiles 15.6.1945. *Textielcentrale*. Monthly report. December 1942, CEGESOMA, *OSAG*, AA 1314, nr.694. iso., Warencentralen. P.V. van de vergadering van 15.1.1942, 12.3.1942 en 9.9.1943, KADOC-Leuven, *Papieren Gaston Craen*, nr.166/2. Van Hee to Leemans 14.12.1942, *Ibidem*, nr.171.

In the coalmine sector, the German military administration broke its promise to give priority to the Belgian needs: in November 1940, when production was back at pre-war level, exports for Germany were prioritized at the expense of the Belgian market. The prices the Germans paid were not profitable. This was a problem, especially since the compensation in food was not guaranteed. The commodity office accepted exports to Germany, but expected that the Belgian administration would insist on getting food as compensation. It also tried to reduce the monthly coal exports to Germany.²² To no avail: in December 1940 the commodity office calculated that the production programme imposed by the Germans caused a domestic shortage of 660,000 tons. Low prices, and the fact that the Germans had paid only 10 % of the amount due, caused financial woes for the coalmines. The same month, the secretary-general of Finance concluded that there had been no compensation in food for coal export increases. The commodity office continued negotiations, but the focus was exclusively on a better price rather than food compensation.²³ The problem persisted: in the autumn of 1941, the coal allotted to the commodity office for domestic industries was so meagre that factories were closed down and some sectors almost exclusively produced for Germany.²⁴ The commodity office was not in a position to stand up against the German military administration. The Belgian consumers and industry producing for the Belgian market received less and less coal. When the Germans unilaterally lowered the coal quota for heating homes in December 1943, the director of the commodity office resigned.²⁵

²² Compte rendu de la réunion de mercredi 28.8.1940 avec les représentants de l'Union Charbonnière; Office Belge des Charbons to Leemans 29.8.1940; The CCI to Leemans, 31.8.1940; Letters from the director-general of the coalmines to the German military administration, KADOC-Leuven, *PVL*, nr.2.11.1.1/1. Leemans to Capiau 30.8.1940, ARAB, *Administratie van het Mijnwezen*. Blauwe Etiketten Zwarte Letter A Rood cijfer 2 Zwart cijfer 11.

²³ Office Belge des Charbons to Leemans 6.12.1940, KADOC-Leuven, *PVL*, nr.2.11.1.1/1. Note relative aux prix des charbons belges exportés sur l'ordre des autorités occupantes (December 1940), KADOC-Leuven, *PVL*, nr.2.23.1. Plisnier to Leemans 2.12.1940, Justitiépaleis Brussel, auditoraat-generaal, *Dossier Reeder/Von Falkenhausen*, stuk nr 678.

²⁴ The directors of the commodity offices to Leemans 22.10.1941, CEGESOMA, *Papieren Zero*, AA 1087, nr.39. Warencentralen. PV van de vergadering van donderdag 21.8.1941, KADOC-Leuven, *Papieren Gaston Craen*, nr.166/1.

²⁵ Situation de l'industrie charbonnière sous l'occupation 27.10.1942, ARA, Depot Cuvelier Brussels, *Archief Société Générale, Vierde Storting*. *Archives Max Nokin*, II A 2° 19–27. J. Boulet to Leemans, KADOC-Leuven, *PVL*, nr.2.11.1.2/2.

In the steel sector, *Sybelac* tried to implement the Galopin doctrine to at least have a minimum for the Belgian needs and to obtain food for export of industrial products. *Sybelac* participated in negotiations to import cereals from the USSR in exchange for Belgian steel. The cooperatives in the metallurgical sector, substitutes for the commodity office, also distributed German orders between all producers as the Galopin committee advised.²⁶ As in the coalmines, the commodity office and the cooperatives were not in a position to counterbalance the German military administration. The share of export to Germany increased as the war went on, leading to shortages in Belgium.

In the textile sector, industrialists were more willing to work for Germany and to accept orders of a military character. In the last quarter of 1940, the *Wehrmacht* (German armed forces) placed an order via the commodity office. The quantity was not sufficient to provide all the interested firms with a share.²⁷ The willingness to work for Germany also appears from the expansion of capacity and facilities.²⁸ A key element of the Galopin doctrine was that productive capacity should not be expanded or changed, since this indicated an intention to meet the German (military) demand.

The commodity office for textiles was more inclined to accept the economic priorities of the German administration. This appears from the relationship of the office with *Zentratex*, a German private company that had obtained a monopoly to place orders for the German civilian population in Belgium.²⁹ The commodity office accepted to transfer the orders of *Zentratex* to Belgian textile factories, even if, as the legal department of the commodity office indicated, this was a violation of international law. The Hague Convention only covered requisitions and delivery for the

²⁶ Sybelac Assemblée générale annuelle statutaire du 29.10.1941. Rapport du conseil d'administration, CEGESOMA, *Papieren De Launoit*, AA 628, nr.18. Documents concerning Sylaf (Syndicat des fabricants de feuillards laminés à froid), CEGESOMA, OSAG, AA 1314, nr.715.

²⁷ Verslag over de werking der warencentrale der textielnijverheid, p. 25, ARAB, *Textielcentrale*.

²⁸ Donckerwolcke to the president of the textile federation 3.2.1941, ARAB, *Textielcentrale*.

²⁹ Patrick Nefors, *Industriële "collaboratie" in België. De Galopindoctrine, de Emissiebank en de Belgische industrie in de Tweede Wereldoorlog* (Leuven: Van Halewyck, 2000), 82.

occupation army.³⁰ By accepting the role as subcontractor for *Zentrutex*, the commodity office jeopardized the supply of the Belgian population, prompting complaints from the federation of textile industries. If the orders for *Zentrutex* were not finished in time (a technique used in other sectors to lower production for Germany somewhat), the quotas for the Belgian market were blocked and often used to produce for Germany. The calculated quotas were often unrealistic, and when they proved insufficient for both the German and the Belgian markets, production for *Zentrutex* had priority. Consequently the share for the Belgian market became illusory.³¹

While in the coalmines and the metal industry the leaders of the commodity office tried to have compensation in food or defend the quota for the Belgian markets, Van Hee was a willing executioner of the German policy to give priority to *Zentrutex* over the Belgian civilian requirements. His office actively opposed practices to use raw materials earmarked for the German market to cover Belgian needs.³² The collaborative policy of the commodity office did not prevent the Germans from placing orders directly with the textile producers, without intervention of the commodity office, but using the raw materials allotted previously by the office. For small orders the *Wehrmacht* placed the orders directly, and production could start even without the authorization of the commodity office.³³ Thus, the pro-German policy of the commodity office did not guarantee control over the sector.

Another source of disorganization was the black market, which was used to exploit the raw materials originally allocated to the Belgian market to cover German requirements. A case in point was *Reitz Uniformwerke*, a German firm with a Belgian subsidiary. E. Reitz, who was close to the Nazi party, escaped the control of both the German military administra-

³⁰ *Zentrutex* tegenover het internationaal recht 20.6.1941, KADOC-Leuven, *Papieren Gaston Craen*, nr.165/2.

³¹ G. Craen, Nota voor den heer secretaris-generaal 28.7.1941, KADOC-Leuven, *Papieren Gaston Craen*, nr.165/2. Textielcentrale. Nota voor de secretaris 10.9.1942, Omzendbrief van de Hoofdgroep Textielnijverheid Afdeling weverij 3.2.1944; Textielcentrale. Verslag van het onderhoud van Dr. A. Tavernier met Referat Textil Gminder 17.3.1943, ARAB, *Textielcentrale*.

³² Van Hee aan het Nationaal Verbond van Wolwevers 22.2.1941, CEGESOMA, OSAG, AA 1314 801. Omzendbrief 29. Nationaal verbond van wevers en vlechters van katoen 24.2.1941, ARAB, *Textielcentrale*.

³³ Verslag van een onderhoud van dr A. Tavernier met het Referat Textil 5.5.1943, p. 2; Textielcentrale, 'De textielindustrie in 1941', p. 5; Donckerwolcke to the professional associations 23.12.1940; ARAB, *Textielcentrale*.

tion and the commodity office. The company placed orders directly with Belgian factories and according to the commodity office, 45 % of the Belgian clothing industry was dependent on orders from *Reitz* in 1943. The profit was low, leading to a situation where Belgian firms had to close down or were taken over by *Reitz*.³⁴ Price policy was used by the German administration to ensure that German orders had priority. Prices for *Zentratex* were higher than for the Belgian market, the latter were even more marginal.³⁵

One reason the textile sector worked more easily for the Germans was that it consisted of many small- and medium-sized enterprises. They were not controlled by the holding companies or bound by the Galopin doctrine. A united federation came only with the occupation, and it could not impose a unified policy in a sector with a myriad of smaller organizations. Some had an outspoken Flemish-nationalist profile, which facilitated collaboration with Nazi Germany. Van Hee belonged to this group, and was elevated from a junior position in a trade organization to a leading position in the sector. Van Hee was autocratic, and did not, as did his colleagues in the coalmines and metal sectors, look for the backing of his peers. In these three sectors, it was clear that involvement of Belgians in the commodity offices did not guarantee even a minimum of production for Belgian needs.

The Groups: Corporatism Completed

The full corporatist organization of the Belgian economy, following the example of the *Wirtschaftsgruppen*, came with a Belgian decree in February 1941. The project was initiated in September 1940 as part of the German policy to replace economic liberalism with a German-inspired planned economy.³⁶ The new organization was the result of negotiations between

³⁴ Van Hee to Leemans 23.4.1943, 26.5.1943, KADOC-Leuven, PVL, nr.2.11.5.1/3. Carmen Van Praet, "Erich Reitz, een koppige Einzelgänger. Historiek van een Duitse ondernemer in België tijdens de Tweede Wereldoorlog" in *Revue belge d'Histoire contemporaine*, 2012, 43, 59–102.

³⁵ PV van verhoor van Andreas Dequae 22.11.1945; Textielcentrale, 'De textielindustrie in 1941', p. 4, ARAB, *Textielcentrale*. Van Hee to Leemans 9.10.1941, KADOC-Leuven, PVL, nr.2.11.5.1/3.

³⁶ *Tätigkeitsbericht nr.8 der Militärverwaltung für den Monat August 1940*, p. 9. *Tätigkeitsbericht nr.9 der Militärverwaltung für den Monat September 1940*, p. 41; E. REEDER, W. HAILER, *Die Militärverwaltung in Belgien und Nordfrankreich*, p. 43, CEGESOMA, *Verzameling microfilms*, GRMA, T 501 Roll 102.

the German military administration, the Belgian Ministry of Economy and Belgian trade organizations. The Germans wanted a statutory trade organization with compulsory membership and a monopoly on interest representation. The way to reach these objectives was open to negotiation, but the underlying principles of the reform threatened the private trade organizations and economic liberalism, and conflicted with the Belgian constitution.

The German military administration took the initiative by vesting power in the secretary-general of Economy to create *ex-nihilo* sector and regional trade organizations, organized according to the leadership principle. The private trade organizations could not be the starting point for this new organization, as the aim was their elimination.³⁷ Only the Ministry of Economy and the VEV were concerned in the early negotiations, the CCI was only involved later.³⁸ The CCI opposed the projects with a legal argument: there was no foundation in Belgian law for a reform to dismantle private trade organizations. The CCI refused to cooperate as the organization had done with the commodity offices.³⁹ The CCI used legal arguments, but the main difference was political: the initiative on the Belgian side was now with the Ministry of Economy under pro-German management, not the CCI.

The opposition of the CCI had some effect: the German military administration and the Ministry of Economy left room for cooperation with the private trade organizations, rather than disbanding them. In the negotiations on the legal statute of the new organizations, the survival of the private trade organizations was the CCI's priority. An advisory board for the implementation of the decree should guarantee some participation for the federations. The candidates for the leading positions of the groups would be submitted by the private trade organizations, as for the commodity offices.⁴⁰ The outcome of these negotiations, the decree of 10

³⁷Verordnung über die Organisation der gewerblichen Wirtschaft, CEGESOMA, OSAG, AA 1314, nr.769.

³⁸G.L. Gérard to Leemans, 27.10.1940, KADOC-Leuven, PVL, nr.2.9.2.

³⁹CCI to Leemans 4.11.1940, ARA, Depot Cuvelier, *Archief Société Générale, Vierde Storting Archives Max Nokin*, II C 1° 13.

⁴⁰CCI. Organisation de l'économie. Nouveau projet d'arrêté du 3.11.1940, ARA, Depot Cuvelier, *Archief Société Générale, Vierde Storting Archives Max Nokin*, II C 1° 13.

February 1941, was basically a copy of what existed in Nazi Germany. This did not offer many guarantees to the CCI, apart from the continued existence of private organizations and an expectation that the trade organizations could play the role of the groups.⁴¹ The CCI lobbied with the Ministry of Economy for an advisory role.⁴² The CCI advised its federations to remain prudent: no independent initiatives, cooperation in the new corporatist structures only on strict conditionally, and submission only of candidates with the confidence of their peers. This prudency contrasted with the VEV (and the Catholic employers' organization), for whom the groups were part of an ideological project. The latter two tried to place their members in leading positions to put their ideological stamp on the emerging corporatism.⁴³

Economic considerations prevailed for the Galopin committee, for whom the corporatist re-organization of the economy occasioned a review of its doctrine. While one of the arguments of the initial doctrine, the food compensation, had lost much of its pertinence, the implication of Belgian business in the corporatist system of the groups was a new qualitative step in the collaboration with Nazi Germany. An internal memo of the Société Générale, described the decree of February 1941 as a Nazi experiment leading to the end of the private trade organizations. This was no reason for Belgian business to refuse to participate in the corporatist organization; on the contrary, this participation was required and necessary for economic reasons.⁴⁴

L.C. Meersseman to G.L. Gérard 25.11.1940; CCI. Conseil d'administration du 4.12.1940. Réglementation de l'économie, CEGESOMA, *OSAG*, AA 1314, nr.861. Het CCI aan Leemans 24.12.1940, CCI. Projet d'arrêté portant réglementation de l'économie, Note juridique 24.12.1940, CEGESOMA, *Papieren René Goris*, AA 704, nr.58.

⁴¹ Comité permanent de législation to the secretary-generaal of Justice 31.1.1941, KADOC-Leuven, *PVL*, nr.2.9.2. "Arrêté concernant l'organisation de l'économie nationale" in *Pasinomie*, 1941, 73–74. 'Premier arrêté pris en exécution de l'arrêté du 10.2.1941 concernant l'organisation de l'économie nationale' in, *Pasinomie*, 1941, 123–126.

⁴² Circular letter of the CCI to the federations 17.2.1941, CEGESOMA, *OSAG*, AA 1314, nr.861.

⁴³ Raadsvergadering van het VEV 15.3.1941, ARAB, *Papieren Van Isacker*, Serie II, nr.11. ACVW Aartsbisdom Mechelen. Jaarlijksche statutaire algemeene vergadering van 14.III.1941, KADOC-Leuven, *Archief VKW-Antwerpen*, nr.2.1.

⁴⁴ Note sur l'organisation de l'économie. Comparaison entre la réalisation allemande et le projet de Mr. Leemans 4.2.1941 p. 8, ARA, Depot Cuvelier, *Archief Société Générale, Vierde Storting, Archives Max Nokin*. II C 1° 13.

The arguments of the Société Générale shed light on the issue of economic collaboration. The specific structure of the Belgian economy had to be maintained during the occupation. Prices were higher in Germany than Belgium, and the risk to be avoided was an increase in Belgian prices. The organization of the economy was necessary to prevent and compensate what was called “the attraction of German prices”. Products imported in Belgium from Germany should be sold in Belgium at the normal (lower) market price. The import traders needed compensation for their losses, financed by a levy on the profits made by Belgian firms exporting to Germany or by a contribution from the Belgian consumers. To implement this policy, the industry should produce enough to generate a sufficient level of profit or ask for a contribution from the consumers. The danger was that the Germans would try to bring the Belgian prices to the higher German level. This was to be avoided for the negative impact in the short term: inflation and depreciation of the Belgian franc.

From a strategic point of view, a price increase was even more dangerous: if Belgian prices reached the German level, much of the Belgian productive apparatus based on the output of semi-finished goods with a low added value would become uncompetitive after the war. In the revised Galopin doctrine, a new argument was used as a justification for production for Germany: the protection during the occupation of the “economic structure of the country”, an industry making cheap semi-finished goods for the world market. These were the sectors where the holding companies had invested most of their capital. The defence of the economic structure became a new central argument in the Galopin doctrine next to food supply and preventing forced labour in Germany. The second argument was reformulated to support the argument for preservation of the economic structure: sending skilled workers to Germany would weaken the sustainability of the industrial patrimony of the country.⁴⁵

⁴⁵ Note relative au comportement de l'industrie belge pendant l'occupation du pays Juin 1941, ARA, Depot Cuvelier, *Archief Société Générale. Vierde Storting. Défense de la Société Générale de Belgique s.a. et de Sociétés de son groupe en ce qui concerne la politique de travail appliquée pendant la guerre II*. A 10.

The system of the groups was vital for the defence of this economic structure and consequently Belgian business participation was necessary. For Alexandre Galopin this was not an ideological question or an issue of collaboration—such reactions were labelled as ‘sentimental’—but a matter of economic policy.⁴⁶ A heavy German imprint was only to be expected, since the Belgian economy was linked to the German economy and the Nazi system worked quite well. Politics was not wholly absent, however. An argument for traditional Belgian businessmen to take a leading position in the groups was to prevent members of the New Order parties taking control over them. Traditional businessmen wanted to hinder the Germans from using the groups to exploit the Belgian economy exclusively for their own purposes.⁴⁷

A consequence of this political choice was that Belgian businessmen took leading positions in the groups. The result was comparable to what had happened with the commodity offices, but the CCI experienced more competition from the ideological and politically minded VEV. In practice, the private trade organizations created and dominated the groups: the management of federation and group were the same people; the federations contributed buildings and staff, a symbiosis which enabled the federations to control the groups.⁴⁸ The personal union was explicit in the coalmines and the metal industries. In engineering, the group was a copy of *Sycobel* and the other cooperatives created in 1940 were incorporated as sections.⁴⁹ The director of the federation became the director of the group, but the president, Gustave Joassart refused to become the leader of the group for ideological reasons: the decree on the groups was a carbon copy of the Nazi corporatist system and the

⁴⁶ Note à l'égard du problème de l'organisation économique de la Belgique 21.3.1941, ARA, Depot Cuvelier, *Archief Société Générale, Vierde Storting, Archives Max Nokin*. II C 1° 13.

⁴⁷ Note relative au comportement, p. 42–44.

⁴⁸ Rapport final de l'administration militaire en Belgique et dans le Nord de la France. Exploitation houillère et réglementation du charbon, p. 13, CEGESOMA. Luyten, *Ideologie*, 166–170.

⁴⁹ Corporations, ARAB, *Ministerie van Economische Zaken. Bedrijfsorganisatie*. “Overheidsmaatregelen. Organisatie van de nijverheid” in *Economische Berichten*, 15.6.1942, II, 12, 367–372; 368–369. Association des lamineurs et tréfileurs de métaux non-ferreux. Union professionnelle. P.V. de l'assemblée tenue au siège de la Société Générale des minerais le 17.6.1941, *Archieven Federatie van Ondernemingen van de non-ferrometalen*. Compte rendu de la réunion des adhérents de Sylaf tenue le 24.9.1941 à Bruxelles, p. 1, CEGESOMA, *OSAG*, AA 1314, nr.715.

groups would become an instrument in the hands of the occupier.⁵⁰ Léon Bekaert, an important industrial in the sector and a leader of the Catholic employers' organization, which had favoured an authoritarian corporatism since the 1930s, became the leader of the group.⁵¹

Industrialists in Verviers, an old wool production centre, opposed participation in the textile industry group for ideological reasons too: the *Führerprinzip* was not compatible with liberalism. A second motive was the direct intervention of the pro- New Order secretary-general of Economy. Leemans agreed that the federation would build the group, but vetoed the application of the president of the federation for the position of leader. Leemans instead supported Honoré Bruwieri, a newcomer in the trade organization, but a member of Arbeidsorde, the Flemish-nationalist trade union headed by Leemans. Arbeidsorde, like the *Deutsche Arbeitsfront* (German Labour Front, DAF), organized employees, as well as employers.⁵² Bruwieri made no secret of his political intentions: liberalism had failed and the groups were a building block of an economic New Order.⁵³ At the lower levels of the corporatist structure, representatives of the federation were appointed, except in the wool industry, where the leading industrialists of Verviers maintained their opposition against a Nazi organization.⁵⁴

The profile of the leaders of the group was quite different in the coalmining and metal sectors, dominated by the holding companies, in which the groups lived in symbiosis with strong private federations. This was not the case in textiles, where there was room to appoint leaders

⁵⁰ G.J. Arrêté sur l'organisation de l'économie. Note sur une attitude générale possible 25.2.1941, CEGESOMA, OSAG, AA 1314, nr.715.

⁵¹ Luyten, "Het katolieke patronaat en het korporatisme", 108.

⁵² K. Leeman, *Het Vlaams Nationaal Syndicaat en de Vlaamse Arbeidsorde tot 1941* (Gent: RUG, master thesis), 1980–81, 119.

⁵³ Hoofdgroepering textiel. Notulen van de vergadering van de raad van de hoofdgroepering 20.8.1941, CEGESOMA, OSAG, AA 1314, nr.849.

⁵⁴ "Overheidsmaatregelen. Organisatie van de nijverheid" in *Economische Berichten*, 1.10.1942, II, 19, p. 577–582; Comité central belge de la laine. Réunion du 26.3.1941, 7.5.1941, CEGESOMA, OSAG, AA 1314, nr.794. Hoofdgroepering textiel. Bedrijfs-groepering wol. Verslag van de vergadering van de raad op 4.2.1942, CEGESOMA, OSAG, AA 1314, nr.798. Nationaal verbond van wolwevers. Verslag van de vergadering van de raad van beheer 4.6.1941, CEGESOMA, OSAG, AA 1314, nr.796.

of the groups with a political and New Order profile. What were the consequences for the economic policy of the groups? The groups were mediators for the *Auftragsverlagerung* (transferred orders from German factories to Belgian firms) and cooperated with the commodity offices for the distribution of raw materials and production quota.⁵⁵ The groups also had other competences, such as representing the sector in questions of prices and wages, and taking initiatives for economic and technical modernization.⁵⁶ The extent to which these powers were taken up differed from sector to sector depending on the degree of autonomy of the groups towards the private trade organizations.

The Coalmines Group: An Economic and Political Power Player

In the coalmining sector, the interlocking management of the private sector federation (Fédération des Associations Charbonnières de Belgique/Fedechar) and group made the symbiosis complete. The group played a key role in the economic policy in the sector, which was in a difficult position as a consequence of the low prices the Germans paid for Belgian coal, particularly for exports to Germany. This could result in closure of the less productive coalmines, an idea advocated by the German military administration.⁵⁷ The Belgian owners sought to protect their investments with reference to the Galopin doctrine's emphasis on preservation of the productive apparatus.⁵⁸ The group played a pivotal

⁵⁵ De *Militärverwaltung* aan de hoofdgroep hout 1.11.1941, KADOC-Leuven, PVL, nr.2.11.7.2. Opdracht der economische groepeerings 13.5.1942, p. 2–5, ARAB, *Hoofdgroep Ambachtswezen*, nr.1.

⁵⁶ Opdracht der economische groepeerings 13.5.1942, p. 6–8, ARAB, *Hoofdgroep Ambachtswezen*, nr.1. Intervention des groupements dans les questions de prix. Leurs rapports avec le commissariat aux prix et aux salaires 12.5.1942, KADOC-Leuven, PVL, nr.2.9.2.

⁵⁷ Rapport final de l'administration militaire en Belgique et dans le Nord de la France. Exploitation houillère et réglementation du charbon, 82; Le comportement des charbonnages belges sous l'occupation 1940–1944 8.2.1945, 16, ARA, Depot Cuvelier, *Archief Société Générale, Vierde Storting, Défense de la Société Générale...* II. B 26.

⁵⁸ A. Coppé, *Problèmes d'économie charbonnière : essai d'orientation économique* (Brugge. Desclée De Brouwer, 1940). Karel Pinxten, *Het Kempisch steenkolenbekken* (Brussel, Antwerpen: Standaard Boekhandel, 1939). Robin Hogg, *Structural Rigidities and Policy Intertia in interwar Belgium* (Brussel: Koninklijke Academie, 1986), 90–91.

role in shifting the financial burden of unprofitable coalmines onto the consumers and the state. In May 1941, the profit margin per ton was only 0.64 Belgian francs, against 24.43 Belgian francs in September 1940. This overall figure hid considerable discrepancies between profitable and loss-making mines.⁵⁹ The coalmines tried to obtain a higher price, but the military administration instead imposed a monthly state subsidy of 30 million Belgian francs. This was initially distributed by Fedechar and from November 1941 by a special compensation fund. The ministries of Economy and Finance were represented, but the coalmine owners had the majority via the group, appointing six out of ten members of the board of the fund. The group representatives followed the instructions of Fedechar. The director of the commodity office, another confidant of the coalmine owners, also sat on the board of the compensation fund.⁶⁰

The corporatist institutions allowed Fedechar to occupy a key position in the compensation fund, steering the distribution of the subsidy and enabling the coalmines to continue production at a low price and avoiding closures of the submarginal pits. The Ministry of Finance had asked for a financial transfer from profit-making to loss-making mines as a condition for the state subsidy. This was successfully opposed, as it would reduce profits, hinder investments for modernization and endanger the future competitive position of the coalmines.⁶¹ Beyond purely economic considerations, such transfers also would give the state more control over the financial situation of the coalmines.

⁵⁹ A. Coppé, Nota voor den heer commissaris (after May 1941), p. 1, ARAB, *Archief Commissariaat voor Prijzen en Lonen*, Map 193.

⁶⁰ Rapport sur l'activité de la Fédération des Associations Charbonnières de Belgique pendant la période du 10.5.1940 au 30.7.1942, 1, Rijksarchief Hasselt, *Archieven Fedechar*. Fedechar aan Leemans augustus 1941, ARAB, *Administratie van het mijnwezen*. Blauwe etiketten, Zwarte Letter A Rood Cijfer 2 Zwart cijfer 3. De *Militärverwaltung* aan Raven 25.8.1941; Plisnier aan Leemans, 28.10.1941, ARAB, *Administratie van het mijnwezen*. Blauwe etiketten, Zwarte Letter A Rood Cijfer 2 Zwart cijfer 3. P.V. van de vergadering van het directiecomité van de compensatiekas, ARAB, *Administratie van het mijnwezen*. Blauwe etiketten, Zwarte Letter A Rood Cijfer 2 Zwart cijfer 7. Fedechar. P.V. de la réunion du Comité du 26.8.1942, Rijksarchief Hasselt, *Archieven Fedechar*.

⁶¹ Hoofdgroepering kolen. P.V. de l'assemblée générale extraordinaire des charbonnages qui s'est tenue le samedi 7.3.1942, CEGESOMA, OSAG, AA 1314, nr.658. Fedechar to Leemans, 18.3.1942, KADOC-Leuven, PVL, nr.2.11.1.1/2.

The main political bone of contention was the cause of the declining profitability. The coalmines argued that the reason for the losses was not the low prices imposed by the Germans, but rather the rising wages: in May 1941, after a big strike, wages were increased 8 % in the private sector and even more in the coalmines.⁶² These strikes were a reaction to the insufficient food supply, caused by the official rationing system. The owners argued that since wage increases had been decided by the committees of secretaries-general (the Belgian political authority), the state had to compensate the mine owners with a state subsidy.⁶³ This was an attempt to make the state pay for the production policy of the Belgian coalmines through subsidies rather than price increases, as the latter would endanger the traditional Belgian strategy of competitive advantage based on low prices. Since coalmining was labour intensive, preferably the wages should not increase. The strategy of the mine owners to make the state pay for the higher wage costs was partly successful: until April 1942, all coalmines, regardless of their profitability were paid 1 % of the increase of the wage cost by the compensation fund.⁶⁴

The political role of the group is also apparent from the monopoly of information the compensation fund maintained on the profit made by each coal mine. The Ministry of Finance never obtained data on the profit or loss for each mine or the distribution of the state subsidy. The Ministry of Finance discovered in 1943 that even profitable coalmining firms were receiving the subsidy, since their profits derived from non-mining activities did not preclude the subsidy on unprofitable mining. Since the subsidy was paid on a monthly basis, the company could also distribute its profits unevenly over the year and receive payments for the months when it lost money. A tax on coal used to heat houses, paid by

⁶² Guy Coppieters, "De politiek van de minste weerstand? De Belgisch-Limburgse mijndirecties tijdens de Tweede Wereldoorlog" in Madelon de Keizer e.a. (eds), *Thuisfront. Oorlog en economie in de twintigste eeuw. Veertiende jaarboek van het Nederlands Instituut voor Oorlogsdocumentatie*, (Zutphen: Walburg Pers, 2003), 232–249; 240.

⁶³ Fedechar to Leemans, 18.3.1942, KADOC-Leuven, PVL, nr.2.11.1.1/2.

⁶⁴ P.V. van de vergadering van het directiecomité van de compensatiekas 4.5.1942, ARAB, *Administratie van het mijnwezen*. Blauwe etiketten, Zwarte Letter A Rood Cijfer 2 Zwart cijfer 7.

the Belgian consumer, enabled the compensation fund to pay 20 million francs per month, which still did not cover all claims for compensation.⁶⁵

The group successfully opposed the German plans to close the least profitable mines, referred to as “concentration”, and to limit the exploitation to the most productive pits. The less productive mines were situated in the southern regions and produced coal for households, while the Germans needed fat coal for industry from the more productive mines in the Limburg basin in the north. The German concentration policy would enable the transfer of miners to the northern mines for fat coal. The group opposed this project,⁶⁶ because a temporary standstill in the production of submarginal mines would threaten their long-term existence, and also because the mines earmarked to stop production served the Belgian market. In the end, the Germans closed only one mine, suspected of sabotaging production, but this was compensated partly by the state.⁶⁷

The group, an official organization, enabled the coalmine owners to act as one solid political block against the state and the German military administration. As a consequence of its economic weight, a well-organized sector federation that controlled the group and the direct links with the holding companies, the group never became a New Order instrument, as Victor Leemans intended. In practice, Leemans often just reproduced the arguments of the coalmine sector against the claims of his colleague in Finance or with the German authorities. For believers in the New Order, the establishment of the compensation fund showed the

⁶⁵ P.V. van de vergadering van het directiecomité van de compensatiekas 29.4.1942, 13.5.1942, ARAB, *Administratie van het mijnwezen*. Blauwe etiketten, Zwarte Letter A Rood Cijfer 2 Zwart cijfer 7. Note pour monsieur le secrétaire général. Caisse de compensation de l'industrie charbonnière 26.5.1943, ARAB, *Administratie van het mijnwezen*. Blauwe etiketten, Zwarte Letter A Rood Cijfer 2 Zwart cijfer 3. Rapport final ... Exploitation houillère, 100.

⁶⁶ Nota voor den heer secretaris-generaal Leemans 19.3.1943; Note pour M le secrétaire général. Concentration de l'industrie charbonnière 12.3.1943, KADOC-Leuven, PVL, nr.2.11.1.1/2. De hoofdgroepering kolen aan Steinbrick 31.3.1943, ARAB, *Administratie van het mijnwezen*. Blauwe etiketten, Zwarte Letter A Rood Cijfer 2 Zwart cijfer 1.

⁶⁷ Compte rendu de l'audience accordée par M le secrétaire-général Leemans à une délégation de l'industrie charbonnière le 7.7.1943, KADOC-Leuven, PVL, nr.2.11.1.1/3. P.V. van de vergadering van het directiecomité van de compensatiekas 24.11.1943, ARAB, *Administratie van het mijnwezen*. Blauwe etiketten, Zwarte Letter A Rood Cijfer 2 Zwart cijfer 7.

failures of the corporatist structures: the involvement of the group gave the coalmines and the holding companies too much power.⁶⁸

The Steel and Metalworking Group: Solidarity and Modernization

In the steel and metallurgical sectors the groups were also umbrella organizations of the federations. They played a role in the implementation of the Galopin doctrine but also stimulated economic modernization. The cooperatives created in 1940 were integrated into the structures of the groups and continued to distribute the German orders. The subgroup for wire drawing works, an umbrella organization of the cooperative *Sylaf*, negotiated directly with the German official *Stahldrahtverband* to distribute orders for which German firms lacked capacity. The objective was equilibrium between production for the German and the Belgian markets.⁶⁹ The shipbuilding group decided on the acceptance of German orders.⁷⁰ The machine building subgroup, another cooperative syndicate, distributed German orders in accordance with the Galopin doctrine.⁷¹ The general policy of the metalworking group was to distribute German orders to all firms in the sector and to avoid the situation where a firm produced exclusively for German clients at the expense of the Belgian market. The allocation of production quotas was the instrument the group used to curb the output of firms producing exclusively for Germany.⁷²

⁶⁸ A. Michielsens, Nota aan den heer secretaris-generaal 11.8.1941, CEGESOMA, *OSAG*, AA 1314, nr.873.

⁶⁹ Réunion du tréfileurs d'acier dur 13.10.1942; Réunion du 6.5.1942 du *Drahtseilverband* qui s'est tenue dans les locaux de l'UCTB, CEGESOMA, *OSAG*, AA 1314, nr.715.

⁷⁰ Entrevue du 2.10.1941 à la *Rüstungsinspektion*, ARA, Depot Cuvelier, *Archief Société Générale, Vierde storting Archives Max Nokin* II B 6 46.

⁷¹ De hoofdgroep metaalverwerkende nijverheid aan directeur Bijvoet 7.3.1944, CEGESOMA, *OSAG*, AA 1314, nr.888.

⁷² Note remise à m l'auditeur militaire de Liège par H. Pridat, ancien fonctionnaire de l'administration allemande juin 1945, CEGESOMA, *Documenten Jans*, AA 1418, nr.239. Nota van de hoofdgroep metaalverwerkende nijverheid 24.12.1941, CEGESOMA, *OSAG*, AA 1314, nr.714.

The success was limited, but at least the effort was made and this could later be exploited politically.

In the metal sector, the impact of the Galopin doctrine was more direct than in coalmining, since the issue of production of weapons and ammunition appeared regularly. As advised by the Galopin committee, the groups played their role as centres for common decision making on the acceptance of orders conflicting with the principles of the Galopin doctrine. In the steel sector, the group (dominated by the private federation) objected when the link with the production of weapons and ammunition was evident. When the Germans threatened to take over control of the production facilities or blow out the blast furnaces, the organization accepted the order.⁷³ The critical point for the group was to keep control of the productive apparatus in Belgian hands.

The metal sector groups had an ambitious vision of their role and worked intensively for economic modernization and standardization.⁷⁴ One of the weaknesses of Belgian engineering before 1940 was its limited specialization: Belgian metalworking firms produced all kinds of products, leading to low profit margins. The occupation offered an opportunity to modernize. The high German demand ensured that it was no longer necessary to accept any type of order for financial reasons.⁷⁵ Specialization also was an instrument used by the German military administration to increase production, and a limited number of types of products were defined in cooperation with the group.⁷⁶ The group used this agreement to encourage members to specialize their production.

The machines group devised a programme for export to Germany based on a limited set of machine types. This not only resulted in a segmentation of the market and a distribution of market shares, but also in spe-

⁷³ P.V. de la réunion des directeurs généraux tenue au groupement des hauts-fourneaux et aciéries belges 13.7.1943, Archives de l'Etat Liège, *SA Angleur Athus*, nr.298. Verslag van een vergadering van de hoofdgroep hoogovens met Leemans en Schuind 13.1.1942, KADOC-Leuven, *PVL*, nr.2.11.3.1.

⁷⁴ "De hoofdgroep metaalverwerkende nijverheid" in *Economische Berichten*, 1-15.8.1942, 444-448. Verslag van de raad van de hoofdgroep metaalverwerkende nijverheid 3.9.1941, KADOC-Leuven, *PVL*, nr.2.11.3.3.

⁷⁵ Rôle de l'organisation professionnelle dans l'évolution de l'industrie des fabrications métalliques. Janvier 1942, CEGESOMA, *OSAG*, AA 1314, nr.860.

⁷⁶ Note remise à M. l'auditeur militaire de Liège, 3.

cialization: only firms able to make the defined types of machines could export. The Belgian machine industry thereby hoped to build a foundation for a successful comeback in the export markets after the war.⁷⁷ The steel industry group made plans to cope with the overcapacity in the steel foundries after the war. An improvement of the standard of living would give the population access to mechanical household machines, offering the steel industry a new market.⁷⁸

Attempts were made to make the state pay for the cost of steel production for Germany, based on the model of the coal sector. In 1944, the financial situation of the steel plants became critical and the group requested a state subsidy. Only social arguments were used: the motive to produce under occupation was to give workers an income and prevent them from being sent to work in German war industries. If the steel industry stopped its activity, the state would have to pay unemployment benefits. It was better to keep the steel plants running using the money needed for unemployment benefits for a state subsidy to the industry. Secondly, the financial problems were caused mainly by the extra food supply in kind the employers had to give to their workers, since the official rationing system was badly organized. This shortcoming of the state justified financial compensation.⁷⁹ To the political and legal authorities, this argumentation seemed spurious. The steel industry was one of the sectors exporting most of its production to Germany and the argument that the firms re-started production after the invasion only to avoid unemployment was unconvincing. Public opinion would not accept financial support for a sector producing that much for Germany. Even the argument that if the Belgian steel industry stopped production, a German trustee would take over and produce more steel for Germany, was not convincing: the German military administration did not have the necessary personnel. The alternative was a price correction: costs had increased, but the Belgian steel industry had not tried to obtain a higher

⁷⁷ De hoofdgroep metaalverwerkende nijverheid aan Bijvoet 7.3.1944, CEGESOMA, OSAG, AA 1314, nr.888.

⁷⁸ E. Vroonen, Werkgebied van een bedrijfsgroepeering 24.6.1943, ARAB, *Archief commissariaat voor prijzen en lonen*, map 89.

⁷⁹ Note sur la situation de l'industrie sidérurgique à la fin janvier 1944, 25.1.1944, ARA, Depot Cuvelier, *Archief Société Générale, Vierde Storting, Archives Max Nokin*, II B 3.

price from the German administration.⁸⁰ The steel industrialists did not want a higher price, which would fire inflation, undermine the Belgian franc and erode the competitive advantage conferred by the low Belgian steel prices.⁸¹

The Textile Industry: A Weaker Economic Player

The groups in the textile industry operated in the same legal and institutional framework as the coalmines and metallurgical industries, but used their competences differently. The groups in the textile sector cooperated with the commodity office to allocate raw materials and distributed Belgian and German orders among their members, taking over the role that had been played by the private trade organizations before the groups were formed.⁸² The textile group actively searched for German orders and divided them between its members. Producing for the *Wehrmacht* was not an issue: in 1942, the group insisted on accelerating the rate of completion of German military orders. New production permits would not be issued (including for the Belgian market), before all the orders for the *Wehrmacht* were finished. If necessary, factories had to use their own stock of raw materials to manufacture for the *Wehrmacht*.⁸³

The group's policy was not always implemented in the lower ranks of the corporatist organization. The corslet-makers discussed and opposed the opportunity to accept German orders (not necessarily with a military character) and members remained free to accept or decline orders for

⁸⁰ Réunion du 1.2.1944 à la Société Belge des Banques, ARA, Depot Cuvelier, *Archief Société Générale, Vierde Storting, Archives Max Nokin*, II B 3.

⁸¹ Note complémentaire sur la situation de l'industrie métallurgique à la fin janvier 1944 26.1.1944, ARA, Depot Cuvelier, *Archief Société Générale, Vierde Storting, Archives Max Nokin*, II B 3.

⁸² Hoofdgroep textielnijverheid, Nota over de respectievelijke bevoegdheid van de textielcentrale en de hoofdgroepering textielnijverheid 3.7.1941, Omzendbrief van de bedrijfspgroep textielveredeling, 15.10.1941, CEGESOMA, OSAG, AA 1314, nr.779 en 849. Verdelingsstaten van de bedrijfspgroep vlas afdeling vlasweverij, ARAB, *Textielcentrale*.

⁸³ Omzendbrief van de hoofdgroepering textielnijverheid 13.8.1942, ARAB, *Archief ministerie van Economische Zaken. Bedrijfsorganisatie*.

the German market.⁸⁴ This case illustrates the overlap between the group and the pre-war trade organization. Formally, the group took the decision, but in practice, the issue was debated democratically in the general assembly of the private trade organization and the group implemented the decision.

Preservation of the productive apparatus was also a concern for the group in the textile sector, but the issue presented itself differently. The concentration of the production, introduced in 1941, made a deep impact: by September 1942, 50 % of the firms had stopped production, one year later 65 %. The commodity office implemented concentration since most groups in the textile sector were not prepared to take the unpopular decisions to close certain firms.⁸⁵ The programme moreover had political implications: the German military administration decided on the allocation of coal, and had the power to close down the least interesting production facilities for the German war economy. Concentration not only liberated employees for work in Germany, but was an instrument to re-direct firms towards export: a production stop could be avoided by taking extra orders for Germany.⁸⁶

The group tried to mitigate the effects of the concentration by actively searching for civilian orders in Germany. This action was justified by the post-war competitive position of the sector: employment in Belgium could be maintained, avoiding a situation where the sector lost its specialized workforce.⁸⁷ A system of solidarity was organized, based on the principles described for the metal sector. It was short-lived

⁸⁴ Union nationale des fabricants de corsets. Assemblée générale du 29.9.1941, CEGESOMA, *OSAG*, AA 1314, nr.732.

⁸⁵ Verslag over het beperkte compensatiestelsel in de katoenweverij 13.6.1944, CEGESOMA, *OSAG*, AA 1314, nr.794. Nationaal verbond van wolwevers. Verslag van de vergadering van de raad van beheer 17.IX.1942, CEGESOMA, *OSAG*, AA 1314, nr.796. Bedrijfsgroep kunstmatige textielstoffen en zijde. Vergadering van de raad van de sectie weverij van 25.3.1942, CEGESOMA, *OSAG*, AA 1314, nr.670. Nota over de concentratie s.d., KADOC-Leuven, *PVL*, nr.2.9.1/2. Zentrale Planung der Bewirtschaftung und der Bewirtschaftsorganisation 13.10.1943, CEGESOMA, *Microfilms* GRMA T. 71 Roll 115 Frame 619605-619608; 61905.

⁸⁶ *Tätigkeitsbericht ... nr 22 für die Zeit vom 1 September Dezember 1942*, p. D. 27; Nota van directeur Bonneville voor Gaston Craen (1943), CEGESOMA, *Documenten Jans*, AA 1418, nr.191.

⁸⁷ Bedrijfsgroepering kleding en confectie. Notulen der vergadering van den beperkten raad der bedrijfsgroepering gehouden op woensdag 11.12.1942; Verslag van de vergadering van den raad

however: the German military administration interdicted firms without production to continue commercial activities. As an alternative, after December 1941, firms allowed to maintain production had to transfer a part of their profits to inoperative firms in order to pay the fixed costs and the executive staff.⁸⁸

As in the metal sector, the groups in the textile sector took part in the allocation of raw materials and production quota. They looked more actively for German orders than in the metal sector, most likely since the Germans needed more production capacity for metal than for textiles, and production had been limited to 30 % of the pre-war level in 1940.⁸⁹ Production for Germany was not an issue: the factories had to continue their production to remain competitive after the war. The ratio between the Belgian and the German market was less of a concern for the group in the textile industry than in metalworking and coalmining. Food compensation for export was not demanded. The textile sector group was primarily reacting to the concentration and tried to mitigate the effects, even if this implied more production for Germany. The compensation system and the financial solidarity should avert a rationalization of the sector and the disappearance of production capacity. The initial New Order orientation of the management of the group can partly explain that production for Germany was less of a concern, but more important was the fact that the textile sector was not controlled by the holding companies, and its policy was not inspired by the Galopin doctrine. The textile sector was, as a consequence of its smaller economic weight, less capable of counterbalancing the demands of the German military administration.

der sectie vrouwenkleding 26.11.1942, ARAB, *Archief ministerie van Economische Zaken. Bedrijfsorganisatie*.

⁸⁸ L.C. Meersseman, "Het compensatiesysteem in de Belgische textielnijverheid" in *Economische Berichten*, 1-15.9.1942, 483-493. Verslag van de vergadering van de raad van de bedrijfsgroep textielveredeling 29.8.1941, CEGESOMA, OSAG, AA 1314, nr.849. "Verslag over bedrijvigheid gedurende het eerste dienstjaar (1.5.1941-31.5.1942) van de hoofdgroepeering textiel-nijverheid" in *Textielblad*, september-oktober 1942, 1-21.

⁸⁹ Nefors, *Industriële "collaboratie"*, 81.

Conclusion: Economic Collaboration and Corporatism

The corporatist organization of the Belgian economy provides a vantage point for analysis of economic collaboration. This is what the heirs of the Galopin committee did in the *Livre Bleu*, a document handed to the Belgian exile government returning from London in October 1944 to justify the economic policy under occupation. The Belgian industrialists had, via the private trade organizations and participation in the corporatist organizations, implemented a policy to export a certain amount of (military) goods to Germany in order to secure the import of food and cover the needs for other products of the Belgian population. The participation of the private trade organizations in the Nazi corporatism found its justification in this economic policy, and putting reliable Belgian economic leaders at the head of these corporatist organizations was a condition to implement it.⁹⁰

This document only partly describes the policy of the commodity offices and groups. They had a say in essential fields of economic policy, such as allocation of raw materials and distribution of production quotas, but under strict control of the German military administration, which only left the implementation to the commodity offices and groups. The political role of the groups must be underlined: with their official status, they became an instrument to defend business interests against the authorities. In practice, many groups were not just executive branches of the Ministry of Economy, as their legal statute suggested, but rather umbrella organizations of the private trade organizations.

Limiting production for Germany was not the general policy: only in the sectors dominated by the holding companies (coal, steel and metal), were attempts made to limit production for Germany and to obtain compensation in food. It was futile, as became clear by the end of 1940. In the textile industry, less under the influence of the holding companies and the CCI, the commodity office stimulated production for Germany.

⁹⁰ Rapport à messieurs Spaak et Gutt, Octobre 1944, ARA, Depot Cuvelier, *Archief Société Générale, Vierde storting Défense de la Société Générale*. II B 23.

The group actively sought opportunities in the German market to avoid closures as a part of the concentration policy imposed by the German military administration. The more outspoken New Order profile of the leaders of the corporatist organization in the textile sector helps to explain these differences. Proponents of the New Order could take leading positions in the corporatist organizations as a consequence of the weakness of the private trade organizations: these sectors were not under the control of the CCI, so to say the executive branch of the Galopin committee. The sectors were not dominated by the holding companies and not committed by the Galopin doctrine.

In the sectors dominated by the holding companies, the relationship between corporatist organization and economic collaboration should not be evaluated from the perspective of production for Germany in the first place. The issue was the preservation of the "economic structure of the Belgian economy" and its post-war competitive position. Economic structure not only referred to maintaining Belgian control over the coalmines and factories, but also an export strategy based on cheap semi-finished goods. Participation in the groups was necessary to defend this price structure.

In the coalmining sector and the steel industry, where the group was an umbrella organization of the private trade organization, the group tried to find compensation for the losses resulting from production for Germany. The coalmines obtained a state subsidy, allocated by the coalmine owners via the compensation fund, dominated by the group. This solution looked more attractive for the steel industry in 1944 than insisting on a price increase from the Germans. The low price level had to be maintained and the wage cost had to be contained. Increasing wage costs were used as an argument to obtain compensation from the state for the losses of the production policy, and via the group this issue was put on the political agenda. Avoiding closure of less productive mines and factories, as the German administration wanted, was another aspect of the preservation of the productive apparatus for the post-war period. This policy was followed in the coalmining, metal and textiles industries, but with different effects: nearly all the coalmines remained open, while the least productive firms were closed in the metal sector and especially

in textiles. The groups played a role in avoiding this concentration, or, when it was inevitable, organized a compensation system. In the metal sector, the groups played an active role in encouraging rationalization and modernization, heralding post-war Fordism. The significance of the commodity office, and even more of the groups, was also political: the private trade organizations were in a position to organize all the producers in a sector as a consequence of the compulsory membership, and to rationalize their organization. The corporatist organization gave Belgian business a strong structure of interest representation with a degree of autonomy from the state and without participation of organized labour. It is not surprising that the CCI favoured the continuation of the groups (except the *Führerprinzip*) after the Liberation:⁹¹ it was a barrier against both direct state intervention and the economic consultation demanded by the labour movement.

⁹¹ CCI. Organisation professionnelle. Projet de réalisation dans l'industrie 5.10.1943, ARA, Depot Cuvelier, *Archief Société Générale, Vierde storting Archives Galopin*, II G 96.

Part III

Supply: Managing and Extracting Resources from the Norwegian Economy

10

Incentive Structures and State Regulations of the Norwegian Economy

Harald Espeli

Introduction

On 15 April 1940, six days after the German invasion of Norway, the Administrative Council (Administrasjonsrådet) was set up in Oslo. After negotiations between the German authorities and self-appointed Norwegian representatives, the Council replaced Vidkun Quisling's coup d'état government from the evening of 9 April. The Nygaardsvold government and the royal family had fled from Oslo on the morning of 9 April and in June they went into exile in London, continuing the war as Britain's ally. The Council's future was dependent on close cooperation with the Germans on economic and administrative matters. On 24 April, the Council instructed Norges Bank (The Norwegian Central Bank) to give the *Wehrmacht* a blank cheque to finance its occupation costs in Norway. The Germans eventually withdrew around 11 billion NOK—nominally more than twice Norway's GDP in 1938—on the Norges Bank's occupation account until May 1945, of which 8 billion NOK was financed through note printing.

The huge German military presence (and the related building and construction activities largely financed through the occupation account)

was the main driver of the Norwegian economy. On average, more than 300,000 German troops, or more than 10 % of the Norwegian population, stayed in Norway. No other occupied country faced a comparable German military presence in relation to its population. Germany's military presence and activities undermined the aim to maintain or increase the production and exports of strategic resources to its war economy; mainly fish, strategic metals and ores. The wages and profits to be earned in the construction sector were radically higher than in production aimed for exports, especially in the first two years of occupation.

Particularly the building and manning of *Festung Norwegen*, the fortification of the whole coastline and its attached infrastructure, blurred the normal distinctions between domestic and external economic affairs. The Norwegian authorities nevertheless did their utmost to maintain imports and exports as distinct categories regulated through clearing. Norway was the only German-occupied country with import surplus with the *Reich*, according to the clearing accounts.¹ However, realities were more complex. There were significant, but not easily quantifiable, transfers of goods between Norway and the *Reich* which were not registered in clearing and trade statistics. Jonas Scherner's comprehensive recalculation of German imports from 1940 to 1944 shows that exports from Norway probably were to the value of 1779 Million RM rather than the 1,112 million RM identified in the official import statistics, equivalent to an increase of more than 50 % over the previous estimate.² It is known that the *Wehrmacht* exported or utilized military equipment (such as munitions, weapons and ship repairs) in Norway to the tune of 410.5 million RM between April 1940 and March 1944.³ However it is unclear how much of this was financed directly by drawing directly on the occupation account, and how many of these withdrawals were offset by other transfers from the Reich. Many of the physical resources necessary to build *Festung Norwegen*, and to supply the huge German forces in Norway, were also provided from abroad without being registered as clearing imports

¹ Statistisk Sentralbyrå, Statistisk-økonomisk utsyn over krigsårene, (Oslo: SSB, 1945), 96–116; Statistisk Sentralbyrå, Nasjonalinntekten i Norge 1935–1943. Relkapitalen 1939 og kapitalreduksjonen under krigen, (Oslo: SSB, 1946), 163; Hein Klemann and Sergei Kudryashov, Occupied economies. An economic history of Nazi-occupied Europe, 1939–1945, (London: Berg, 2012), 210.

² Jonas Scherner, "Das deutsche Importboom während des Zweiten Weltkriegs. Neue Ergebnisse zur Struktur des Ausbeutung des besetzten Europas auf der Grundlage einer Neuschätzung der deutschen Handelsbilanz, Historische Zeitschrift, Band 294 (2012), 79–111.

³ Robert Bohn, Reichskommissariat Norwegen. "Nationalsozialistische Neuordnung" und Kriegswirtschaft, (Munich: Oldenburg, 2000).

and thus not later financed by the occupation account. All Norwegian external trade, Sweden included, was under German control.⁴

Only further research can quantify the physical and financial dimensions of this. However, it seems fairly certain that Norway was a significant net importer of goods and resources. The use of POW labour in Norway only added to this. For Norwegian business, there was little economic difference between selling goods and services to the *Wehrmacht* in Norway and exporting it to Germany or other countries that were part of Germany's central clearing system, although formalities differed significantly.

With the possible exception of the campaign in 1940, the withdrawal from northern Norway in late 1944 and some merchant ships, confiscation was not used as a method to obtain resources relevant for exports. The *Wehrmacht's* confiscations for immediate use in Norway were also on a moderate level. This was in clear contrast with many other occupied countries where confiscations were widespread. More or less voluntary market transactions continued to be the norm, which required extensive regulation. This chapter investigates how the Norwegian economy was regulated during the war, and argues that the *Wehrmacht's* insatiable appetite for workers was detrimental to the performance of the Norwegian export sector. The many loopholes in the regulations of prices, wages and taxes only served to strengthen the incentives for firms and workers to take construction work, thereby binding up considerable resources within Norway and making them unavailable for export to Nazi Germany.

German Governance Structures for Fish, Metals and Ore Exports

In the German occupation plans, Norwegian metals and ore were considered important for the German armaments industry and in certain respects crucial, particularly with molybdenum.⁵ Norway became one of Germany's main suppliers of pyrites and sulphur, and it also supplied significant

⁴Hans Klaussen Korff, *Norwegens Wirtschaft im Mahlstrom der Okkupation*, part 1, unpublished manuscript, 1949, 252, Riksarkivet Oslo (RA), PA0951; Harald Espeli, "'Cooperation on a purely matter-of-fact basis': The Norwegian Central Bank and its relationship to the German Supervisory Authority during the occupation, 1910–1945", *Scandinavian Economic History Review* 62 (2), 188–212.

⁵Stortinget, *Innstillingen fra Undersøkelseskommisjonen av 1945. Bilag Bind 1*, (Oslo: H. Aschehaug & Co., 1947), 58–66.

amounts of iron ore, rutile, titanium oxide, copper, zinc and lead. Exports of pyrites were maintained at a high level, about 80–90 % of pre-war levels in most occupation years, varying between 616,000 tons in 1941 and 472,000 tons in 1944. Exports of iron ore declined most among the major ores, from 1.2 million tons in the late 1930s to about 0.24 million tons in 1944. Most production and exports of metals declined. The exception to the rule was the production of ferrosilicon, important for the armaments industry, based on domestic resources. Exports rose to 85,000 tons annually in 1943 and 1944, double the level of the late 1930s.⁶ Norway became Germany's dominant supplier of fish and fishery products, but fish quantities and exports fell steadily from 1940. According to trade statistics, this was the most important export product together with metals and various ores, both amounting to 30–40 % of total exports.⁷

Exports were excluded from Norwegian price regulations.⁸ Prices of most exports, fishery products largely excluded, were decided unilaterally by German authorities. For products from the mining industry the *Reichskommissariat* did not set prices at the product level but at the company level based on their estimated cost. The aim was usually to maintain production at a moderately profitable level.⁹ There is no known example of export contracts in mining offering significantly higher prices if specified and larger quantities than normal production were delivered. In construction work for the *Wehrmacht*, very profitable piece rate contracts were usual, especially during the first half of the occupation.

There are clear indications that prices of Norwegian exports to Germany increased less than the price of German imports from other countries. However, the prices of coal and coke, the largest staple product imported to Norway from the *Reich* during the occupation, and vital for industry and transport, were almost stable from March 1940. Export prices of metals and ore increased much less than for fish. For fresh and salted fish, prices increased by about 150 % from 1938 to 1943, while prices of metals and ore less than doubled in the same period. However,

⁶ Statistisk Sentralbyrå, Statistiske oversikter 1948, (Oslo: SSB, 1949), tables 95 and 122.

⁷ Statistisk Sentralbyrå, Statistisk-økonomisk utsyn over krigsårene, 96 ff; Bohn, Reichskommissariat Norwegen, 286.

⁸ Pristidende 1940, 270.

⁹ H. Smith, "Bergverksdriften 1940–1945", Tidsskrift for kjemi, bergvesen og metallurgi no. 9, 1947, 139–153.

fish prices had been much less influenced by the armaments boom in 1938 than metals and ore.¹⁰

For some export products, especially fish, there was a direct link between domestic and export prices. German authorities demanded higher prices to encourage fishermen to increase their catch and fish sales to the *Wehrmacht* and Germany. The need to supply Norwegian consumers with fish through regulated channels, and often at much lower prices than the Germans were willing to pay, created a major regulatory challenge for the Norwegian authorities. The Price Directorate found its task extremely difficult, and took the unusual step of expressing this publicly in 1941. The Directorate's efforts to incentivize fishing, while keeping prices down, created a constantly changing regulatory tangle that made it very difficult to exercise control.¹¹

Although Norway became Germany's main fish supplier, the fish catch declined significantly, even when accounting for unregistered fish sales to the *Wehrmacht* in Norway and to its personnel through black or grey market sales. Fish prices increased much, but so also did petrol costs, and as Bjørn-Petter Finstad shows in this volume, there were numerous financial and practical problems related to fishing during the war. The petrol required to build *Festung Norwegen* also far outstripped the insufficient supplies that were allocated to the fishery fleet. Despite a large relative income increase during the occupation years, the number of fishermen declined more than official numbers show. The main explanation is obvious. The earnings from German building and construction work in the coastal districts were significantly higher than from fisheries, and the personal risks were lower.

Exports of fertilizers, Norsk Hydro being the dominant producer, must also be mentioned. Fertilizers, including cyanamide, were important both in agriculture, for increasing food production and thus as exports to countries such as Denmark, and as an ingredient in the production of munitions. Exports in 1944, 243,000 tons, were under half the pre-war levels. This decline in exports is puzzling, because production declined much less.¹²

¹⁰ Statistisk Sentralbyrå, Statistisk-økonomisk utsyn over krigsårene, 35, 52 ff.

¹¹ Bohn, Reichskommissariat Norwegen, 276–286; Pristidende 1941, 113–115, 515–569, 771–791, 848–872, 973–1001, 1071–1081.

¹² Statistisk Sentralbyrå, Statistiske oversikter 1948, tables 95 and 122.

The high wages offered in military construction work was draining labour from mining companies already by autumn 1940 and particularly in 1941. Frequently, it was the most highly skilled workers that left first. Thus the Ministry of Social Affairs, in accordance with the *Reichskommissariat*, quickly decided to accept some wage drift in the mining industry. Even so, the wage drift in the mining sector did not differ significantly from what occurred in other industries that were considered important, and far higher wages could still be achieved in the building and construction sector.¹³

Within the German civil administration set up in Norway, the *Reichskommissariat*, a number of subsidiary departments had a special responsibility for exports, while other departments were responsible for managing general aspects of the economy, such as monetary and fiscal matters and price regulation. *Reichskommissar* Josef Terboven tried to establish a system of indirect rule as a governing principle. This meant that the various departments should cooperate and work through their relevant counterpart in Norwegian governmental administration. Indirect governance was implemented successfully in three areas: fiscal policy, monetary policy and price regulation. The other departments with responsibilities for economic policies in the *Reichskommissariat* were not able to establish a similar sustainable trust-based relationship with their Norwegian administrative counterparts. They were left to perform much administrative work on their own, resulting in lower regulatory efficiency. Despite relatively large staffs they were unable to halt declining exports of important products.¹⁴

The *Reichskommissariat* also strove to exercise indirect control over the companies owned by British, Canadian and—after December 10, 1941—US interests. These companies were confiscated by German authorities and placed under the control of an appointed *Treuhänder* (Trustee). This included most of the aluminium industry, a few important smelting and mining companies, as well as several other firms in

¹³ Statistisk Sentralbyrå 1945, Statistisk-økonomisk utsyn over krigsårene, 235 ff; Bergverkenes landssammenslutning, Bergverkenes landssammenslutning gjennom 50 år 1907–1957, (Oslo: Bergverkenes landssammenslutning, 1957), 52–54.

¹⁴ Korff, *Norwegens Wirtschaft* part 1, 106–107; Bohn *Reichskommissariat Norwegen*, 170–176; Pristidende 1941, 274–283.

various industries.¹⁵ The research on the operational effects of the trustee managements indicates that they generally had little influence, mainly because they were otherwise pre-occupied. The practical effects of these confiscations on production and exports seem to have been very limited and possibly counterproductive.¹⁶

The exchange rate of the *Reichsmark* (RM) and the Norwegian currency (NOK) stayed basically unaltered during the occupation to 177.77 NOK (56.82 RM = 100 NOK).¹⁷ This was close to the average exchange rate of 174 NOK in 1939, varying slightly from the exchange rate set in the clearing agreement. Alan Milward has argued that this exchange rate represented a major overvaluation of the RM, and that the market equilibrium exchange rate would have been about 30 % lower.¹⁸ However that might be, Germany did not use its power as an occupier to change the exchange rate to its benefit.

Economic Collaboration and the Financial Foundations of Excessive German Demand

The relationships established between key actors in the first months of the occupation created a pattern for monetary developments, administrative and economic cooperation, collaboration, and incentive structures that lasted for most of the occupation. On 15 April 1940, while the outcome of the Norwegian campaign—continuing to the capitulation of the last Norwegian forces on 10 June—could still be considered open, the Administrative Council was established in Oslo. After negotiations between German authorities and self-appointed Norwegian representatives, who wanted to reach an accommodation with the occupier as soon

¹⁵ Bohn, Reichskommissariat Norwegen, 296–301.

¹⁶ Arnljot Strømme Svendsen, *Union 1873–1973: en norsk treforedringsbedrifts liv og eksistens-kamp*, (Oslo: Aschehaug, 1973), 181; Pål Thonstad Sandvik, *Falconbridge Nikkelverk 1920–1929–2004. Et internasjonalt selskap i Norge*, (Kristiansand: Falconbridge Nikkelverk, 2004), 155–161.

¹⁷ Norges Bank, *Norge banks beretninger om virksomheten i hvert av årene 1940–1944*, 26–28. Published as Dokument nr. 10, *Stortingsforhandlingene 1945–46* (Oslo: Norges Bank/Stortinget, 1945–46).

¹⁸ Alan S. Milward, *The fascist economy in Norway*, (Oxford: Clarendon Press, 1972), 104.

as possible, the Administrative Council replaced Quisling's coup d'état government that initially had received Hitler's backing. The Supreme Court supported and sanctioned the establishment of the Council. Its aim was to restore social and economic stability as quickly as possible in the occupied areas. This necessitated close economic cooperation with the Germans, which would benefit the *Wehrmacht*. The Administrative Council enjoyed broad support among the local and national elites in the Oslo area.¹⁹

The Council's first important economic decision set a crucial precedent. The day after the Council's first brief meeting with the newly appointed *Reichskommissar* Terboven, to whom they promised their loyal cooperation on 23 April, the Council instructed Norges Bank to give the *Wehrmacht* a blank cheque. Norges Bank obeyed despite the absence of a state guarantee towards future German withdrawals formally paid with *Reichskreditkassenscheine* (RKKS). The RKKS, printed by the *Reichsbank*, was a kind of cash credit voucher denominated in RM. RKKS were used by the *Wehrmacht* as a means of payment and as legal tender in occupied territories only.²⁰ The circulation of RKKS could have been a serious threat to the monetary system of the occupied countries, but the decisions of 23–24 April did not entail that the Germans stopped the circulation of RKKS. This did not happen until July 1940, through an understanding between the German authorities and Norges Bank. The Germans could thus finance their campaign and later occupation through direct withdrawals from Norges Bank. No explicit German demand, much less any order, related to these decisions can be documented. The Council's decision can be interpreted as an explicit measure of cooperation and vote of confidence in Terboven, as well as the *Wehrmacht*, which would enable the council to continue its work. This was the beginning of Norges Bank's occupation account.²¹

¹⁹ Administrasjonsrådet 1940, *Bestemmelser av Administrasjonsrådet. Utgitt i Oslo i henhold til Administrasjonsrådets bestemmelse av 26. april 1940*, (Oslo: Grøndahl, 1940), 1–2. Jan Didriksen, *Industrien under hakekorset*, (Oslo: Universitetsforlaget, 1987), 164.

²⁰ Götz Aly, *Hitler's Beneficiaries: Plunder, Racial War and the Nazi welfare State*, (New York: Metropolitan Books, 2007), 84 ff.

²¹ Harald Espeli, "Det gavner ingen å gjøre store vanskeligheter i små saker. Dette er ikke store saker." Norges Bank, Administrasjonsrådet og etableringen av okkupasjonskontoen i 1940", *Historisk Tidsskrift* vol. 190, 2011, 559–584.

On 3 May 1940, the Administrative Council appointed the Committee for Industry and Trade (CIT, *Nemnda for industri og omsetning*) with extensive powers to set up mutual economic cooperation with Germany and German business. CIT was a corporatist body representing trade, industry and the Norwegian Federation of Trade Unions. CIT did much to legitimize economic collaboration with the Germans.²²

The Administrative Council's most direct contribution to enhance exports to Germany was its second instruction to the Norges Bank on 11 May. Norges Bank was instructed to pay specific Norwegian exporters of aluminium and other strategic metals in advance of the actual payments by the German buyers to the *Deutsche Verrechnungskasse*. It was the German administrator of the bilateral clearing agreement from 1934. The Council's decision was in conflict with the basic principle of the clearing agreement that there should only be very short-term imbalances between the parties. The decision was based on the Council's expectation that there would be a long-term export surplus in the trade with Germany. To avoid exporters withholding goods due to lack of payment, Norges Bank, which was the Norwegian administrator of the clearing agreements until the establishment of the Norwegian Clearing Institute in November 1940, had to advance the payments and thus grant a loan to exporters of a size "impossible to envisage".²³ However, the Council soon proved to be wrong about the clearing balance with Germany. Already by the end of 1940, Norway had an import surplus with Germany, which continued until autumn 1944.

Following the economic crisis created by the German invasion, the Norwegian employers' federation demanded a wage cut to revive the economy. The CIT and the Administrative Council supported the demand. Under pressure from the *Reichskommissariat*, the Norwegian Confederation of Trade Unions yielded and accepted a minor cut in pay in June 1940.²⁴ A few weeks earlier, the Administrative Council had

²² Harald Espeli, "The German occupation and its consequences on the composition and changes of Norwegian business elites", *Jahrbuch für Wirtschaftsgeschichte*, no. 2, 1987, 114–115.

²³ Riksarkivet Oslo (RA), Administrasjonsrådets møteprotokoll 11.5.1940, 96–97.

²⁴ Terje halvorsen, *Jern og metall 100 år. Bind 2, 1940–1991*, (Oslo: tiden, 1990), 28–35; Tarjei Nomeland, *Striden om 12-øringen. Lønnsnedslaget i oslo 1940 og oppgjøret om det i 1945*, unpublished cand. philol. thesis, University of Oslo, 1973.

introduced a wage freeze due to pressure from the *Reichskommissariat*. Any increase in wages and piece rate work had to be accepted by the Ministry of Social Affairs.²⁵

The Administrative Council also established obligatory insurance schemes against war related damages on private property, such as buildings, production equipment and chattels. These new insurance institutions, which continued basically unaltered during the war, had to pay close to full compensation on war damages. All fire insurance holders had to pay the same premium according to the fire insurance value of the property, to simplify the administration of the schemes.²⁶ Thus increased risks of engaging in war related production were not reflected in the premiums, reducing the costs and increasing the profits of such production, other factors being equal.

Even more interesting from an incentive perspective was the decision by the Administrative Council on 13 June 1940 to expand the public accident insurance scheme of the National Insurance Administration (Rikstrygdeverket), which then covered all workers and employees in manufacturing industries, mining and building and construction, to work on “airfields and other military building sites” from 9 April 1940. The compensation to individuals experiencing injuries and permanent loss of working ability on such sites was also to be significantly higher than for other kinds of work. The same was true for the compensation given to the relatives of people being killed on such sites. The government would finance all such compensation.²⁷ This was in total contradiction to the basic financing principles of the accident insurance scheme. Previously, its risk-based premiums were paid by the employers, with low premiums for office work and high premiums for employees working in mines and construction, where accident rates were higher.

The Council’s decision in June 1940 had no restrictions, for example that the state could not make a regress towards employers working voluntarily for the *Wehrmacht* on a large-scale, or take unacceptable risks. The insurance

²⁵ Administrasjonsrådet, Bestemmelser, 52–53.

²⁶ Administrasjonsrådet, Bestemmelser, 46, 53–57, 84–93, 120–129, 136–139, 410; Eivind Thon, Krigsforsikringen for varelagre – Gjensidig – (varelagertrygden): opprettelse og virksomhet i årene 1940–1949, (Oslo: krigsforsikringen for varelagre, 1951).

²⁷ Administrasjonsrådet, Bestemmelser, 325.

scheme also included Norwegian employees of the *Wehrmacht* or German firms. This indirect subsidy to businesses working for the *Wehrmacht* on risky sites is one of the clearest examples of the fact that the Administrative Council encouraged Norwegian businesses and workers to engage themselves in direct war related building and construction works for the *Wehrmacht*. It is difficult to differentiate this from economic collaboration.

Quisling's Nazi regime, which on Terboven's orders succeeded the Administrative Council on 25 September 1940, phased out the inherent principles of the Council's decision in December 1941. The Quisling regime decided that the financing of such costs was not the responsibility of the Norwegian Treasury. The premiums from employers should cover such costs and a significant part of the premiums should be risk based. The war risk related premiums should also be paid in advance.²⁸ The indirect subsidy of the building and construction business working directly for the *Wehrmacht* had been introduced by the ostensibly non-political Administrative Council but, paradoxically, it was brought to an end by the openly collaborationist Quisling regime.

The Administrative Council did not make any serious attempt to draw a clear line between legitimate economic cooperation and accommodation on the one hand and illegitimate economic collaboration on the other. On the contrary, the Council's actions show that it refused to draw such a line in order to keep unemployment, income and profits on acceptable levels and thus avoid social and political unrest. Therefore, in the judicial settlement after Liberation, companies indicted for economic collaboration were often acquitted due to what was termed an understandable legal delusion (*rettsvillfarelse*). The Administrative Council also set the example for close cooperation and accommodation between the Norwegian administrative apparatus and the Germans.

Following the understanding between Norges Bank and the *Wehrmacht* of 24 April, the bank hoped that the Germans would restrict their withdrawals so that the balance of the Norwegian economy and value of its currency would not be undermined. The hopes soon proved futile. Already in autumn 1940, withdrawals had reached a level that even the *Reichskommissariat* considered unsustainable in the long term.

²⁸ *Norsk lovtidend* 1941, 643–656.

Table 10.1 Net German withdrawals on the occupation account, 1940–45 (million NOK)

	German withdrawals	Average per month	German repayments on clearing	State payments on occupation account to Norges Bank
1940	1,257	179.5		100
1941	2,413	201.0	134	150
1942	2,335	194.5	19	1,050
1943	2,333	194.4	20	750
1944	2,332	194.3	114	1,000
1945	671	155.7		
Total	11,341	189.0	287	3,050

Source: Norges Bank 1945, Table 2

The net average withdrawal per month amounted to NOK 180 million in 1940. The British raid on Svolvær on 4 March 1941 had dramatic effects on German military planning in Norway. The plans for fortifications were significantly expanded.²⁹ Terboven himself concluded that the *Wehrmacht's* planned increase from an average expenditure of NOK 200 million to NOK 300 million per month from May 1941 would be “catastrophic” for the Norwegian economy.³⁰

A number of factors led to the stabilization of the German withdrawals on the occupation account to about NOK 200 million per month from 1941, which is apparent from Table 10.1. The more or less imminent danger of creating hyperinflation with its economic and political consequences was important. Linked to this was the probability that the pre-war leadership of Norges Bank, who embodied the public trust in the domestic monetary system, would resign and could not be replaced. An explicit aim of the stabilization of withdrawals was to “secure the continued voluntary cooperation of the influential Norwegians in Norges Bank”.³¹

²⁹ Bohn, Reichskommissariat Norwegen, 371–372; Sverre kjelstadli, Hjemmestyrkene. Hovedtrekkene ved den militære motstand under okkupasjonen, (Oslo: Aschehaug, 1959), 32–37; Johan Vogt and Sverre Hartmann (eds.), Akten über die deutsche Finanzpolitik in Norwegen 1940–1945, (Oslo: Universitetsforlaget, 1958), 50.

³⁰ Vogt and Hartmann, Akten, 61.

³¹ Vogt and hartmann, Akten, 73–81; Espeli, “Cooperation”, 200 ff.

The stabilization meant a shift in the financing of the *Wehrmacht's* costs related to Norway. So far, they had been financed solely from the occupation account in Norges Bank, but now Germany became a source of financing as well. The size of the share of occupation costs covered by transfers from the *Reich* is not known, but it was probably significant.³²

The total withdrawals on the account, NOK 11,341 million and close to NOK 11,000 after repayment on clearing, was almost three times the Western European average per capita in direct occupation payments.³³ This was the dominant Norwegian financial contribution to the German war economy. German confiscations of private property during the occupation amounted to NOK 1,200 million, most of which was compensated by the central government during the occupation.³⁴ This created great inflationary pressures. What macroeconomic countermeasures were implemented?

Of total occupation expenses of NOK 12 billion, the state financed about NOK 2 billion through increasing taxes and duties during the occupation and NOK 2 billion through bonds. The remainder of about NOK 8 billion was financed by Norges Bank's note printing. This led to a rapid increase in the money supply, close to 650 % between March 1940 and May 1945. This increase was significantly higher than in other occupied Western European countries.³⁵

To limit the inflationary pressures created by the *Wehrmacht* expenditure, and to facilitate banks' payment of interest on all deposits, Treasury bills were introduced in 1941. The amount of Treasury bills sold, mostly to banks, increased to NOK 3 billion in May 1945. The proceeds from the Treasury bills were placed in a special account in Norges Bank, thereby sterilizing a share of the increase in the money supply. In April 1945, the total assets of commercial banks and savings banks came to NOK 8155 million, of which NOK 5161 million (63 %) was held as call deposits in Norges Bank, Treasury bills or government bonds. The Germans decided the amount and profile of the state payments on the occupation account, which increased sharply from 1942, see Table 10.1.³⁶

³² Espeli, Cooperation, 203.

³³ Klemann and Kudryashev, Occupied economies, table 13.2.

³⁴ Statistisk Sentralbyrå, NOS X 102, 161 ff.

³⁵ Klemann and Kudryashev, Occupied economies, 237; Espeli, Cooperation, 191.

³⁶ Espeli, Cooperation, 190–191; Norges Bank, Norges Banks beretninger, 66–69, 124.

Regulations and Controls of Prices and Profits

After the outbreak of war in September 1939, the Norwegian government banned any price increase until provisional price regulations were established later the same month. After the German attack in April 1940, neither prices nor the level of gross profits measured in fixed NOK—not in relative terms—could be increased without prior approval. It was generally illegal to charge “unreasonable” (“urimelige”) or “improper” (“utilbørlige”) prices. The responsibility for interpreting these vague concepts was left to the courts. Maximum prices on specified products entailed that even documented costs could not necessarily be covered by the legal selling price.³⁷

A Supreme Court decision in October 1940 set a clear precedent. A wholesaler, who had sold potatoes to Norwegian consumers above the maximum price to cover his costs and make a relatively small net profit, was sentenced to 45 days in prison and a fine of NOK 3,000 in addition to confiscation of the profits. The Supreme Court stated that the aim of general prevention of crime necessitated severe punishments, because it was of “the utmost societal importance that price regulations were carefully obeyed”.³⁸

The *Wehrmacht* ruthlessly used the price mechanism to attract manpower and business to its building activities. Whenever a project was considered to be a military necessity, the *Wehrmacht* abided by the dictum “Geld spielt keine Rolle” (money doesn’t matter).³⁹ This naturally clashed with the efforts of the *Reichskommissariat* and Norwegian authorities to keep wages, prices and profits firmly in check. Despite the *Wehrmacht*’s profligacy, the comprehensive price regulations and controls kept inflation at relatively moderate levels in the economy as a whole. According to the official wholesale price index, prices increased by 33 % in 1940; and by more than 60 % from 1939 to 1941. Wholesale price increases then slowed down, and in May 1945 prices were 48 % higher than in March 1940.

³⁷ *Trustkontrollen* 1939, 279–285, 352–406, *Trustkontrollen* 1940, 63 ff, 227–258. See discussion on “unreasonable” and “improper” prices in Jens Christian Hauge and Sigurd Lorentzen, *Prisregulering og prishåndhevelse*, (Oslo: Gyldendal, 1941), 33 ff.

³⁸ *Norsk Retstidende* 1940, 528–533, citation 529.

³⁹ Bohn, *Reichskommissariat*, 312.

The increase in the official consumer price index was significantly lower, 52 % between September 1939 and April 1945, and 38 % from April 1940. The wholesale price index is probably the better indicator of price developments during the occupation.⁴⁰ Both price regulations and controls were concentrated on consumer prices, and the consumer price indexes were probably manipulated.⁴¹

Norwegian price regulators hoped that the high level of punishment against law breakers would function as an effective deterrent.⁴² In autumn 1940, the Administrative Council reconstituted the Trustcontrol office as the Price Directorate. Under the continued leadership of the influential and powerful price director, Wilhelm Thagaard, it was given increased autonomy and authority. The Price Directorate's general or specific price regulations and decisions could not be appealed to a supervisory body, such as the Ministry to which it was subordinated.⁴³ In autumn 1940, Thagaard had a major conflict with the *Reichskommissariat* over how the penal system should deal with contravention of the price regulations. Terboven demanded that the Price Directorate should have the competence to decide cases even against the most serious price offenders, as in the German system. Thagaard argued that this was unconstitutional. The courts and eventually the Supreme Court should have the sole competence to punish serious price offenders according to the rule of law. Thagaard was successful.⁴⁴

A new regulatory apparatus was introduced from 1941 to ensure the enforcement of central and local price regulations, as well as the elaborate system of rationing for consumers and businesses. A separate price

⁴⁰ Statistisk Sentralbyrå, Statistiske oversikter 1948, 339, 352; Statistisk Sentralbyrå, Statistisk-økonomisk utsyn over krigsårene, 28–44.

⁴¹ Statistics Norway did not work out a separate price index for fishery products; they were included in the index for edible animal products, which was dominated by agricultural husbandry products, Statistisk Sentralbyrå, Statistiske oversikter 1948, 339 ff.

⁴² Wilhelm Aubert, Priskontroll og rasjonering: en rettssosiologisk forstuide, (Oslo: Skrivemaskinstua, 1950); Hauge and Lorentzen, Prisregulering aog prishåndhevelse, 180; Norsk Retstidende 1940, 528–533. See also Pristidende 1941, 309–334.

⁴³ *Pristidende* 1940, 41–49, 259–354, 1941, 764 ff, 1005 ff, *Pristidende* 1942, 334–342, 606–610, 875–876, 1943, 209, Bohn, Reichskommissariat Norwegen, 248–249.

⁴⁴ Bohn, Reichskommissariat Norwegen, 246–259; R. Semmingsen, Wilhelm Thagaard, Norsk Biografisk leksikon XVI (Oslo: Aschehaug, 1969), 142–143; Terje Kili, *Den borgerlige sosialisten. Wilhelm L. Thagaard 1917–1945* (unpublished MA-thesis, University of Oslo, 1993), 159–60.

and rationing police force was established in 1943 to control business, investigate criminal acts and sentence fines. The price police had 300 employees and branches in all counties. If these fines were not accepted, the verdict would be decided by special price courts, and in the last instance by the Supreme Court, which from 1941 was manned by Nazified lawyers. The maximum level of sentences was increased significantly; fines were increased up to NOK 500,000, one year in prison, or both. In addition, businessmen could be banned from pursuing their trade for a period of between one week and five years. Such punishments for economic crimes were draconic by Norwegian standards.⁴⁵

In the beginning of 1941, new regulations were introduced to put a cap on the dividends that could be paid to owners of limited companies. The dividend ceiling was 5–8 % of the nominal share capital. Any increase in the remuneration to board members of such companies required the approval of the Price Directorate. The same was true for all business executives.⁴⁶

This system of price regulation and rationing, as well as the enforcement of it, remained essentially unchanged for the duration of the occupation. *Reichskommissariat* officials were to be consulted on particularly important questions such as fish prices.⁴⁷ Authorities in Berlin were very satisfied with overall functioning of the Norwegian price regulation system, and believed that it served as an example to other occupied countries.⁴⁸ But despite a fairly effective rationing system for consumer products, grey and black markets developed for many consumer products, mainly food.

Price regulations for the construction and building activities carried out on behalf of the *Wehrmacht* were much more difficult to formulate and implement. This was a new and huge market. Most of the civilian Norwegian building activity came to an end as nearly all construction material was reserved for German purposes from 1941 onwards. Almost half of the German withdrawals on the occupation account of NOK 11

⁴⁵ *Pristidende* 1940, 41–49, 296–306, Nils Johan Ringdal, Mellom barken og veden. Politiet under okkupasjonen, (Oslo: Aschehaug, 1987), 133.

⁴⁶ *Pristidende* 1941: 38–45, 1114–1123. These regulations were enacted by the Ministry of Social Affairs as responsible for the regulation of wages.

⁴⁷ Bohn, Reichskommissariat Norwegen, 246–259; Semmingsen, Wilhelm Thagaard, 142–143.

⁴⁸ Bohn, Reichskommissariat Norwegen, 257–258.

billion were used for investments in militarily related infrastructure.⁴⁹ The *Wehrmacht's* enormous building activity created a booming economy from late autumn 1940 to late 1943. With the exception of the coldest winter months, pre-war unemployment, calculated to have been 5.6 % in 1939, was wiped out.⁵⁰ The demand for labour for the *Wehrmacht's* building activities far exceeded the capacities of the Norwegian labour force, which were exhausted by summer 1941. Then, between 150,000 and 175,000 Norwegians, representing about 15 % of the workforce, worked on German building and construction projects. This declined to between 90,000 and 125,000 in February 1944, including up to 20,000 who were conscripted or enforced labour.⁵¹ From late 1941, large-scale imports of labour started, mainly consisting of approximately 100,000 prisoners of war, and various forms of enforced labour, mostly from Eastern Europe, increasing the workforce by up to 130,000 workers.⁵² All other occupied countries had a net export of voluntary and enforced labour to the *Reich*.

According to Hans Clausen Korff, head of the Department of Finance in the *Reichskommissariat* from September 1940, the *Wehrmacht's* direct payments to the Norwegians working directly for them amounted to about 550 million NOK during the occupation.⁵³ Payments to Norwegian firms undertaking construction work for the *Wehrmacht* represented significantly larger sums. Other goods and services purchased by German authorities, soldiers and civilians in Norway also amounted to billions of NOK.

The legal and illegal profits connected with building and construction for the *Wehrmacht* were significantly greater than other major sales and deliveries to Germany. How did the Price Directorate, the Price Police

⁴⁹ Detailed figures can be found in Korff, *Norwegens Wirtschaft*, part 2, 244–251.

⁵⁰ Statistisk Sentralbyrå, *Statistisk-økonomisk utsyn over krigsårene*, 231, 277; Ola Grytten, “Arbeidsledighetens omfang i Norge i mellomkrigstiden”, *Historisk Tidsskrift* 71 (3), 1992, 272.

⁵¹ Statistisk Sentralbyrå, *Statistisk-økonomisk utsyn over krigsårene*, 218–223, 276–277; Morten Tuveng, *Arbeidsløshet og beskjeftigelse i Norge før og under krigen*, (Bergen: Christian Michelsen Institutt), 1946; Gunnar Hatlehol, “Norwegeneinsatz” 1940–1945. Organisasjon Todts arbeidere i Norge og gradene av tvang, unpublished dissertation, Norwegian University of Science and Technology Trondheim, 2015, 128 ff.

⁵² Hatlehol, *Norwegeneinsatz*, 199 ff; Marianne N. Soleim, *Sovjetiske krigsfanger i Norge 1941–1945: antall, organisering og repatriering*, unpublished dissertation, University of Tromsø, 2004, 3, 56, 195.

⁵³ Korff, *Norwegens Wirtschaft*, part 2, 251.

and the courts face these challenges? Already on 25 April 1940, Thaagaard's office had published its first circular on how prices for work undertaken on behalf of German institutions or persons were to be calculated.⁵⁴ In September 1940, due to extremely high prices and profits for barracks built for the Germans, the first price regulations in the building and construction sector were introduced for two standardized types of barracks. The Price Directorate seems to have accepted gross profits of 30 %.⁵⁵ These price regulations were followed by specified regulations on important factor inputs such as finished lumber.⁵⁶

The Price Directorate introduced general regulations on all kinds of building activity, effective from 1941.⁵⁷ These sector regulations were tightened on several occasions during the occupation. No other sector of the economy was regulated in a similar way. Labour represented the most important cost in the building and construction industry. Wages were, however, not within the Price Directorate's sphere of competence. Thus, the responsibility of clarifying the level of maximum legal wages fell on the Ministry of Social Affairs. The Ministry had established a kind of national wage agreement for the building and construction industry in April 1941. The Ministry subsequently uncovered that there were numerous possibilities to legally circumvent the fixed maximum wages. Various kinds of piecework, especially "chance piecework" (slumpakkord), were the most important loophole, as was widely known.⁵⁸ In a piecework pay system it was acceptable that earnings were "on average" 25–40 % above wages based on maximum pay per hour, and in some circumstances clearly higher. An important element in the Ministry's statement was that it also accepted higher salaries and better piecework agreements outside the major cities, where most of the building and construction work took place, in order to attract sufficient labour.⁵⁹

The established regulations did not help the Price Directorate and the Price Police much in deciding what constituted an acceptable wage and

⁵⁴ *Trustkontrollen* 1940, 170–171.

⁵⁵ *Pristidende* 1940, 68–73.

⁵⁶ E.g. *Pristidende* 1940, 82–87; *Pristidende* 1941, 346–349.

⁵⁷ *Pristidende* 1941, 21–31.

⁵⁸ E.g. *Norsk Retstidende* 1944, 490.

⁵⁹ *Pristidende* 1941, 663–665, Hatlehol, *Norwegeneinsatz*, 160 ff.

cost structure in large and complex projects. The Price Directorate's most direct regulatory response was to demand detailed documentation on labour costs, that is, lists of hours worked per day and per week, as well as the cost for any specified agreed piecework.⁶⁰ Not until the end of 1941 did the Ministry of Social Affairs try to close another loophole in the regulatory system for wages and income.⁶¹ The new firms and self-employed persons who swarmed into the building and construction sector, to exploit the huge demand created by the *Wehrmacht*, had faced less stringent regulation than established firms. The Price Directorate was responsible for this.⁶²

In August 1943, the Price Directorate introduced special price regulations for self-employed craftsmen in six professions within the building industry. Craftsmen in these professions who were running establishments with unlimited liability were, in addition to their documented costs, allowed to bill the building contractor or builder owner hourly prices, which would give him earnings that were 30–60 % higher than if he had been a craftsman employee to a building contractor. However, if these hourly prices led to “unreasonably high earnings”, which was not further specified, the craftsman had to follow the general price regulations for building activity dating from 1940.⁶³ The *Wehrmacht* did not necessarily follow these procedures. Thus, even the new set of regulations introduced in August 1943 left plenty of room for manoeuvre, particularly for self-employed craftsmen and other new entrants in the building and construction sector. The *Wehrmacht's* local and regional building administration may have tried to implement competition and tendering procedures for most of their projects in 1941 and 1942.⁶⁴ There were, however, numerous ways to circumvent tender procedures. One frequently employed method was to antedate a tender after the work had been carried out.⁶⁵

⁶⁰ Pristidende 1941, 1094–1096.

⁶¹ Pristidende 1942, 3–10.

⁶² See Pristidende 1941, esp. 22–26, 297.

⁶³ Pristidende 1943: 475–481; Pristidende 1940: 22–28, esp. 23 §5.

⁶⁴ Statsarkivet i Oslo, A 10938, D3, Meddelelse nr. 52 fra Riksadvokaten, Meddelelse nr. 83 fra Riksadvokaten.

⁶⁵ Riksadvokatens meldingsblad, 1946/28: 152–153, 1949/52: 29.

The *Wehrmacht's* willingness to pay prices far above the limits established by the Price Directorate increased the regulatory difficulties. Not until 25 November 1943 did Terboven pass a decree stating that any "attempt" by German officials and firms to offer better working conditions and higher pay than Norwegian wage regulations allowed for, would be severely punished.⁶⁶ No similar decree regarding price regulations was ever passed. It is not difficult to find examples of German building offices setting prices for work two or three times higher than price regulations allowed for.⁶⁷

The above-mentioned wage freeze from spring 1940 functioned relatively effectively throughout the occupation for other large groups of workers outside the building and construction sector. This discrepancy created a significant drain of labour—from mining and fisheries and other sectors important to the German war effort—that was never compensated. The attempted regulatory solution was to make it illegal for employees to quit jobs in war important industries and introduce various forms of conscription of Norwegian labour to such work. However, the Quisling regime lacked the administrative capacity, as well as the political legitimacy and will, to implement the drastic measures that would have been necessary.⁶⁸

Little research has been done regarding the enforcement of the price regulation system. The clear tendency, strengthened by the judgments from the national Price Court of Appeal (Prislagmannsretten), is that the sentences against persons and companies making illegal profits or breaking the rationing regulations when doing business with Norwegian consumers were punished much harder than illegal activities in business relations with the Germans.⁶⁹

Few of the individual cases of illegal pricing published in the Price Directorate's official gazette, or considered by the Nazified Supreme Court, were related to building and construction works for the Germans. However, most of these cases documented typical examples of illegal war

⁶⁶ Verordnungsblatt für die besetzten norwegische Gebiete 1943 nr.9.

⁶⁷ RA, S 1555, D 33, ankesak 80/1942.

⁶⁸ Hatlehol Norwegeneinsatz, 128 ff.

⁶⁹ Eg. Pristidende 1942: 257–258, RA, S 1555, D 33 and 34.

profiteering in such relations.⁷⁰ The following verdict illuminates the influence and powers of the *Wehrmacht*: In autumn 1943, Aage Brevik from Oslo was the manager of a new building firm at Brekstad, where the Germans were building large fortifications. This was a shell company, established merely for renting out labour at a high mark-up. The building firm was formally the employer of workers hired out to a German construction firm, Hermann Milke K/G. Brevik received a fine of NOK 1,500 related to illegal profits of about NOK 31,000, which were to be confiscated. The indictment was based on the undisputed fact that Brevik's firm had paid its workers 40 % more than the time wage fixed by the Ministry of Social Affairs after instructions from local German authorities (*Dienststelle*). The payment had been dependent on the specified work progress worked out and controlled by Hermann Milke K/G. On the wage payments, Brevik's firm had earned a gross profit of 27 %, which was accepted by the Germans. The core of the case was whether Brevik's firm were free to pay its workers 40 % more than the time wage fixed by the Ministry of Social Affairs. The price courts unilaterally agreed that Brevik had acted according to German instructions or orders and thus had to be acquitted from the charges.

The Price Police appealed the verdict to the Supreme Court because it would completely undermine Norwegian laws and regulations, and render the price controls impotent. The Price Police argued that if Norwegian citizens and firms were instructed by the *Wehrmacht* to act in contradiction with Norwegian price and wage regulations, they would have to "refuse" to obey, and should also be able to document this. If the Germans did not accept the refusal, and the citizen or firm then obeyed the instruction, the courts would have to decide whether or not it was "a case of necessity" ("nødstilstand"), which entailed acquittal. In October 1944, the Supreme Court agreed that the price courts should have discussed whether there was "a case of necessity" or not and annulled the verdict on this point.⁷¹ The verdict thus had little influence in practice.

⁷⁰ Pristidende 1942: 210–263, 1943: 82–116, Norsk Retstidende eg. 1941: 18–20, 43–45, 63–72, 238–240, 413–415, 1943: 61–64, 329–333, 354–358, 477–479, 488–491, 736–740.

⁷¹ Norsk Retstidende 1944, 485–493, citation 485.

The next question from an incentive perspective was whether, or to what extent, the large incomes from building and construction works for the Germans was actually subject to taxation?

Increased Taxation and Increased Tax Evasion

Wartime taxation has received little attention from historians, despite the fact that taxes increased significantly and mostly with lasting effect.⁷² The Norwegian tax system for income and wealth was complex. The division of the tax administration between the state government and the municipalities added to the complexity, although the governmental taxation administration grew significantly during the occupation. Taxation practices, as well as the tax rates on income, differed significantly between the municipalities. The attempt by the *Reichskommissariat* to implement a basic income taxation reform to increase effective taxation became a fiasco. This was mainly due to effective resistance from the Quisling regime, and particularly from the Ministry of Finance, which preserved significant autonomy on these issues.⁷³ As a result, with few exceptions, no important changes were made in the tax laws during the occupation. It was rather the tax rates and the collection that saw substantial changes during the war.

The tax rates increased significantly. The sales tax was increased from 2 to 10 % in July 1940. The company tax was almost doubled to close to 50 % of net taxable income in municipalities with the highest tax rates. The progressive taxation rates on personal taxable income and wealth from the interwar period were drastically increased. The highest marginal tax rate for personal incomes could amount to 95 %. The total income tax of taxable income should not exceed 90 %. The main exception was the progressive wealth tax for individuals, which varied between 0.6 %

⁷² Espeli *Economic Consequences*, 515 with references.

⁷³ Arne Haugen, *På ære og samvittighet. Skatteetatens historie etter 1892*, Bergen: Vigmostad og Bjørnke, 2005; Milward, *The fascist economy*, 134–136; Bohn, *Reichskommissariat Norwegen* 336–342; Erling Sandberg, *Min konstitusjon i Finansdepartementet fra administrasjonsrådets avgang til Quislong-regjeringens tiltredelse samt en redegjørelse for mitt arbeid som finansråd*, Ra, PA-0423, box 11.

for a taxable wealth of NOK 200,000 to 3.6 % of wealth above NOK 30 million.⁷⁴ The large tax wedge between individuals and limited companies meant that high taxable incomes were diverted to limited companies where profits could be sheltered from high marginal taxation.

An important part of the tax system was the inherent tax credit for established companies as well as for taxable income in fisheries. The basis for taxation was the average income of the last three years. These tax credits were supplementary to the tax credits all taxpayers received, because they paid tax on the income and wealth of the previous, not the present, year.⁷⁵ With rising nominal income and significant inflation, the effects of the tax credits increased. One could pay the income tax of previous years with inflated money. This was particularly important in the fisheries and in building and construction.

In autumn 1941, a particular state tax on income increases for the year 1940 was introduced, later extended to the next three years. The aim was that up to 85 % of the income increases over the “normal” taxable income in 1939 should be paid in taxes. Although the tax was to encompass any increase in taxable income, the Ministry of Finance explicitly stated that the primary target was the profits accruing from building and construction contracts with the *Wehrmacht*.⁷⁶ The annual state income from this tax increased from NOK 54 million for the tax year 1940 to NOK 90 million for 1941. In 1941, this represented 20 % of total state revenue from income and wealth tax. The total revenue accumulated from this tax amounted to about NOK 200 million.⁷⁷

⁷⁴ *Norsk Lovtidende* 1940: 250–253, 1941: 421–426, *ibid.* 1943: 146–156. Leiv Vidvei, Eit oversyn over statsskattelegginga av inntekt til personlege skattytarar frå budsjettet 1939/40 (innteftsåret 1938) til budsjettåret 1951/52 (inntektsåret 1950), Statistiske meldinger nr 6, 1952; L. Vidvei, Skatt til staten av personlege midel. Eit oversyn over statskattelikninga av midel til personlege skattytarar frå skatteåret 1939/40 til skattåret 1943/54, Statistiske meldingaer nr. 2, 1954; Haugan, På ære og samvittighet, 144–151.

⁷⁵ J.E Thomle, Skattelov for landet av 18 august 1911 med tilleggslover, vol 5, (Oslo: J.M. Stenersen, 1925), 250–253; J.E. Thomle, K.L. Bugge and Bjørn Skreibeberg, Skattelov for landet av 18. august 1911 med tillleggslover. 13. Kommentartutgave, (Oslo: Sem & Stenersen, 1957), 441.

⁷⁶ *Norsk Lovtidende* 1941: 526–530, 1942: 708–712, Vidvei 1952: 10, Hirsch 1943

⁷⁷ Statistik Sentralbyå, Norges Offisielle Statistikk: NOS X.66 Skattestatistikken for budsjettåret 1942/43, Oslo 1943, 25; NOS X.77 Skattestatistikken for budsjettåret 1943/44, Oslo 1944, 28; NOS X.91 Skattestatistikken for budsjettåret 1944/45, Oslo 1945, 25; NOS X.137 Skattestatistikken for budsjettåret 1945/46, Oslo 1947, 33.

For traditional export industries, and especially the industries exporting to Germany, the state tax on income increases after 1939 had little effect. The arms race in Europe in the late 1930s sparked an economic boom for most Norwegian export industries, particularly shipbuilding, metals and ores, as well as machinery industries producing for the domestic market in the late 1930s. This generated large business profits that were very seldom equalled during the war. This was the case even for Orkla, a large producer of pyrites and one of the few mining companies that maintained production more or less at the pre-war record levels during the war.⁷⁸

The Administrative Council introduced another novelty: immediate tax deduction of wages and salaries of employees of Norwegian building and construction companies.⁷⁹ The aim was to secure that the salaries for such, often short-term, work was documented, as well as securing that the income taxes were paid by the employer—in advance.⁸⁰ This was a major modification of the national system of tax collection. It seems that the tax deductions from these employees functioned fairly well. The Ministry of Finance also tried to close loopholes and clamp down on tax evasion in the sector.⁸¹

Despite the best efforts of the Price Directorate, the Norwegians employed by German building and construction firms in Norway seem to have experienced a tax haven. Not until 27 August 1942 did the *Reichskommissariat* pass a decree stating that any employee engaged by non-governmental German employers in Norway was subject to German taxation law/rules. Thus from August 1942, private German employers in Norway were to deduct the German wage tax also from Norwegian employees. The decree stated explicitly that Norwegian employees of German firms were not subject to Norwegian income taxation.⁸² Although

⁷⁸ Knut Sogner, *Skaperkraft. Elkem gjennom 100 år 1904–2004*, Oslo: Messel, 2003, 92, 114; Trond Bergh, Harald Espeli and Knut Sogner, *Brytningstider. Storselskapet Orkla 1654–2004*, Oslo: Orion, 2004, 56, 105.

⁷⁹ *Norsk Lovtidend* 1942, 683–687, 1943, 253, *Dommer, uttalelser mv. i skattesaker og skattespørsmål* 8 del, 495–46.

⁸⁰ Administrasjonsrådet bestemmelser, 450–452, Haugen, på ære og samvittighet, 148; *Norsk Lovtidend* 1941, 503–504, *Norsk Lovtidend* 1944, 314–319.

⁸¹ *Norsk Lovtidend* 1942, 58, 474; *Norsk Lovtidend* 1943, 27–28.

⁸² *Verordnungsblatt für die besetzten norwegische Gebiete* nr. 6 1943, 17–19, Thomle 1944, 31–32.

all adult Norwegian citizens were obliged to inform their municipal tax authorities about total income in the individual annual tax return form, the municipal tax authorities had few possibilities of uncovering tax evasion by the employees of German firms in Norway.

German firms working in Norway were excluded from Norwegian taxation during the occupation if they did not establish a Norwegian subsidiary, which very few did. However, the Norwegian tax administration tried to make the German firms in Norway liable to the 10 % purchase tax when it was extended to the building and construction industry in autumn 1941.⁸³ It is unlikely that they succeeded.

In June 1943, the Quisling regime decided that all foreigners with income as employees became liable to taxation and tax deduction.⁸⁴ The decree was not meant to include the Germans in Norway who worked for German authorities or companies or other foreigners who worked for these companies. An act from January 1944 to prevent double taxation in Norway and the *Reich* clarified this. The act entailed that from the tax year 1942, Norwegians employed by German civilian and military authorities should be taxed according to Norwegian tax law. This included the numerous Norwegian employees of the *Wehrmacht*, but also of the *Organisation Todt* and its subsidiaries during the occupation.⁸⁵

The municipal and state tax administrations experienced significant obstacles documenting the income related to German building and construction activities, especially during the years 1940–43. One of the major problems was linked to the established principle of local taxation (*stedbunden beskatning*).⁸⁶ This meant that taxable income and wealth should be taxed where it had been created or where the wealth was situated. At the same time, it was often unclear where the (head) office of a building firm was situated. This led to numerous legal conflicts between the municipalities over how taxable income from these activities should

⁸³ Dommer, uttalelser mv. i skattesaker og skattespørsmål 8 del: 419, 422, Norsk Lovtidend 1941, 468–471, Norsk Lovtidend 1943, 282–284.

⁸⁴ Norsk Lovtidend 1943, 247–248, J.E. Thomle, Samlet tillegg av januar 1944 til skattelov for landet, Oslo 1944, 31–32. Dommer, uttalelser mv. i skattesaker og skattespørsmål 8 del, 510–515, 670–671.

⁸⁵ Norsk Lovtidend 1944, 2–6 and esp. 68,

⁸⁶ Thomle Skattelov, 27 ff. Thomle Samlet tillegg, 7 ff.

be divided. The taxpayers obviously tried to exploit the significant tax wedges between the municipalities. Legal conflicts on these matters flourished.⁸⁷

The state tax administration (Riksskattestyret) implemented counter-measures from 1943. They tried to make sure that all firms and self-employed workers were included in tax registers at municipal and county level. All self-employed craftsmen holding trade certificates were legally obligated to maintain accounting records and the compliance was to be monitored more closely. For work done according to tenders, the tax administrator had usually accepted that 10 % of the contract price could be deducted from taxable income to cover future complaints. Now the deduction percentage was reduced to 5 or 2 %.⁸⁸ In November 1943, the state tax administration ordered its personnel to concentrate all tax audits in the next two years on businesses that had enjoyed war profits, and in particular sectors connected with building and construction.⁸⁹

In Denmark, a study has argued that about 15 % of total company income was excluded from taxation in the years 1939–44 as a result of tax fraud and tax evasion.⁹⁰ For Norwegian businesses engaged in German building and construction activities, tax evasion was probably significantly higher, especially among newly established businesses. The same was true for Norwegian workers employed directly by the *Wehrmacht* or German building and construction firms in the first two years of the occupation. There is no reason to believe that the actual functioning and incentives of the tax system were unknown to the actors exploiting it.

⁸⁷ Dommer, uttalelser mv. i skattesaker og skattespørsmål 8 del, 235–237, 389, 407–409, 834–837.

⁸⁸ Dommer, uttalelser mv. i skattesaker og skattespørsmål 8 del, 419–427.

⁸⁹ Dommer, uttalelser mv. i skattesaker og skattespørsmål 8 del, 607–622, Norsk Lovtidend 1943, 334–341.

⁹⁰ Gunar Viby Mortensen, Skattesnyteriets historie. Utviklingen i underdeklarationen i Danmark i 1900-tallet, (Odense: Rocwool Fonden og Syddansk Universitetsforlag), 2003, 65.

Conclusion

The Germans managed to finish most of the military bases and fortifications included in the large-scale plans for *Festung Norwegen* at the beginning of 1944. This was accomplished through the mobilization of large parts of the Norwegian economy, including its manpower, physical and financial resources. These resources were, however, completely insufficient and had to be supplemented by POWs and other forms of forced labour imported from the continent, together with physical and financial resources on a massive scale from the Reich. Although foreign forced labour was also utilized in the fish freezing industry and in mining, the effect in the latter was probably negligible. The same was true for conscripted Norwegian labour in mining. The economic incentives used to facilitate the creation of *Festung Norwegian* not only created a legal and regulatory tangle when the Price Directorate intervened to keep inflation in check, they also drew qualified and experienced labour away from the most important export sectors for the Germans, but also attracted profit-seeking entrepreneurs and businessmen in large numbers until 1943. This crowding-out effect was probably the most important explanation for the declining Norwegian exports of fish and fishery products, as well as mining products, but less so for exports of metals during the occupation.

11

Why Did Germany Not Fully Exploit the Norwegian Nickel Industry, 1940–45?

Pål Thonstad Sandvik and Jonas Scherner

Introduction

Nickel was one of the key strategic metals in both World Wars. It was a crucial steel alloy. Nickel made steel harder and more heat resistant and was used in armoured steel, gun barrels, torpedoes, aircraft engines and so on. During World War I, Germany experienced acute shortages of nickel. Nickel was therefore on the top of the list of materials that Germany needed to procure. All the major deposits were then under Entente control, mainly in New Caledonia in the South Pacific and in Canada. However, Germany was able to secure some wartime imports from Norway.

In the interwar era, the Norwegian nickel industry developed rapidly. By 1939, the Canadian-owned Falconbridge nickel refinery in Kristiansand produced approximately 10 % of the total world output. In April 1940, Kristiansand was overrun by the German occupying forces and the plant remained under German control for the duration of the war. However, the German authorities made little attempt to exploit the full potential of the Kristiansand plant. Production was not accelerated until the last stages of the war.

The key question in this article is why the capacity of the Kristiansand refinery for this vital material was not utilized until 1944? We will use this incident as a prism through which we can analyse some key issues with regard to the economic exploitation of occupied Europe. Was the low utilization of the Kristiansand plant simply a result of failed German economic occupation policy, which only changed after Albert Speer became armament minister, as the literature often suggests in the case of the exploitation of the occupied countries?¹ Or did other factors play a role, such as conflicts between *Reichskommissariat Norwegen* and the German authorities in Berlin, or the hostile attitude the management of Falconbridge showed towards the Germans? And in which way and to what extent did business interests of German companies influence wartime production of nickel?

In our first two sections we will briefly describe the international nickel industry, as well as the Norwegian and German ones before World War II, as well as the main lines of the nickel policy of the Nazi government. Afterwards we will analyse the German policy towards Falconbridge, and the interests of the different players involved in this decision-making.

The International Oligopoly and the Norwegian Nickel Industry

Two features shaped the structure of the international nickel industry. First, in the late 1930s, more than 90 % of world nickel originated from two mining districts.² The most important was around Sudbury in

¹ See, for example, Peter Liberman, *Does Conquest Pay? The Exploitation of Occupied Industrial Societies* (Princeton: Princeton University Press, 1998), 39; Alan Milward, *The New Order and the French Economy* (Oxford: Clarendon Press, 1970, 41–2. See also Alan Milward, *Kriegswirtschaft*, 79, 109; Harald Winkel, *Die Ausbeutung des besetzten Frankreichs in: Kriegswirtschaft und Rüstung 1939–1945*, F. Forstmeier/H.-E. Volkmann (eds.) (Düsseldorf: Droste 1977), 373; Werner Röhr, *Forschungsprobleme zur deutschen Okkupationspolitik im Spiegel der Reihe „Europa unterm Hakenkreuz“*, in: *Europa unterm Hakenkreuz*, vol. 8: *Analysen, Quellen, Register*, Werner Schumann (ed.), (Heidelberg: Hühlig 1996), 25–343, here: 242; Richard J. Overly, “The Economy of the German ‘New Order’”, in: *Die „Neuordnung“ Europas. NS-Wirtschaftspolitik in den besetzten Gebieten* (Berlin: Metropol, 1997), 11–28.

² Alex Skelton, ‘Nickel’, in *International Control in the Non Ferrous Metals Industry*, ed. W. Y. Elliot, New York 1964, 144 ff. O. W. Main, *The Canadian Nickel Industry*, Toronto 1955, p. 111. The

Ontario, Canada, and the other was located in French New Caledonia in the Southern Pacific. Second, nickel is a complicated metal to extract. The production consists of three stages—mining, smelting and refining—whereof refining is the most costly and technically challenging.³

The nickel industry was, just like the aluminium and a number of other resource-based industries, highly vertically integrated.⁴ In the nickel business, successful firms had to control all three stages of production. There existed no arms-length markets for nickel ore or the intermediate product, nickel matte. As O. W. Main illustrated in his authoritative history of the Canadian nickel industry, it wouldn't normally be possible for a refinery to buy raw materials.⁵ Similarly, it would be difficult to run a nickel mine or smelter on a profitable basis without having a refinery and the necessary patent rights to refine nickel. Small unintegrated firms could easily be squeezed by the market power of the larger vertically integrated players.

This combination of few and somewhat inaccessible ore resources, difficult extraction processes and the need for vertical integration brought about an oligopolistic structure of the nickel industry. The barriers of entry ensured that the number of firms were limited and the profitability correspondingly high. The Canadian historian Matt Bray has shown how competition was more or less eliminated in the mid-1890s when the leading producers established a cartel. This cartel proved both successful and durable. Except for a short price war in the early 1920s, the official nickel price remained high and quite stable for several decades.⁶

From the early twentieth century, the nickel industry was dominated by three major companies: the International Nickel Company (INCO), Mond Nickel Company (hereafter Mond) and the Rothschild-dominated

following paragraphs are based on Pål Thonstad Sandvik, "Facing Oligopoly and Protectionism, The fate of small producers in the inter-war nickel industry", *Scandinavian Journal of History*, no. 4, 2009, p. 377–78 and 385.

³ Skelton, Nickel, 123–127.

⁴ John Stuckey, *Vertical Integration and Joint Ventures in the Aluminum Industry* (Cambridge Mass.: Harvard University Press, 1983); G. W. Stocking and M. W. Watkins, *Cartels in Action* (New York: The Twentieth Century Fund, 1947).

⁵ Main, *The Canadian Nickel Industry*.

⁶ Matt Bray, "Eliminating the Competition: Price-fixing and Market-sharing in the Nickel Industry 1895–1929" in *Business and European Integration since 1800*, Ulf Olsson (ed) (Göteborg: Meddelanden från Ekonomisk-historiska institutionen vid Göteborgs universitet, 1997), 131–40.

Le Nickel. The first two companies had their mines around Sudbury in Ontario while Le Nickel got its nickel ore from New Caledonia. INCO had been the leading producer of nickel since the turn of the century. Leadership was turned into absolute dominance in 1929 when it merged with Mond. After the amalgamation, INCO controlled more than 80 % of world production capacity.

Before IG Farben entered the fray, the only challenge against this oligopoly came from Norway. In 1910, a group of Norwegian industrialists established the Kristiansand nickel refinery (KNR). This was an independent company based on the patents of the Swedish-American inventor Victor Hybinette, who had developed a superior electrolytic process for refining nickel. KNR's Achilles heel was raw material supply. The Norwegian nickel mines were too small to reap the full potential of the technology. Because of the market power of the main international producers, it proved difficult to buy any large quantities of nickel ore. KNR therefore invested heavily in a Canadian mining venture during World War I, but due to gross mismanagement it lost everything and went bankrupt in 1924.⁷

Small-scale production in Kristiansand continued, based on raw materials from domestic mines and the nickel smelter at Evje, 70 kilometres north of Kristiansand. Production volumes were, however, too low to achieve profitability. In 1929, the upstart Canadian mining company Falconbridge acquired the Norwegian refinery. Falconbridge owned a large nickel deposit outside Sudbury, but it lacked a refinery. By combining Canadian ore and Norwegian technology it became possible to jump the barriers to entry. In Norway, Falconbridge also gained access to cheap and plentiful hydropower (nickel refining is energy intensive). Falconbridge expanded rapidly and became very profitable. By 1939, it produced c. 9,000 tons of nickel metal or c. 10 % of the world nickel market. The refinery also produced 4,000 tons of copper, as well as precious metals.

⁷ Pål Thonstad Sandvik, *Multinationals, Subsidiaries and National Business Systems: The Nickel Industry and Falconbridge Nikkelverk* (Oxon: Pickering & Chatto, 2012).

Falconbridge had no use for the small Norwegian nickel mines and the smelter at Evje. An independent Norwegian company, Evje Nikkelverk (hereafter Evje), continued production at these plants. Evje's nickel was refined on a custom-basis at the Kristiansand refinery. The access to the refinery made it possible to survive as a minuscule independent producer. Output hovered around 1,000 tons of nickel metal or c. 1 % of world production up till the outbreak of war in 1939.⁸

IG Farben Enters the Nickel Industry

In the late 1920s, IG Farben's researchers realized that the company's high pressure technology, which was developed for other industrial purposes, could be utilized for refining nickel.⁹ By 1932, IG Farben had patented a superior nickel refining process. For IG Farben, the nickel industry, with its high barriers to entry and high profit levels, was very attractive. However, even for an industrial behemoth like IG Farben, it was challenging to transform its technological prowess into actual metal production.¹⁰

As mentioned above, the basis for the North American and French dominance was control of and access to nickel ore. It seems that IG Farben early ruled out the possibility of setting up mining operations for a strategic metal in the French empire. This alternative was not thoroughly examined. IG Farben investigated instead nickel deposits in Scandinavia, Canada, South America and Australia,¹¹ but it did not go forward with

⁸ Sandvik, Facing Oligopoly.

⁹ Gottfried Plumpe, *Die I.G. Farbenindustrie AG, Wirtschaft, Technik und Politik 1904–1945* (Berlin: Duncker & Humblot, 1990), 425–426.

¹⁰ Bericht über meine Reise nach Kanada und U.S.A in Oktober-November 1933, New York November 1933, Riksarkivet Oslo, Privatarkiv 134, Eystein Berg, Box F-0008, Folder Nickel Production in Canada.

¹¹ Oslo Februar-März, Mannheim April 1932, Riksarkivet Oslo, Privatarkiv 134, Eystein Berg, Box F-0008, Folder Die Nickelproduktion der Welt.

any investments.¹² The company did not realize how large the Petsamo deposit was. It was characterized as insignificant (ohne Bedeutung) in an internal report.¹³ Negotiations with Falconbridge on deliveries of nickel matte were also unsuccessful.¹⁴ Falconbridge's offer was considered as too expensive. IG Farben was also in contact with Evje, but the latter was unable to produce the necessary quantities of nickel ore and the intermediate product nickel matte.¹⁵ The only German nickel mine, Frankenstein in Silesia, was not only too small to cover IG Farben's needs, it was also controlled by Krupp, which used the Frankenstein nickel for its own steel alloys.

While a much smaller company than giant IG Farben, INCO had close ownership ties to the Imperial Chemical Industries (ICI), Bethlehem Steel and the J. P. Morgan empire. It thus had the necessary clout to negotiate with IG Farben on more or less equal terms. The link to ICI was probably especially important, as ICI and IG Farben entered into a number of market sharing deals, including synthetic fertilizers, synthetic dyes and other chemical products.¹⁶ Nickel was in this regard just one of many products.

IG Farben was unlucky with the timing. Its nickel refining process was ready for industrial use more or less at the same time as the international economy collapsed. From 1929 to 1932, global nickel consumption fell by approximately 60 %.¹⁷ While IG Farben was never in the red, its profits declined and did not cover the payment of dividends in 1930–32. Investments were slashed to a minimum.¹⁸ It was definitively not the ideal time to expand into capital-intensive nickel mining.

¹² Plumpe, *I.G. Farbenindustrie AG*, 426.

¹³ Oslo Februar-März, Mannheim April 1932, Riksarkivet Oslo, Privatarkiv 134, Eystein Berg, Box F-0008, Folder Die Nickelproduktion der Welt.

¹⁴ Eystein Berg to IG, 17 November 1933, BASF Archiv Rechtsabteilung 2183.

¹⁵ Eystein Berg to IG, 13 August 1933, BASF Archiv, Rechtsabteilung 825. See also Bericht über meine Reise nach Kanada und U.S.A in Oktober-November 1933, New York November 1933, Riksarkivet Oslo, Privatarkiv 134, Eystein Berg, Box F-0008, Folder Nickel production in Canada.

¹⁶ Plumpe, *I.G. Farbenindustrie AG*, 198 and 233–243; William Joseph Reader, *Imperial Chemical Industries, A History, Vol. II* (Oxford: Oxford University Press, 1975), 145ff and 183ff.

¹⁷ Main, *The Canadian Nickel Industry*, 109.

¹⁸ Plumpe, *I.G. Farbenindustrie AG*, 488–491; Werner Abelshauser et al., *German Industry and Global Enterprise, The History of BASF* (Cambridge: Cambridge University Press, 2003), 235–245.

INCO thus had a window of opportunity to contain IG Farben's onslaught in the nickel industry. INCO approached IG Farben through its British affiliate Mond Nickel Company, probably to avoid scrutiny from American antitrust authorities. The companies started negotiating in December 1932, reached a temporary agreement in May 1933, and then a ten year agreement in April 1934.¹⁹ According to the latter contract, INCO/Mond would supply IG Farben with the intermediate product nickel matte, and the German company was allotted a 10 % share of the non-American market. (This was less than the domestic German consumption at the time). In return, IG Farben committed itself not to undercut INCO's nickel prices. This was an essential point as both parties realized that competition could drive prices down and thereby ruin profitability. The German company would also license its refining technology to INCO. Crucially, IG Farben promised not to invest in nickel mining for ten years.²⁰

INCO thus avoided having IG Farben as a competitor for the Petsamo ore, while the latter got access to nickel matte. INCO's negotiations with IG Farben and the Finnish authorities must have run parallel. In June 1934, INCO/Mond gained permission from the Finnish government to develop the Petsamo ore field.²¹ This was a massive undertaking that would require investments of several million US dollars.

In November 1937, the cooperation between INCO/Mond and IG Farben was extended. INCO/Mond now promised to increase its supplies of nickel matte to IG Farben to 4,500 tons (measured in nickel content) per year. It seems that it was the German government that set the ball rolling, for which it would have good reasons: nickel was a strategic metal and domestic production was thus an integrated part of the armament drive. It is also clear that Germany's balance of payment problems

¹⁹ Plumpe, *I.G. Farbenindustrie AG*, 426–427.

²⁰ Bericht über eine Besprechung in Ludwigshafen mit den Herren der Nickel Mond Co, 22.3.1933; Protokoll über die Sitzung in Frankfurt am 6. und 7. November 1933, Inco und IG, BASF Archiv Rechtsabteilung 2183; Bericht von Haeflinger für US Military Government über Verhältnis IG-Inco, Juni 1946, BASF Archiv Rechtsabteilung 1693.

²¹ Matt Bray, "INCO's Petsamo Venture, 1933–1945, An Incident in Canadian, British, Finnish and Soviet Relations" *International Journal of Canadian Studies*, 9 (1994): 174–194; p. 9. Jari Eloranta and Ilkka Nummela, "Finnish Nickel as a strategic mineral" *Scandinavian Journal of History*, 32 (2007), 322–345, here 336.

played a role. In April 1936, the government demanded that imports of nickel metal should be cut in order to save hard currency. The country should instead import more of the cheaper intermediate product nickel matte. The German nickel consumption had increased from 3,427 tons in 1932 to 8,561 tons in 1935.²² This was more than Germany could pay for and imports were curtailed the following year. The government also called for the construction of a new nickel refinery in mid-Germany, which was less exposed to aerial attack in case of war than IG Farben's refinery in Oppau. If INCO were to decline supplying this second refinery with nickel ore, the government would ask IG Farben to look for other sources.²³

We don't know why INCO acquiesced to the German demands, but two reasons seem likely. Firstly, IG Farben believed that INCO feared that otherwise it might risk that German nickel consumption would decline.²⁴ The German government pushed through several measures to find substitutes for metals in which the country was not self-sufficient.²⁵ This was a part of the Four-Year Plan. By 1937, substitution measures led to savings of German annual nickel consumption by 2,700 tons.²⁶ The second reason might have been long-term commercial calculations. The new German refinery was to be built in Frohse, a small town in Sachsen. Due to technical reasons, it could not be based on IG Farben's cutting edge refining process, which would only be competitive if realized within a *Verbundwirtschaft*, a large integrated system of production facilities. In all likelihood, production costs in Frohse would be so high that it would pose no threat to INCO's global dominance.

²² IG to Pleiger, Vierjahresplan, 12 April 1937, BASF Archiv Rechtsabteilung 2194.

²³ Note on supplemental agreement, 12 November 1937 BASF Archiv Rechtsabteilung 2194.

²⁴ IG to Göring, 1937; IG to Pleiger, Vierjahresplan, 12 April 1937, BASF Archiv Rechtsabteilung 2194.

²⁵ Ibid.

²⁶ Jörg-Johannes Jäger, *Die wirtschaftliche Abhängigkeit des Dritten Reiches vom Ausland dargestellt am Beispiel der Stahlindustrie* (Berlin: Berlin Verlag, 1969), 149.

Nickel and the German Conquests in 1940

Access to nickel had paramount importance for the German armament effort. At the outbreak of war, Canadian exports of nickel matte to Germany were halted. IG Farben's output of nickel fell dramatically from 4,452 tons in 1939 to only 28 tons in 1940.²⁷ More intensive exploitation of domestic ores could only with great difficulties compensate for this shortfall.²⁸ While efforts to recycle scrap and coins also helped (in early 1940, coins yielded 3,140 tons of nickel)²⁹ there was no doubt that by the spring of 1940 Germany risked shortages of nickel.

In 1940, Germany captured almost 10,000 tons of nickel metal during the campaigns in the Low Countries and in France. This was enough to cover Germany's needs for nearly a year. The conquest of Norway in April–June 1940 placed the country's nickel industry under German control. This included some small nickel mines, as well as the Falconbridge nickel refinery in Kristiansand in the very south of the country. This refinery had an annual capacity of around 10,000 tons. While it depended on Canadian raw materials for most of its production, it could potentially switch to other suppliers and thus cater to Germany's needs.

The second Norwegian producer was Evje Nikkelverk, which operated two small mines and a smelter. The mines were running out of ore and production fell to 600–700 tons (nickel content) a year in 1940, from which it never recovered. The Evje smelter, however, had substantial spare

²⁷ Plumpe, *I.G. Farbenindustrie AG*, 426.

²⁸ In 1939, several other companies, as Norddeutsche Hütte AG, an affiliate of Krupp, and Staatliche Hütten Freiberg, had a combined production of 5000 tons of nickel in 1939. Source: The German Nickel-Industry, Metallgesellschaft, Volkswirtschaftliche Abteilung 1945, HWA 119/848. Most of the the raw materials processed were imported; ores of the Silesian mine in Frankenstein, which was owed by Krupp, contributed only a small share. The German ores had a very low nickel content, making an exploitation of these mines very expensive. In addition, such an expansion took time, at least one year. This was probably the reason that not before early 1944 plans were made to exploit the German ores in a bigger extent. On the plans to exploit the Frankenstein mines, see Note on a meeting at Krupp-Gruson, 3.4.1944, fol. 10; Fachgruppe Metallergbergbau to Reichsminister für Rüstung und Kriegsproduktion, 23.3.1944, fol. 18; Rohstoffamt des Reichsministeriums für Rüstung und Kriegsproduktion, 23.6.1944, fol. 19; Verarbeitung nickelarmer Garnierite, 22.8.1944, fol. 27–8, BArch R 3101/30865. See also Jäger, *Die wirtschaftliche Abhängigkeit*, 85–6, 237, 243.

²⁹ Jäger, *Die wirtschaftliche Abhängigkeit*, 225.

capacity, and the company eagerly sought to develop new mines. Evje had long been oriented towards the German market. In 1937, it had offered IG Farben to supply its second refinery with nickel matte, but was rebuffed as IG Farben's contract with INCO excluded other suppliers.³⁰ Anyhow, the quantities Evje could sell were too small to cover more than a fraction of Germany's consumption.

At the outbreak of war, Evje's top manager Sigurd Giertsen offered to supply Germany by reopening the Høyåsen mine near Arendal. However, as this would require German investment it was quickly turned down, since the German authorities believed the Finnish ore field in Petsamo had better potential.³¹ This was undoubtedly true, seen from a geological or an economic perspective, but it is still a little intriguing as Germany had—less than 14 days earlier—assigned Finland to the Soviet zone of influence in the Molotov–Ribbentrop Pact.

After the occupation of Norway, the question of expanding Norwegian nickel mining was raised again. German authorities considered reopening old Norwegian nickel mines, as well as establishing a new mine at Rona near Narvik in Northern Norway.³² The Rona deposit was indeed quite large, albeit not as large as the Petsamo deposit. However, the conquest of nickel metal in France and the Low Countries, as well as German hopes of securing the Petsamo nickel (see below), meant that they did not go forward with any of these plans. Norwegian nickel was not prioritized.³³ In Norway, the Germans preferred to concentrate their resources on fortifications, infrastructure and production of non-ferrous metals. The low priority assigned to Norwegian nickel mining is also demonstrated by the fact that at the Evje mine, experienced workers were coerced to move to the Knaben molybdenum mine.³⁴ The Germans in other words staked everything on Petsamo.

³⁰ IG to Ing. Eystein Berg, Solborg, 15 September 1939, BASF Archiv Rechtsabteilung 2192.

³¹ Niederschrift über Besprechung bei der Reichsstelle für Metalle, 5 September 1939, BASF Archiv Rechtsabteilung 2192.

³² Entry of 7 January 1941. Transcript of Sverre Steen's diary 1940–45, Falconbridge Archive Kristiansand. Hans Clausen Korff, *Norwegens Wirtschaft im Mahlstrom der Okkupation*, Teil II, 126, Riksarkivet Oslo, Privatarkivet 951, box 2.

³³ Wochenbericht der Rohstoffabteilung, 29 June –4 July 1942, fol. 29, BArch-MA RW 19/344. See also Alan Milward, *The Fascist Economy of Norway* (Oxford: Clarendon Press, 1972), 265 and 267.

³⁴ RA, RAFA-2174, E, Ec, Eci, L0066, 0001, Riksarkivet, Oslo, Reichskommissariats arkiv, Hauptabteilung Volkswirtschaft (HAVO), Arbeit und Sozialwesen, Arbeitseinsatz (A/Aso/71). Andreas Dugstad made us aware of this source.

Petsamo 1939–41

The wartime history of Petsamo provides an essential backdrop to the development of the Kristiansand nickel refinery. INCO had started mining operations in Petsamo before the outbreak of war in 1939, and it had originally planned to bring the smelter on stream in late 1940, but this was much delayed. In September 1939, INCO wished to cease all activity, but was pressed to continue by the Finnish government; however, at the slowest possible pace. The mine only produced waste rock.³⁵

The Soviets occupied Petsamo in the Winter War in 1939–40, but pulled out of the area when armistice was signed in late March 1940. The nickel-producing facilities were practically unharmed. When the Finns reoccupied the mine, the Soviet commander asked for a written statement from the Finns declaring that the “American property” was undisturbed.³⁶ The Red Army had kept its distance also in a literal sense. There were not even tracks in the snow around the mining shafts.³⁷

In late April 1940, after securing her grip on Southern Norway, Germany demanded deliveries of nickel from Petsamo. This was rebuffed by the Finnish government.³⁸ But after the Allied military defeats in France some weeks later, the Finns hastily reconsidered their stance. They needed German support against the Soviet Union. In June, the Finnish government pressed INCO to choose between two alternatives. It could continue operating the Petsamo enterprise and deliver the production to Germany; if this was refused the enterprise would be nationalized for the duration of the war. The British government opted for the first alternative, as this would give INCO (and thus Great Britain) a chance to exert some control over the operations and to limit production. However, as INCO and its Petsamo affiliate were formally registered in Canada, the question was also forwarded to the Canadian government, which blocked this route of action. It feared that if it became publicly known that a

³⁵ Bray, “INCO’s Petsamo Venture 1933–1945”, 178–80.

³⁶ Bray, “INCO’s Petsamo Venture 1933–1945”, 181.

³⁷ Peter Krosby, *Finland, Germany, and the Soviet Union, 1940–1941: the Petsamo disput.* (Madison: The University of Wisconsin Press, 1968), 9–10

³⁸ Krosby, *Finland, Germany, and the Soviet Union*, 15–20.

Canadian company supplied Germany with nickel ore, it could develop into a public relations catastrophe. Subsequently, on 6 August 1940, the Petsamo enterprise was *de facto* taken over by the Finnish government, *de jure* expropriation followed a year later, when Great Britain declared war on Finland.³⁹ However, before pulling out of Petsamo, INCO sabotaged vital parts of the production facilities.

Shortly after the German victory in France, in August 1940, IG Farben, Krupp and Metallgesellschaft established a joint venture in order to finance and exploit the Petsamo enterprise. The shares in the German joint venture were divided on a 40:40:20 basis, of which Metallgesellschaft received the 20 % share.⁴⁰ Krupp became a partner as it was one of Germany's largest consumers of nickel. The company was—as mentioned above—also a minor nickel producer. Metallgesellschaft had been INCO's sales agent on the Continent. It had helped negotiate the IG Farben—INCO agreement in 1933–34 and had been granted the rights to trade IG Farben's output of nickel. Metallgesellschaft now secured its rights to sell the Petsamo nickel. Furthermore, its subsidiary, the huge copper producer Norddeutsche Affinerie (NA), was to refine the copper, which was an important by-product at Petsamo.

In December 1941, Krupp, IG Farben and Metallgesellschaft concluded the so-called Petsamo *Gemeinschaftsvertrag* (Partnership agreement).⁴¹ It basically followed the same principles that had been negotiated in August 1940. Ownership of the joint venture was divided along the same 40:40:20-lines. IG Farben would get enough nickel matte from Petsamo to fully utilize its refining capacity in Oppau and Frohse, which was up to around 10,000 tons a year. Krupp would for its part receive enough of this nickel metal from IG Farben to cover its own needs. Metallgesellschaft gained the exclusive right to trade nickel produced by IG Farben. The companies also stated that they would do everything in their power (“mit allen Kräften”) to make the German authorities accept their agreement. In other words, they agreed to collude against the state in order to pursue their interests.

³⁹ Matt Bray, “INCO's Petsamo Venture 1933–1945”, 183–188.

⁴⁰ Protokoll der Vorstandssitzung vom 16 August 1940, HWA 119/509; Gottfried Plumpe, *Die I. G. Farbenindustrie AG Wirtschaft, Technik und Politik: 1904–1945* (Berlin: Duncker & Humblot, 1990), 430.

⁴¹ Petsamo-Gemeinschaftsvertrag, 8 December 1941, Historisches Archiv Krupp, WA 142/1683.

The German joint venture never fulfilled all its aims. While the Finnish government accepted the German investments in Petsamo (totalling 23 million *Reichsmark*),⁴² it refused to relinquish its control over the enterprise to the Germans. The Finns may have calculated that they one day in the future might have to come to terms with INCO (and the Western allies) again.

The Alien Enterprise: The Kristiansand Refinery

When Germany attacked Norway in April 1940, Kristiansand was overrun on the first day of hostilities. The Falconbridge managers must have rapidly realized that the refinery was quite vulnerable. It was not only Canadian-owned (i.e. alien) and dependent on Canadian nickel matte for more than 90 % of its production. The Kristiansand managers were also most certainly aware of IG Farben's ambitions in the nickel industry and of German (and IG Farben's) designs on the Petsamo nickel.

The first part of the occupation was largely uneventful at the nickel refinery. As the supply of Canadian nickel matte ceased, nickel production at the Kristiansand refinery plummeted. Production of nickel metal fell from 9,100 tons in 1939 to 3,700 tons in 1940, 1,400 tons in 1941 and 900 tons in 1942.⁴³ German officers from the *Wehrwirtschafts- und Rüstungsamt*, the economic branch of the *Wehrmacht*, and representatives from the *Reichskommissariat Norwegen* interviewed the top managers in Kristiansand and inspected the plant, but did not interfere in the daily business. The Kristiansand managers seem to have stayed loyal to Falconbridge. Their careers and economic interests were closely aligned with the company. In 1942, the top manager Sverre Steen was one of very few Norwegian industrial leaders who dared to confront the collaborationist attitude of the Norwegian Federation of Industry.⁴⁴ In the IG

⁴² Jäger, *Die wirtschaftliche Abhängigkeit*, 230.

⁴³ Hans Clausen Korff, *Norwegens Wirtschaft im Mahlstrom der Okkupation*, Teil II, 127, Riksarkivet Oslo, Privatarkivet 951, box 2.

⁴⁴ Jan. Didriksen, *Industrien under bakekorset* (Oslo: Universitetsforlaget, 1987), 73ff and 177–78.

Farben sources, the Falconbridge managers are referred to as the 'amerikanische Norweger'.⁴⁵

At the same time, Steen needed to keep production going in order to generate income so he could hold on to the staff and prevent bankruptcy. If the plant went bankrupt it could easily be acquired by IG Farben, Krupp or even the small Norwegian company Evje Nikkelverk (the relationship between Falconbridge's and Evje's top manager was very frosty before as well as during the war). Falconbridge would thus lose its Norwegian investments. In cooperation with the civilian Norwegian authorities, Kristiansand therefore started to refine copper coins and copper scrap to wire bars (input for the production of electrical cables), as well as refining other types of metal scrap. This was enough to keep the enterprise financially afloat and to hold on to key staff. The Norwegian authorities also hoped to refine copper matte from the domestic copper smelters at Røros and Sulitjelma in Kristiansand, but this matte was instead exported to Metallgesellschaft's subsidiary Norddeutsche Affinerie in Hamburg.⁴⁶ While the coins literally helped the Kristiansand refinery to avoid bankruptcy, it still had plenty of idle capacity waiting to be exploited. The question is of course why the productive capacity of this plant for strategic materials was not more fully utilized?

Krupp⁴⁷ and IG Farben initially jostled for control over the Falconbridge refinery, which was the only alternative refining capacity for the Petsamo nickel matte. In July 1941, with the early successes of Operation Barbarossa, IG Farben not only considered refining some of the Petsamo matte in Kristiansand, but also matte from other nickel ore fields in the Soviet parts of the Kola Peninsula. IG Farben stated that it would prefer to use the Kristiansand refinery instead of expanding its own facilities in Oppau. By the summer of 1941, the company had become pessimistic with regard to the long run profitability of the nickel industry.⁴⁸ It no

⁴⁵ IG Berlin to Nickelfabrik Oppau, 29 September 1942, BASF Archiv, Rechtsabteilung 719.

⁴⁶ Entries of 21–26 September, 22 November, 2 and 13 December 1940. Transcript of Sverre Steen's diary 1940–45, Falconbridge Archive Kristiansand. As far as we know, only a transcript of this diary has survived. The transcript may have been edited in postwar times, but we judge its contents as trustworthy. The transcript yields valuable but not very detailed information on German orders, inspections, arrests and other important developments at the Kristiansand plant during the occupation.

⁴⁷ Note about a meeting with Dr. Jansen, Krupp, 7 November 1940, BASF Archiv, Rechtsabteilung 826.

⁴⁸ Nickelfabrik, Über die Verarbeitung von finnischer Nickel-Kupfermatte zu Nickelmetall, 2 July 1941, BASF Archiv, Rechtsabteilung 814.

longer believed that it would be possible to retain the monopoly profits of the pre-war years. This was due to strict German profit restrictions and state regulation of the nickel price. IG Farben was therefore wary of expanding the Oppau plant, which would have required large investments. It now calculated that if and when production in Petsamo exceeded the capacity in Oppau, it would be better to refine the excess nickel matte in Kristiansand. Energy costs were also lower in Norway. However, if Petsamo matte were to be refined in Kristiansand, IG Farben wished to lease the Falconbridge refinery, either alone or together with Krupp and Metallgesellschaft.⁴⁹

For Krupp, control over the Falconbridge refinery meant that it could secure nickel for its production of speciality steels. It believed itself to have the upper hand due to its links to Germany's *Reichskommissar* Josef Terboven in Norway. Terboven was also *Gauleiter* in Krupp's home town, Essen.⁵⁰ Krupp also won the first round. In August 1941, the *Reichskommissariat für die Behandlung feindlichen Vermögens* (Alien Property Administration) appointed Krupp's representative Dr. Breisch as a trustee of the Falconbridge refinery.⁵¹ The practical consequences of this choice were limited, as Dr. Breisch did not interfere in the operations in Kristiansand.

The key issue at this stage was access to raw materials. The refinery in Kristiansand was therefore drawn into the larger issue of Petsamo. In December 1941, as a part of the above-mentioned Petsamo *Gemeinschaftsvertrag*, it was also resolved how to proceed with regard to Kristiansand.⁵² In case the Kristiansand refinery were to be used to process raw materials from Petsamo—that is if and when production in Petsamo exceeded 10,000 tons—Krupp, IG Farben and Metallgesellschaft agreed

⁴⁹ Nickelfabrik, Über die Verarbeitung von finnischer Nickel-Kupfermatte zu Nickelmetall, 2 July 1941, BASF Archiv, Rechtsabteilung 814.

⁵⁰ Note about a meeting with Dr. Jansen, Krupp, 7 November 1940, BASF Archiv, Rechtsabteilung 826.

⁵¹ Entry of 7 January 1941. Transcript of Sverre Steen's diary 1940–45, Falconbridge Archive Kristiansand. Hans Clausen Korff, Norwegens Wirtschaft im Mahlstrom der Okkupation, Teil II, 124, Riksarkivet (RA) Oslo, Privatkiv (PA) 951, box 2. Generally on the Alien Property Administration in Norway during the occupation, see Robert Bohn, *Reichskommissariat Norwegen. "Nationalsozialistische Neuordnung" und Kriegswirtschaft* (Munich: Oldenbourg, 2000), 297–300.

⁵² Petsamo-Gemeinschaftsvertrag, 8 December 1941, Historisches Archiv Krupp, WA 142/1683.

to stick together in the ensuing negotiations with Falconbridge and the German authorities. The nickel metal from Kristiansand would be divided on the previously agreed 40:40:20-lines. However, it took some time before the Kristiansand refinery received any raw materials from Petsamo.

Set-Backs in Petsamo

INCO had originally aimed at producing 20,000 tons of nickel annually in Petsamo. If this goal had been reached during wartime, around half of this nickel would have been refined in Kristiansand. However, this volume was never achieved during wartime.

The first shipments of Petsamo ore started in December 1941 or in early 1942, but were halted shortly afterwards.⁵³ Most likely the German transport capacity was overwhelmed by the difficult conditions. The ore had to be shipped from the small Norwegian harbour of Kirkenes, which also was to be the staging point for the northern parts of Operation Barbarossa. In addition, getting the ore overland to Kirkenes was also a major challenge. This did not improve much in the coming years. As the Red Army managed to hold its defensive positions west of Murmansk, Kirkenes remained a logistical bottleneck right up till late 1944, when the Germans evacuated northern Finland and subsequently the northernmost parts of Norway.

The only way forward was to get the Petsamo smelter in Kolosjoki up and running. As the smelter produced the intermediate product nickel matte, which contained around 40 % of nickel against 3–4 % in the ore, transportation volumes were cut by more than 90 %. This required completing a hydropower plant and a flotation plant, as well as the smelter itself. All of this was much delayed for several reasons, such as a series of technical difficulties, INCO's sabotage in 1940, and the Arctic climate, but not least the fact that from June 1941 Petsamo was located in an active theatre of war.

⁵³ Gottfried Plumpe claims that shipments started in December 1941, while British Foreign Office sources state that they had not yet started in late January 1942. Plumpe, *Die IG-Farbenindustrie-AG*, 430. Memorandum 25 January 1941, National Archives, London, FO 371/29351 Northern 11941, Finland, File 172.

On 22 June 1941 most of the construction and mine workers in Petsamo were drafted by the Finnish Army. As a result, the hydropower plant could not be completed before the onset of the Arctic winter and work had to be suspended until next spring. This meant that the smelter remained idle for another year. In late August 1942, the Kolosjoki smelter began producing matte.⁵⁴ This was in fact before the Germans had expected,⁵⁵ but it rapidly broke down. IG Farben blamed the failure of the furnace on the Finns, who allegedly had refused to listen to its experts. In order to speed things up, IG Farben insisted on taking a direct role in the management of Petsamo. This was refused by the Finns who were adamant about having full operational control over the enterprise.⁵⁶

Stable production was at last achieved in February 1943, and the smelters ran at full capacity from August that year. When the retreating German troops demolished the plant in September 1944, Petsamo had produced 17,000 tons of nickel matte. In addition 114,000 tons of nickel ore had been shipped south.⁵⁷ Most of the ore and matte was transported to Germany, but some was shipped to Evje and Kristiansand in southern Norway. The latter could hypothetically make a substantial contribution to the German war economy (see Table 11.1), but even in the face of steadily declining nickel stocks, the productive potential of Kristiansand remained largely untapped until 1944.

IG Farben and the Idle Capacity in Kristiansand

In August 1942, IG Farben representatives had a conference with the head of the *Wehrwirtschafts- und Rüstungsamt* of the German High Command (OKW), General Georg Thomas, on where to refine the nickel matte from

⁵⁴ Krosby, *Finland, Germany, and the Soviet Union*, 192.

⁵⁵ Wochenbericht der Rohstoffabteilung, 25–30 August 1941, fol. 214, BA-MA RW 19/341.

⁵⁶ Krosby, *Finland, Germany, and the Soviet Union*, 192–193.

⁵⁷ Krosby, *Finland, Germany, and the Soviet Union*, 186–198.

Table 11.1 Nickel production at the Falconbridge refinery, German nickel consumption and nickel stocks, 1930–44 (metric tons)⁵⁸

	1940	1941	1942	1943	1944
Stocks	11,280	10,855	10,405	8,620	7,935
Consumption	11,640	9,240	7,980	9,408	9,528
Nickel production at Falconbridge refinery	3,700	1,400	900	900	2,450 ^a

Source: Statistische Schnellberichte zur Kriegsproduktion, fol. 22, BArch R 3/1797. Nickel stocks, which include also waste containing nickel, refer to the end of the respective period, i.e. end of December. Data for 1944 refers to the end of November. Consumption is calculated as the difference between the stocks at the beginning of the period, plus the annual nickel production and the stocks at the end of the period. All data refers to Greater Germany, including the Protectorate Bohemia and Moravia. Production at the Falconbridge nickel refinery in Kristiansand 1940–43 is based on Hans Clausen Korff, *Norwegens Wirtschaft im Mahlstrom der Okkupation*, Teil II, 127, RA, PA 951, box 2, Production in Kristiansand in 1944 (January to June) is taken from Copy of letter from Falconbridge to Dr. Breisch, Frankenstein, Schlesien 19 July 1944, Riksarkivet, Oslo. RA, RAFA-2174, E, Ec, EcB, L0019 H.abt. Volkswirtschaft, Abt. Ausfuhrwirtschaft und Bergbau, Statistikk, Nikkel, Sink m.m.

^aJanuary to June 1944

Petsamo.⁵⁹ The IG Farben manager Häflinger stated that the nickel matte from Petsamo was tailor-made for the refinery in Oppau. He claimed that the matte was not “*geeignet*” (suitable) for the Kristiansand plant, although subsequent developments proved this wrong. Furthermore, it was not possible to produce two types of nickel matte in Petsamo, and the German authorities therefore had to choose between Oppau and Kristiansand. As there were acute shortages of transport capacity and labour in Norway, Häflinger argued that Oppau was the best option. In the transcript from the discussions, Thomas vaguely referred to “certain efforts in Norway”, presumably from the *Reichskommissariat Norwegen*, to refine Petsamo nickel matte in Kristiansand. The *Reichskommissariat*

⁵⁸ This data deviates slightly from the data given by Jäger, *Die wirtschaftliche Abhängigkeit*, 225, 240. Yet, Jäger combined several sources stemming from different points in time to calculate his values. Thus, the data in the table above relying on one source from the German armament ministry, compiled in early 1945, is preferred, especially because normally older data was re-adjusted in German statistics if it was wrong.

⁵⁹ Notiz, Betrifft: Besprechung bei General Thomas, OKW, am 24. August 1942, BASF Archiv, Rechtsabteilung 817.

wanted to expand industrial production and employment in Norway. While Thomas did not seem to agree with the *Reichskommissariat* on the nickel issue, the *Wehrwirtschaftsamt* of the OKW still asked IG Farben to document that it was more efficient to refine the nickel in Oppau than in Kristiansand, especially with regard to transport capacity and energy consumption.⁶⁰

IG Farben responded to this request with a comprehensive report.⁶¹ It listed six reasons why the nickel should be refined in Oppau and not in Kristiansand. As the arguments offer interesting insights into company policy they will be discussed in some detail:

- 1) IG Farben claimed that it was more efficient to transport the nickel matte to Oppau than to Kristiansand. The nickel matte could be shipped directly from Kirkenes to Germany, without a detour via Kristiansand. However, it could be countered that in spite of the detour, the total number of tonnage miles would probably be lower if the nickel matte was refined in Kristiansand. As the matte only contained c. 40 % nickel, this meant that transport volumes on the last leg, especially upstream of the Rhine to Oppau, were more than twice as high as necessary. In addition, substantial parts of the nickel from Oppau were probably sent downstream again, to the steel mills in the Ruhr. The copper residue was also sent back north to Norddeutsche Affinerie in Hamburg. The Kristiansand plant was able to produce both refined nickel and copper.
- 2) IG Farben's second argument for refining nickel in Oppau was energy efficiency. This was an important point as production was energy intensive. Refining one ton of nickel required 2,500–4,000 kWh. According to IG Farben, consumption of electricity would be somewhere between 5 % and 40 % lower in Oppau than in Kristiansand. This claim is also questionable. One reason why energy consumption was higher in Kristiansand was that the Falconbridge plant also refined copper. It is also worth noting that while there was a shortage of energy in Germany,

⁶⁰ IG, Vermittlungsstelle W to IG, Rechtsabteilung, 25 August 1942, BASF Rechtsabteilung 791.

⁶¹ Büro, Sparte I to Vermittlungsstelle W, Nickelherstellung Falconbridge, Norwegen—Oppau, BASF Rechtsabteilung 791.

the Kristiansand area had an abundant supply of cheap hydropower. IG Farben suggested that the hydropower in Kristiansand instead should be used in the Norwegian aluminium industry, which was being expanded at the time. This was, however, not possible without building new and long transmission lines, an endeavour which would take time as well as substantial investments.

- 3) Refining in Oppau would save labour. According to IG Farben, refining 8,500 tons of nickel would require 200 workers in Oppau against 550 in Kristiansand. However, in Kristiansand the workforce also extracted the copper content from the nickel matte, a fact that IG Farben omitted. Also, in Germany additional manpower was needed to produce coal for coal-based electricity plants. The hydropower stations in the vicinity of Kristiansand employed less than fifty men.
- 4) If the Kristiansand plant were to resume full production, this would entail start-up costs. Most importantly, more nickel would be tied up in the production process, probably around 1,000 tons.
- 5) The Kristiansand plant was not able to produce high purity nickel powder. This was true, but we have no information on whether this had any real importance for the German armament industry. If the type of nickel metal was significant, one might have expected that IG Farben would have put more emphasis on this point.
- 6) If nickel production in Oppau was closed down, Germany would suffer a long-term opportunity loss. In the document, IG Farben characterized this as a loss for Germany, but it was of course the company which had to shoulder these costs.

In an attempt to accommodate the German authorities in Norway, IG Farben developed an alternative way of utilizing the plant in Kristiansand, without diverting nickel from Oppau. In October 1942, IG Farben suggested that the copper in the residues from Oppau should be refined in Kristiansand instead of at Norddeutsche Affinerie in Hamburg.⁶² This would save electricity in Germany. IG Farben also argued that this would be more beneficial to the German armament drive than refining nickel

⁶² Schlecht to Reichskommissariat Oslo, Wehrwirtschaftsstab Oslo, 20 October 1942, Verarbeitung von Petsamo-Nickel-Kupfer-Erzen in Evje und Kristiansand, BASF Rechtsabteilung 791.

in Kristiansand. The Falconbridge plant would need coal to refine nickel, whereas this would be unnecessary when electrolyzing copper. This meant that one could save both coal and shipping capacity.⁶³ It was also claimed in an internal IG Farben memorandum that it would be cheaper to refine copper in Kristiansand than in Hamburg.⁶⁴ However, the argument for using Norwegian hydropower instead of scarce and expensive German electricity could just as well apply to nickel refining. The small quantities of coal necessary in the refining process in Kristiansand could probably not change that. The Norddeutsche Affinerie naturally protested against refining the copper in Kristiansand, and nothing came of the plan.⁶⁵

IG Farben mustered all the arguments it could find to protect its interests and to continue nickel refining in Oppau. While this made perfect sense with regard to the business interests of IG Farben, it made less sense with regard to the overall objectives of the German armament drive. Refining in Oppau was energy intensive and coal was an increasingly scarce commodity. The Kristiansand refining process was based on local hydropower, which had no alternative use of equal importance for the German arms industry. In addition, one could argue that the production in two locations, i.e. a decentralization of production, would reduce the effects of the bombing war. It was probably difficult for the German authorities to assess and refute IG Farben's technical judgments. Many IG Farben employees served in the German economic administration before and during the war, suggesting that their expertise was not only needed by the authorities but also considered to be trustworthy.⁶⁶ The company could thus use the information asymmetry to its own advantage.⁶⁷

⁶³ BASF Rechtsabteilung 791, Schlecht to Vermittlungsstelle W, 11 November 1942, BASF Rechtsabteilung 791.

⁶⁴ Schlecht to Kühne, IG, 2 February 1943, BASF Rechtsabteilung 791.

⁶⁵ Warlimont, NA, to Schlecht, IG, 5 November 1942, BASF Rechtsabteilung 791.

⁶⁶ On the role of IG Farben representatives in the Four-Year Plan, see for example Dieter Petzina, *Autarkiepolitik im Dritten Reich. Der nationalsozialistische Vierjahresplan* (Munich: DVA, 1968).

⁶⁷ Generally on the exploitation of information asymmetries by German companies in the war economy of the Third Reich, see Jonas Scherner, "Die Grenzen der Informationsbeschaffung, -transfer und -verarbeitung in der deutschen Wehr- und Kriegswirtschaftsverwaltung im Dritten Reich" *Jahrbuch für Wirtschaftsgeschichte*, 56 (2015), 1, 99–136.

Petsamo Nickel in Evje and Kristiansand

IG Farben got its way. The Petsamo nickel matte was not sent to Kristiansand as long as the capacity in Oppau was not utilized. However, due to the delays and technical problems with the Kolosjoki smelter in Petsamo, large volumes of nickel ore were shipped south. Some of this ore was sent to Evje Nikkelverk, which had spare capacity at its smelter. It was probably the *Reichskommissariat Norwegen* that steered Petsamo ore in this direction. Evje was viewed as an enterprise with a friendly attitude towards Germany. In October 1942, Evje committed itself to smelt 10,000 tons of Petsamo ore.⁶⁸ This was never fulfilled. Evje probably only received 2,200–2,500 tons of Petsamo ore between November 1942 and January 1943.⁶⁹

Large volumes of Petsamo ore had previously been sent to Norddeutsche Affinerie (in Hamburg). NA had found the ore very hard to smelt due to the high content of magnesium. Evje experienced the same problems and output was sharply reduced.⁷⁰ Interestingly, IG Farben had anticipated these difficulties back in September 1942, and studiously waited until January 1943 before informing Evje that NA had solved the problem by adding lime.⁷¹ IG Farben's aim was, as it was summed up in an internal document prior to the actual deliveries of ore, to teach Evje a lesson.⁷² Evje was to keep out of the Petsamo business. IG Farben also declined to share its technology for recovering cobalt with Evje. IG Farben explained to the *Reichskommissariat Norwegen* that it feared that the technology

⁶⁸ IG, internal letter, 21 December 1942, BASF Rechtsabteilung 791.

⁶⁹ Evje—månedsrapporter 1942–1945, Riksarkivet, Oslo. RA/RAFA-2174, E, Ec, EcB, L0019. Hauptabteilung Volkswirtschaft, Mappe, Abt. Ausfuhrwirtschaft und Bergbau, Statistikk, Nikkel, Sink m.m.

⁷⁰ IG to Raffineringsverket, 11 September 1943, BASF Rechtsabteilung 791.

⁷¹ Raffineringsverket to Schlecht, 16 January 1943, BASF Rechtsabteilung 791. The technical problems are also mentioned in Sverre Steen's diary 11 January 1943. Transcript of Sverre Steen's diary 1940–45, Falconbridge Archive Kristiansand.

⁷² Note, 1 September 1942, Betrifft: Nickelerz-Lieferungen nach Norwegen, BASF Rechtsabteilung 791. The original quote is: "so wird dies für Kristiansand nur lehrreich sein". Evje's head office was in Kristiansand.

might then end up in the hands of INCO. If this happened, INCO's annual output of cobalt could increase by 1,000 tons.⁷³

The nickel matte from Evje was refined in Kristiansand. From August 1943, the refinery also started receiving minor quantities of matte directly from Petsamo. In January 1944, deliveries were much increased. The plant in Oppau was damaged by Allied bombing.⁷⁴ Top manager Steen wrote after the Liberation that he tried to avoid refining this nickel matte, claiming that it was tailor-made for Oppau and not suitable for the Kristiansand plant.⁷⁵ This was in line with IG Farben's arguments back in August 1942, although we can only speculate whether Steen was informed about this. In 1944, however, the argument was summarily dismissed and the armament ministry decided to use Falconbridge's capacities as long as Oppau was inoperative.⁷⁶ The Petsamo matte was refined in Kristiansand, a fact that proved IG Farben's previous claims wrong.

German authorities now took stern measures to secure the loyalty of the Kristiansand staff. A Krupp engineer, Dr. Graustein, was sent to Kristiansand to control the daily operations of the refinery.⁷⁷ In late January and early February 1944, the German Security Police arrested seven key Falconbridge employees: the office manager, three engineers, a foreman and two shop stewards. Four were released at intervals during the spring and summer of 1944, two remained in prisons camps until the end of war and one died in captivity.⁷⁸ On 11–13 February, three additional engineers were interrogated and heavily fined.⁷⁹ They were

⁷³ IG to Reichskommissariat, 2.2.1943, BASF Rechtsabteilung 791.

⁷⁴ Schlecht to Breisch, 7 January 1944, BASF Rechtsabteilung 791.

⁷⁵ General Report from Steen to Hardy, 11 May 1945, Falconbridge Archive in Kristiansand, Driftsrapporter 1940–47.

⁷⁶ Schlecht to Breisch, 7 January 1944; Reichsministerium für Rüstung und Kriegsproduktion to IG, 23 May 1944, BASF Rechtsabteilung 791.

⁷⁷ General Report from Steen to Hardy, 11 May 1945, Falconbridge Archive Kristiansand. Hans Clausen Korff, *Norwegens Wirtschaft im Mahlstrom der Okkupation*, Teil II, RA, PA 951, box 2.

⁷⁸ Sverre Steen's diary 27 January to 13 February 1944. Transcript of Sverre Steen's diary 1940–45, Falconbridge Archive Kristiansand. See also: Kristian Ottosen, *Nordmenn i fangenskap 1940–45, alfabetisk register* (Oslo: Universitetsforlaget, 2004).

⁷⁹ Sverre Steen's diary 27 January to 13 February 1944. Transcript of Sverre Steen's diary 1940–45, Falconbridge Archive Kristiansand.

accused of sabotage, but were subsequently released, most likely because they were needed in the production. At this stage of the war, nobody could doubt the consequences of not following German orders. From January to June 1944, the Kristiansand refined 2,645 tons of nickel for IG Farben.⁸⁰ Production continued that summer.

The German armament ministry stated in May 1944 that it viewed the production in Kristiansand only as a temporary measure. In a letter to IG Farben, the ministry ruled out that Falconbridge's full capacity should be utilized. IG Farben had thus got its will regarding the question of where to refine the nickel.⁸¹ At this point in time, the ministry also contemplated dismantling parts of the Kristiansand plant and sending it to Germany to be rebuilt underground as protection against air raids.⁸² However, this came to nothing as Germany had more pressing concerns in the summer and autumn of 1944. In August to September 1944, the Falconbridge refinery received the last shipments of 2,400 tons of Petsamo matte. This matte was refined until the end of the war.⁸³

Allied military authorities knew that Petsamo nickel was refined in Kristiansand and wished to bomb the Falconbridge plant. However, the British Foreign Office had stated early in the war that the refinery was not a purely military target, and that a special Cabinet decision was necessary if the plant was to be destroyed. The refinery was rather close to residential areas. After bombing attacks on Norwegian industrial targets in 1944, which claimed a number of civilian lives, Norwegian authorities protested vehemently against bombing of important industrial factories in Norway, including the Falconbridge plant. They claimed that production was low and that the refinery would play an important role in the economic reconstruction of postwar Norway. Allied authorities seem—

⁸⁰ Copy of letter from Falconbridge to Dr. Breisch, Frankenstein, Schlesien 19 June 1944, Riksarkivet, Oslo. RA, RAFA-2174, E, Ec, EcB, L0019 H.abt. Volkswirtschaft, Abt. Ausfuhrwirtschaft und Bergbau, Statistik, Nikkel, Sink m.m..

⁸¹ Reichsministerium für Rüstung und Kriegsproduktion to IG, 23 May 1944, BASF Rechtsabteilung 791.

⁸² Auszug aus dem Bericht über die Nickel-Besprechung im Reichsministerium für Rüstung und Kriegsproduktion, 10 May 1944, BASF Rechtsabteilung 791.

⁸³ General Report from Steen to Hardy, 11 May 1945, Falconbridge Archive Kristiansand.

somewhat reluctantly—to have accepted this and the Falconbridge plant therefore survived the war physically unharmed.⁸⁴

Conclusion

The reason why the large and modern Kristiansand refinery was not utilized until 1944 was not a conflict between the *Reichskommissariat* and the German authorities in Berlin, or a conflict among Reich authorities, as one may assume, given the polycratic conflicts that often played a role in the Nazi economic policy in Germany and occupied Europe. Nor does it seem that the hostile attitude the management of Falconbridge showed towards the Germans played the decisive role. Rather, it was mainly due to IG Farben's wish to fully utilize their own nickel capacities, which had been built up during the 1930s, that Falconbridge's capacities were heavily underutilized during the occupation. IG Farben was able to convince the German authorities, by successfully exploiting the information asymmetries between the company and the German war administration, that using the IG capacities would be more beneficial for the German war economy than employing the Kristiansand facilities. This shows that even during the war, when regulations were even tighter than during the peacetime years, companies still had leeway to pursue their long-term interests by capitalizing on their information advantage and technical expertise. The fact that top manager Steen at the Falconbridge refinery in Kristiansand wanted to limit his company's contribution to the German war effort may also have helped IG Farben achieve its objectives with regard to nickel refining. In other words, both Falconbridge and the IG tacitly shared the same interests. If the Falconbridge managers had wished to expand production at their plant, they could probably have undermined or at least weakened some of IG Farben's arguments.

Seeing the issue from the perspective of opportunity costs of the use of energy, the decision to postpone the use of Kristiansand was most

⁸⁴ Letter 08 May 1940 from Alex Cardogan to Sir Frederick W. Leith Ross (MEW), National Archives London, FO 371/4824; Bombing Targets in Norway, Mutual agreement between HM Govt & Norwegian Govt re bombing of shore establishments (1944), Public Records Office (PRO), Kew., ADM 1/16347.

likely sub-optimal for the German armament effort. Kristiansand became a producer of major importance during the final years of the war. The increased utilization of the Kristiansand plant was, however, not due to a new efficiency drive in the German war economy, as the proponents of the inefficiency-hypothesis—emphasizing the higher efficiency of the German war economy after Albert Speer had been appointed as armament minister in 1942—may assume.⁸⁵ Rather, this increasing importance of Kristiansand was simply the result of the knocking out of IG's capacities in Oppau by Allied air raids

⁸⁵About the inefficiency-hypothesis see Rolf-Dieter Müller, "Die Mobilisierung der Deutschen Wirtschaft für Hitlers Kriegsführung" in *Das Deutsche Reich und der Zweite Weltkrieg 5/1: Organisation und Mobilisierung des deutschen Machtbereichs, Kriegsverwaltung, Wirtschaft und personelle Ressourcen: 1939–1941*, Militärgeschichtliches Forschungsamt (ed) (Stuttgart: Deutsche Verlags-Anstalt, 1988), 347–689; R. Overy, *War and Economy in the Third Reich* (Oxford: Clarendon Press, 1994). For recent criticism of the inefficiency-hypothesis, see J. Adam Tooze, "No Room for Miracles. German Industrial Output in World War II Reassessed" *Geschichte und Gesellschaft* 31,3, (2005), 439–64; Jonas Scherner/Jochen Streb, "Das Ende eines Mythos? Albert Speer und das so genannte Rüstungswunder" *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte*, 93 (2006), 172–196; J. Adam Tooze, *The Wages of Destruction. The Making & Breaking of the Nazi Economy* (London: Penguin, 2006); Lutz Budraß/Jonas Scherner/Jochen Streb, "Fixed-price Contracts, Learning and Outsourcing: Explaining the Continuous Growth of Output and Labour Productivity in the German Aircraft Industry during World War II" *Economic History Review*, 63, 1 (2010), 107–136.

12

A Quest for Diversification? Norsk Hydro, IG Farben, and the German Light Metal Programme

Ketil Gjørme Andersen and Anette H. Storeide

Introduction

While people on the southern coast of Norway were trying to enjoy the third summer of the German occupation the best they could, new factories for light metals drew close to completion at the Herøya peninsula a few kilometers outside of Porsgrunn town. Together with its German partners, Norsk Hydro, a world leading fertilizer producer, worked purposefully to finish production facilities for aluminium, alumina (aluminium oxide) and magnesium. The endeavour was organized within the framework of an independent Norwegian company called Nordisk Lettmetall, founded in Oslo in 1941. The company's shares were equally distributed between Hydro, IG Farben and a company representing the German *Luftwaffe*, Nordag.

Since the late 1920s, Herøya had been the heart of Hydro's production system, the spot where power and semi-finished products were brought together in the manufacturing of nitrogen fertilizer. As the most densely industrialized area in the country, Herøya was sometimes referred to as the "Ruhr of Norway". With its seaside location close to deep-water

ports, Herøya also was the gateway to Hydro's customers abroad. Disadvantaged with a rather small home market, the company in some years exported well over 90 % of total production. Up until the war, Hydro had lived from basically one product: nitrogen fertilizers. Now the light metal factories at Herøya were to mark an end to this situation.

Unlike most German large-scale construction projects in Norway during the war, the new light metal factories were nearing completion almost on schedule. True enough, the Mår power station was still under construction, forcing Nordisk Lettmetall to look for temporary solutions. Being a part of Hermann Göring's "Immediate programme" mobilizing Norwegian water power resources for German armament production, the project was prioritized in allocation of raw materials and workers. Through the summer of 1943, the company's workforce, consisting of some 4,300 men, struggled to meet strict deadlines.¹ Norwegians accounted for the majority of the workers, but several hundred were forced labourers from all over Europe, kept in guarded barracks close to the construction site. As the summer was reaching its zenith, preparations for test production were made. Then, after lunch break on Saturday, 24 July 1943, antiaircraft sirens were heard over Herøya. Out of the blue sky appeared an armada of American bombers. In five waves, 120 Flying Fortresses dumped their destructive cargo, leaving behind 55 dead and a crippled industrial site. The consequences were devastating. The bombs hit not only the new factories of Nordisk Lettmetall, but caused grave damages to the existing fertilizer factories as well.² Hydro had suffered a double blow, in other words.

As shocking as the attack was, it did not take place completely out of the blue. Everybody involved in picking Herøya as a location for the new light metal factories knew this could make the peninsula a prioritized bomb target. When completed, the factories would provide a substantial contribution to Nazi Germany's war effort. Placing these factories among the predominantly civil industrial infrastructure at Herøya was at best a

¹ Ketil Gjølme Andersen, *Flaggskip i fremmed eie. Norsk Hydro 1905–1945* (oslo: Pax, 2005), 396.

² U.S.A.A.F. Attack on Herøya – 24th July 1943, Public Records Office (PRO), AIR 40/426; Kristian Anker Olsen, *Norsk Hydro gjennom 50 år. Et eventyr fra realitetenes verden* (Oslo: Norsk Hydro, 1955), 411–413. Andersen 2005: 421.

calculated risk; a risk the decision makers were willing to take. From the German perspective, using the existing industrial structures at Herøya was a huge advantage, minimizing both investment costs and construction time. For Hydro, the situation was somewhat different, as the endeavour so obviously put the existing fertilizer production in danger. When under criminal investigation after the war, the Hydro management invoked being exposed to German threats. Hydro was participating in the light metal project against its will, the argument went. No evidence supporting this claim was found, however. Quite the opposite, the investigators were left with the impression that Hydro had been striving to position itself within the light metal programme, especially the proactive role played by general director Axel Aubert was noticed.³

Whereas existing research interprets the German light metal plans as a state-led exploitation of Norwegian resources for German war-related purposes,⁴ or focuses on the impact of other German actors such as IG Farben,⁵ or *Reichsluftfahrtministerium* (RLM),⁶ we argue, first, that various conflicts of interest between German state and private actors opened the door for Norwegian interests and, second, that Norwegian participants acted out of their own economic and technological self-interest when they got involved in the German light metal plans. To understand why Norsk Hydro became a central actor within the German light metal programme we need to move beyond the occupation years. Entering into light metals had in fact been on Hydro's agenda for decades. Haunted by an extremely one-sided dependence on production and sales of nitrogen fertilizer, the company had struggled to put its water power reserves to alternative use. The quest for diversification was an overall aim of general director Aubert during his long tenure. During the crisis ridden 1930s, he had tried in vain to take Hydro into aluminium and magnesium. The German occupation finally provided him with the opportunity he had been waiting for.

³ Kaare Haavik, Innstilling, 6 June 1950, Riksarkivet, (RA), L-Sak 16099.

⁴ Alan Milward, *The Fascist Economy of Norway*, (Oxford: Clarendon Press, 1972).

⁵ Peter Hayes: *Industry and ideology. I.G. Farben in the Nazi Era* (New York: Cambridge University Press, 1987); Gottfried Plumpe, *Die I. G Farbenindustrie AG Wirtschaft, Technik und Politik: 1904–1945* (Berlin: Duncker & Humblot, 1990).

⁶ Lutz Budrass: *Flugzeugindustrie und Luftfrüstung in Deutschland* (Düsseldorf: Droste, 1998).

Flagship in Foreign Ownership

Norsk Hydro holds a special position in modern Norwegian history. Established in 1905, the year of the dissolution of the union with Sweden, Hydro came to symbolize both national independence and the emergence of Norway as a modern industrial society. A certain air of national heroism accompanied the establishment of Hydro; it was based on the taming of mighty Norwegian waterfalls and the use of a new method for the production of nitrogen fertilizer. Named after its inventors, the Birkeland-Eyde process made Hydro a pioneer within the nitrogen industry.⁷

One thing was not national about Norsk Hydro however—its capital; and this became a crucial point for the company during the German occupation. From the very early years, the company's shares were held by capitalists from Sweden, France and Germany. In the initial phase, it was the Swedish Wallenberg family and their Enskildabanken that lent a helping hand. But even the Wallenbergs didn't have the muscle to finance the full industrial realization of Hydro's method. For developing power stations, factories and general infrastructure in desolate Telemark, the Wallenbergs called upon their long established contacts in France, the investment bank Paribas. The result was a French majority ownership lasting from 1907 to 1941.⁸

German interests played a role in the early history of Hydro as well. Striving to develop a nitrogen process of their own, Ludwigshafen-based Badische Anilin und Sodafabrik (BASF) monitored the technological development in Norway closely, while at the same time hoping to lay hands on the country's favourable water power resources. After some hesitation BASF became wholeheartedly involved in building up the Norwegian nitrogen industry. But while the French were in for the long term, the Germans had withdrawn most of their resources already by 1912, in order to concentrate on a brand new nitrogen process being

⁷ Ketil Gjolme Andersen and Gunnar Yttri, *Et forsøk verdt. Forskning og utvikling i Norsk Hydro gjennom 90 år* (Oslo: Universitetsforlaget, 1997).

⁸ Nanna Paaske, *Fransk Hydro? Om fransk innflytelse i Norsk Hydros etableringsfase 1902–1914* (Unpublished MA-thesis, University of Oslo, 1998).

developed by Fritz Haber and Carl Bosch in Germany. Even if BASF still kept some Hydro-shares in its portfolio, the first phase of German influence had very much come to an end by the First World War.⁹

In his 1917 pamphlet on *Imperialism*, communist theoretician Nicolai Bukharin explicitly used Hydro to illustrate how the European periphery was colonized by monopoly capitalists of the continent's core nations.¹⁰ There might be some truth in this, especially when looking at how foreign capitalists swarmed around Norwegian waterfalls. The image of Hydro as a subjugated company doesn't fit very well though. While of course profit was distributed among shareholders abroad, most decisions were taken by a competent Norwegian management who felt obliged to keep an eye on the national interest. If Hydro is close to any model of twentieth century capitalism it has to be that of managerial capitalism, not the capitalism of the shareholder. However, the ties were close between the CEO, the management and the Norwegian and Swedish shareholders, and in the long run the ambition was to increase the Norwegian control—and shareholding—of the company.

By combining hydrogen and oxygen under high pressure, BASF had succeeded in producing nitrogen with only a fraction of the energy needed by Norsk Hydro. At the same time, the hydration process opened ways of manufacturing a wide range of substances. After securing German needs for nitrogen during the First World War, the Haber-Bosch process gained ground in the following decades. At first, the challenge was completely underestimated by the Hydro management. The company profited greatly from nitrate sales during the war, and entered the 1920s convinced that cheap electricity made their own process immune to competition. By the mid 1920s this evidently was not true.¹¹

At this time, major chemical companies in Germany, among them BASF, were merging into a new chemical concern known as IG Farben. One asset held by the concern was the Haber-Bosch patents. IG Farben came into being in 1926, the same year as Hydro's new general director, the 53-year-old engineer Axel Aubert, took office. Even if Aubert initially tried

⁹ Andersen, *Flaggskip*, 134–142.

¹⁰ Nicolai Bukharin, *Imperialism and the World Economy* (London: Martin Lawrence, 1917/1972).

¹¹ Andersen, *Flaggskip*, 259–265.

to get high pressure technology elsewhere, it turned out to be impossible to bypass the Germans. In 1927, Aubert felt obliged to sign a comprehensive agreement with IG Farben. In exchange for assistance in installing new technology in Norway, 25 % of Hydro's shares ended up in Germany. In addition, Hydro's sales organization, except its French branch, was handed over to IG Farben. *Lieferwerke Norwegen* (Norwegian delivery works) was the name coined by the Germans to describe 'their' new factories in Norway.¹² Gravely curtailing Hydro's autonomy, the assignment signalled the beginning of a second phase under German influence.

It did not turn out to be as catastrophic as Norwegian managers and French shareholders may have feared. Paradoxically, Hydro's relative position seemed to have been strengthened by the Great Depression. A drop in nitrogen demand in the first half of the 1930s triggered a tug of war for the distribution of production cutbacks among members of the nitrogen cartel. Being the world's largest nitrogen producer, and at the same time the most ambitious member of the cartel, IG Farben ended up taking the largest production cuts itself. Hydro, on the other hand, benefitted from being small, utilizing its production capacity to a much higher degree.¹³ Another reason for this relative success was Hydro's strength at the negotiation table. Aubert stood firm, even when his counterpart played rough, and described the talks with the Germans as "a damned fight".¹⁴

Uncontestably the strong man of Norsk Hydro, Aubert was admired both by his subordinates in Norway and his shareholders in France. A brilliant engineer, Aubert knew German language and culture from his student days. Not lacking in self-confidence, and matching even the mighty directors of IG Farben in arrogance, he was not easily bullied. Eventually, his skills were also recognized by the Germans. As the crisis lost

¹² Interview with Hydro's former general director, Torvild Aakvaag.

¹³ Øyvind Tønnesson, *Fra selvstendighetslinje til forpliktende internasjonalt kartellsamarbeid. Norsk Hydros posisjon i verdens nitrogenindustri* (Unpublished MA-thesis, University of Oslo, 1997), 119–124; Andersen, *Flaggskip*, 327–330.

The "altruism" of IG Farben might be partly explained by the reorganization that took place at the Nitrogen plant Leuna Werke in these years, Jonas Scherner, *Die Logik der Industriepolitik im Dritten Reich. Die Investitionen in die Autarkie- und Rüstungsindustrie und ihre staatliche Förderung* (Stuttgart: Steiner, 2008), 126–127.

¹⁴ Letter, Aubert to Wallenberg, 24.9. 1930, Norsk Hydro Arkiv og Bibliotek, Notodden (HA) X09.9e.1.1, Underlagsmateriale til forskningshistorien.

momentum and business gradually returned to normal by the mid-1930s, the relations between Hydro and IG Farben improved. Aubert even was offered a seat on IG Farben's supervisory board.¹⁵ Hydro was drifting in a German direction, much to the frustration of the French.

Faced with an international armament race in the wake of Hitler's seizure of power, the political aspect of economic activity became intrusive. And Hydro was not just any industrial company. As a leading nitrogen producer, useful on the farmer's field but on the battlefield as well, the company had always connoted politics, high politics even. During the First World War, Hydro had in fact supplied France with nitrates covering nearly one third of the country's total needs.¹⁶ What would be the company's role in the next war was a question raised both by French shareholders and French politicians. Throughout 1939, the French Legation in Oslo kept a close watch on Hydro. Whether the Norwegian management might be trusted in case of war was a recurring theme in its correspondence with the Foreign Ministry in Paris. French diplomats bluntly concluded that even with a clear majority, French shareholders "were without influence in the [Hydro] management". This worried the French diplomats sufficiently that they approached their British colleagues to discuss whether action should be taken to remove Hydro's general director: Axel Aubert "was under German influence and not to be trusted".¹⁷

The Diversification Strategy on the Eve of War

To suggest that French interests were generally neglected by the Norwegian management on the eve of war seems unfair. The French diplomats were right in one respect though; Aubert was consciously steering his company in a German direction. For the general director, this had nothing to do with politics, it rested in a profound industrial rationale; he was simply following the path marked by the chemical industry in Germany. In

¹⁵ Andersen, *Flaggskip*, 364.

¹⁶ Roald Berg, *Norge på egenhånd: 1905–1920*, (Oslo: Universitetsforlaget, 1995), 196.

¹⁷ Public Records Office, Kew (PRO), FO 371/23,675; Andersen, *Flaggskip*, 358.

doing this, Aubert hoped to escape what for years had been the scourge of his company—being dependent on basically a single product.

The idea of moving into new areas of business, opening up for more profitable use of Hydro's power reserves, was not at all new. The quest for diversification had in fact been on the agenda since the 1920s, when the company among other things tried to take up production of aluminium. Hydro had put a lot of resources into developing a process that would make possible the production of aluminium from a domestic mineral called labradorite, making the company independent of imported bauxite. Optimistically, Hydro invested large sums in a full size pilot plant for the testing of the labradorite process, only to find out that the scale-up was premature.¹⁸

Shifting to the Haber-Bosch process, along with the economic crisis, put the diversification strategy temporarily on hold. By the mid 1930s it was taken up again. Whereas the focus up until this point had been to widen the range of products within the inorganic field of the chemical industry, Aubert now turned to the more dynamic field of organic chemicals. The chemical industry in Germany was leading the way, fostered by the country's large coal deposits and the mastering of hydration technology. One of the companies up front was of course IG Farben, who developed processes for production of synthetic rubber and motor fuel. Through its transition to the Haber-Bosch process, Hydro was learning to master high pressure technology as well. Following this path, Hydro in 1935 launched a government-supported research project exploring possibilities of using coal deposit on the arctic island of Svalbard for the production of synthetic fuel. Ambitions had to be lowered when it turned out that this specific coal was not well suited for hydration. The same coal, however, could relatively easily be used for the production of methanol, thereby opening an alternative route into organic chemistry. At a later stage, methanol production could be supplemented by the production of synthetic fuel. With both synthetic fuel and methanol, Aubert hoped to lean technologically on IG Farben. In plans drawn up, the general director of Hydro's organic endeavours were to take place at Herøya, turning Hydro's existing facilities into a large-scale, integrated chemical complex, covering

¹⁸A. Foss, "Innledning til generalrapport over lerjordsforsøkene", 8 October 1943, HA, 03.40d.31, hefte 3.

organic as well as inorganic production.¹⁹ Putting Hydro onto the organic track was a long-time goal. As the 1930s drew to an end, it was again opportunities within the inorganic field that attracted most of Aubert's attention.

Among the indicators for the armament cycle building up in the years following Hitler's seizure of power was the increase in demand for metals and alloys used in aircraft production.²⁰ Aluminium and magnesium were aviation metals *par excellence*. Both industries were dominated by a few strong companies who worked to systematically block the establishment of competitors. While control of bauxite ores could be used to keep newcomers out, control of process technology played very much the same role within the magnesium industry. The magnesium industry was dominated by two companies, Dow Chemical in the USA and IG Farben in Germany. In aluminium, the number of actors was substantially larger, but in Germany two companies dominated. The leading producer was the state-owned Vereinigte Aluminiumswerke, but it was being challenged by an ambitious private concern—IG Farben.

Hydro's newborn interest in light metal started with magnesium. After mapping different methods and technologies, Aubert in 1936 approached his German patrons, asking for a licence for IG Farben's process. As there was no market for magnesium in Norway, Hydro needed a licence allowing for export. This was a crucial point, and as the Germans did not want to encourage competition in their international markets, the answer was as expected—*Nein*. Stubbornly, Aubert tried to enter into collaboration with a small, independent French company experimenting with a new magnesium process. Again, results were negative. The only way left for Hydro seemed to be to develop a process technology of its own. Following a two-stage strategy, Hydro would start with the production of a simple magnesium compound called magnesita alba, then, when competence was in place, move to the production of magnesium metal.²¹

The magnesium path was a narrow one, not at all destined to be a success. But it was now the other light metal, aluminium, that once again became the spearhead of Hydro's diversification strategy. In 1938, Hydro

¹⁹ Andersen and Yttri, *Forsøk*, 119, 132–134.

²⁰ Budrass, *Flugzeugindustrie* 1998.

²¹ Andersen and Yttri, *Forsøk* 135–136.

wiped the dust of its labradorite process, abandoned more than ten years earlier. The booming market and the prospect of smelting metal without using hard-to-get foreign bauxite still made the process attractive. The downside was that the silicate used, the labradorite, contained only half as much aluminium oxide as bauxite. The hope was that cheap electricity would make the process economically sound anyway.

Early in 1939, Aubert approached the Norwegian aluminium company NACO with a proposal. Markets were hungry for metal, Hydro controlled unused water power and perhaps even a new aluminium process; why not join forces in building production capacity in Norway? Being a newcomer, Hydro needed allies when moving into the aluminium industry. Aubert of course knew that approaching NACO meant approaching the American owners of NACO, the mighty Alcoa trust. The initiative was not welcomed, however. NACO director Sigurd Kloumann, once a leading Hydro manager, made his unwillingness to cooperate very clear. Kloumann had in fact long feared this situation, as he confided to members of his board. With all its capabilities, Hydro was “about the most dangerous competitor NACO and the aluminium industry in general could ever get”.²²

More than a cold shoulder was needed to stop Aubert. He ordered his researchers back into the laboratories to work even harder on the labradorite process. After only a few months, several breakthroughs boosted Aubert's optimism. His magnesium endeavour also moved forward. When Hitler invaded Poland in September, the new pilot plant for magnesia alba at Herøya was well under way. Test production was scheduled to start some time the following year. Hydro was about to enter a third phase under German influence.

²²Ingrid Hagen, “*Norsk Hydros deltakelse i de tyske lettmetallplanene 1940–43*” (Unpublished MA-thesis, University of Oslo, 1996), 45; Andersen, *Flaggskip*, 350.

Göring's Light Metal Plans, IG Farben and the Norwegian Industry

Germany occupied Norway for strategic reasons, but nonetheless German authorities attempted to provide an overview of Norway's natural and industrial resources. On 2 April 1940, the *Auswärtiges Amt* (Ministry of Foreign Affairs) hosted a meeting to discuss the utility of the Norwegian industry for the German armament industry and warlike production.²³ The abundant opportunities to expand hydropower plants and the low cost of the production of electricity were of particular importance, especially for the energy-intensive production of aluminium. On 18 April 1940, Hitler instructed the start of the exploitation of Norwegian economy and industry, Norway would be integrated into the German *Großraumwirtschaft* (Greater Economic Area) in Europe.²⁴ In July 1940, Hermann Göring, the head of the *Luftwaffe* and the German Four-Year Plan, ordered the Minister of Economy, Walther Funk, to prepare the ground for a German large-scale economic area in Europe.²⁵ The *Reichwirtschaftsministerium* (Ministry of Economy/RWM) established a planning committee to expedite the *Neue Ordnung* (New Order) of the European economy. IG Farben was significantly involved in this planning committee; for example, through its head of foreign affairs Max Illner, whose uncle Hermann Schmitz, since 1935 CEO of IG Farben, was a member of the board of Norsk Hydro.

The leading German producer of aluminium in 1940 was Vereinigte Aluminiumwerke (VAW). VAW controlled the distribution of light metals to the enterprises and institutions belonging to the Four-Year Plan. Prior to the war against Poland in 1939, the access to light metals had been favourable for the war industry.²⁶ Although the demand for

²³ Hagen, *Letztmetallplanene*, 7, 37.

²⁴ On the plans for the Greater Economic Area, see Maximiliane Rieder: *Deutsch-italienische Wirtschaftsbeziehungen: Kontinuitäten und Brüche 1936–1957*. Frankfurt am Main 2003: 151 f. On the German mobilization of Norwegian industry, See also chapters 3 and 4 in Robert Bohn: *Reichskommissariat Norwegen: "Nationalsozialistische Neuordnung" und Kriegswirtschaft*. (Munich: Oldenbourg, 2000).

²⁵ Rieder, *Wirtschaftsbeziehungen*, 152–3.

²⁶ Budrass, *Flugzeugindustrie* 1998: 603 f.

aluminium and magnesium increased faster than production, there was no significant lack of light metals. The German production and distribution of aluminium were, however, dependent on the German authorities and VAW. An enactment of 16 May 1917 placed the responsibility for distributing licences for the production of aluminium and alumina with the German government.²⁷ Only three companies were licensed for such production: the Swiss company Aluminium Industrie AG (AIAG), IG Farben's manufacturing plant in Bitterfeld (one of the largest magnesium plants in Europe) and VAW, which manufactured 70 % of the total aluminium production. IG Farben's plant in Bitterfeld became essential for Norsk Hydro and the German light metal plans in Norway.

Aluminium is essential for aircraft production, and every expansion of the *Luftwaffe* was therefore dependent on larger aluminium quotas for the *Luftwaffe*. Göring was dissatisfied with the current quotas and attempted to set up a separate aluminium production for the *Luftwaffe*. The German occupation of Norway presented him with a tempting opportunity to do so. Briefly after the German attack, Göring sent his confidant, Heinrich Koppenberg, to Oslo.²⁸ The German rearmament in the 1930s had pushed Koppenberg's career immensely and the Nazi confiscation of Junkers Flugzeug-und-Motorenwerke turned Koppenberg into the head of Junkers and one of the leading agents of the German rearmament. Koppenberg was accompanied by Erwin Braumüller, the head of the division of *Wehrwirtschaft* (War economy) in RLM, as well as Eberhard Neukirch, former manager of IG Farben's plant in Bitterfeld and a close co-worker of Carl Krauch, the chairman of the supervisory board of IG Farben. Furthermore, Krauch was *Generalbevollmächtigter für Sonderfragen der Chemischen Erzeugung im Vierjahresplan* (GBChem; "plenipotentiary for special questions regarding chemical production in the Four-Year Plan"), i.e. including light metal. In addition, two representatives from Dürener Metallwerke and two representatives of VAW took part in Koppenberg's delegation. Koppenberg aimed at obtaining the Norwegian aluminium industry for Göring, as well as providing as

²⁷ Ibid.

²⁸ Ibid.: 326 f., 608, ref. 482.

much aluminium as possible for the *Luftwaffe* and to prevent VAW from getting its hands on Norwegian aluminium production. The relations between the Göring-Koppenberg-group and VAW became significant for the further development regarding the aluminium industry in Norway. The various actors had strong—but competing—interests in the Norwegian aluminium industry, and this competitiveness would prove essential for Norwegian actors. The rivalry between VAW and RLM inflected gravely on the upcoming plans for an expansion of Norwegian aluminium production.

Göring, Koppenberg and VAW were not the only actors that gazed eagerly at the Norwegian aluminium industry, so did IG Farben. The metal committee of IG Farben met on 16 April 1940 to discuss the war in Norway.²⁹ There is little doubt about the attitude of IG Farben: “Every manufacturing plant and mining asset owned by British or French citizens will be confiscated and the Norwegian industry will be mobilized to work for us [IG Farben].”³⁰ IG Farben was closely intertwined with the Nazi regime and manufactured a variety of products essential for German warfare. Several of the managers of IG Farben maintained important positions within the institution of the Four-Year Plan, e.g. Krauch, and thereby contributed heavily to the German rearmament and the war preparations. IG Farben had a clear concept of how economy and industry should function after the world war had been won, focusing most of all on the chemical industry: “After the war this continental large-scale-area will have to focus on organizing transactions with other large-scale-areas and on competing for market shares with manufacturers in other large-scale-areas. This will be an assignment that also means to assure and secure the world domination of the German chemical industry.”³¹

Göring’s request for more aluminium for the expansion of the *Luftwaffe* was granted on 8 May 1940, as Hitler decided that the complete stock of

²⁹ The trial against IG Farben: Protocol of 24 October 1947, p. 2739, in Riksarkivet Oslo (RA), L-sak 16099, box 1.

³⁰ Ibid.

³¹ Letter from IG Farben to the planning committee of RWM on 3 August 1940, in Dokumentationsstelle zur NS-Sozialpolitik Hamburg (ed.): *Office of Military Government of Germany, United States O.M.G.U.S. Ermittlungen gegen die I. G. Farbenindustrie, September 1945*. Nördlingen 1986: 376–380 (quote p. 377, trans. AHS).

aluminium in Norway, as well as the entire production capacity, were to be reserved for the *Luftwaffe*.³² All practicalities were left to Ernst Udet, *Generalluftzeugmeister* (Director-General for Equipment for the *Luftwaffe*) in RLM and Josef Terboven, the appointed *Reichskommissar* for the occupied areas in Norway. Two days later, Udet authorized Koppenberg to buy and transport the complete stock of aluminium in Norway to Germany and to decide on the further raw material supply and production of the Norwegian aluminium plants.³³ Udet's authorization of Koppenberg took place on the same date as Nazi Germany started the *Blitzkrieg* (Lightning war) on the Western front, and made aluminium as well as warplanes even more important. Koppenberg's plenipotentiary powers made him the most important actor for the German aluminium plans in Norway and his authorization marked the beginning of the largest economic project of the Nazi regime during the occupation of Norway (apart from the fortifications established for military and strategic reasons). Although Koppenberg held the power, he needed information on the Norwegian aluminium industry and technical expertise. His eagerness to keep VAW out of Norway opened up a window of opportunity for Norwegian companies.

Whereas NACO was contacted directly by Koppenberg, Norsk Hydro acted independently and contacted an old acquaintance that arrived in Norway in the summer 1940 as part of the occupational regime's staff of war economy (*Wehrwirtschaftsstab*), Johannes Fahrenhorst.³⁴ Norsk Hydro suggested the establishment of an alumina plant in Herøya based on the labradorite process. Fahrenhorst was familiar with Hydro's plans and had visited Norway in 1930 in capacity as an IG Farben manager.³⁵ Before the war, Hydro's aluminium efforts had been in vain as we know, but in the summer of 1940, the situation had changed. Now Hydro's plans were met with great interest and adopted into the German plan of *Leichtmetallausbau Norwegen*.

³² Letter from Göring to general von Hanneken 8 May 1940, in RA, L-sak 4226, box 1.

³³ Letter from Udet to Koppenberg 10 May 1940, in RA, L-sak 4226, box 1.

³⁴ Letter from Aubert and Kielland to Fahrenhorst, 1 July 1940, in RA, L-sak 16099, box 2.

³⁵ Fritz Petrick, *Der "Leichtmetallausbau Norwegen" 1940–1945* (Lang: Frankfurt am Main 1992), 89 f.

NACO submitted a draft to Koppenberg's staff for the expansion of Norwegian aluminium and the alumina industry on 9 October 1940.³⁶ According to this draft, the Norwegian capacity for aluminium production should be expanded to 60,000 tons per year and that of alumina to 118,000 tons. An alumina plant was to be erected in Herøya with a capacity of 20,000–25,000 tons, 5,000 tons more than Norsk Hydro had suggested.³⁷ Norsk Hydro aimed at long-term production and the contract duration was ten years.³⁸ In the following days, NACO's draft was discussed both in RLM as well as among the staff of GBChem Krauch in the Four-Year Plan.³⁹ These discussions led to further expansions of NACO's draft plans. While NACO had suggested an expansion of existing aluminium plants, the German representatives intended the establishment of new plants and power stations as well. According to a draft version of 16 October 1940 (presumably initiated by Krauch), by the two IG Farben managers Wilhelm Moschel and Wilhelm von der Bey from the manufacturing plant in Bitterfeld, the aluminium production in Norway should be extended to 135,000–140,000 tons annually and the alumina production to 240,000 tons, thereby more than doubling NACO's suggestions.⁴⁰ The drafting by Moschel and von der Bey illustrates IG Farben's impact on the work of the Four-Year Plan and the light metal plans. It also illustrates that Koppenberg and RLM did not act alone. Norsk Hydro's CEO Axel Aubert and five of the company's most influential engineers arrived in Berlin on 19 October.⁴¹ The engineers travelled on to IG Farben's plant in Bitterfeld to study the production of alumina, but Aubert stayed in Berlin to meet with Krauch. Aubert and

³⁶ Report by Kloumann and Mürer dated 9 October 1940, in RA, L-sak 4226, box 1. This final report was built on previous analysis for Koppenberg's staff: KP 100, FN 47–49 Reports by Mürer dated 23 May 1940 and 10 June 1940; Reports by Kloumann dated 20 August 1940 and 30 September 1940, in RA, L-sak 4226, box 1. On NACO's role, see also Hans Otto Frøland and Jan Thomas Kobberød: "The Norwegian Contribution to Göring's Megalomania. Norway's Aluminium Industry during World War II" *Cahiers d'histoire d'aluminium* no. 42–43 (2009), 137–153.

³⁷ Report by Kloumann and Mürer dated 9 October 1940, in RA, L-sak 4226, box 1.

³⁸ Memorandum by Bjarne Eriksen 25 November 1940, in RA, L-sak 16099, box 2.

³⁹ Letter by Koppenberg to Udet 11 October 1940, in RA, L-sak 4226, box 1.

⁴⁰ Petrick, *Leichtmetallausbau*, 90.

⁴¹ Testimony by Antonius Foss 19 September 1946, in RA, L-sak 16099, box 1; Testimony by Tormod Gjestland 25 September 1946, in RA, L-sak 16099, box 1.

Krauch were both members of IG Farben's supervisory board. According to Krauch, the two of them discussed both Koppenberg's plans for aluminium production in Norway and the possibility for the establishment of a joint plant magnesium production. Krauch encouraged Aubert to contact IG Farben directly to follow up the talks on magnesium.⁴²

The German representatives were optimistic about the projected increase in aluminium production in Norway.⁴³ Because of the hydropower, Norway was perfectly suited for aluminium production to cover German needs. Norwegian hydropower would supplement German stocks of coal, shorten the construction time and guarantee profitable operation of the plants. The need for technical equipment represented no difficulty: "The essential deadlines for devices and machines will be met by drawing upon relevant suppliers in Germany, the Protectorate Bohemia-Moravia, France, Belgium, the Netherlands, Sweden and Switzerland."⁴⁴ Companies in a number of occupied and neutral states were obviously designed with the role as suppliers for the light metal expansion in Norway. Norway was in the process of becoming part of the plan for the *Grossraumwirtschaft* in Europe. The plans to expand the Norwegian aluminium industry were essential for Germany if its aluminium production was not to be exceeded by the Allied output.⁴⁵ The light metal project in Norway peaked in summer 1941. Briefly after the German attack on the Soviet Union, Göring arranged a meeting with representatives of RLM, the *Reichsfinanzministerium* (the Ministry of Finance/RFM), RWM, the Four-Year Plan, VAW and IG Farben, as well as the *Reichskommissar* of Norway.⁴⁶ At the meeting, Göring presented his vision of quadrupling the *Luftwaffe* before the end of 1943. To achieve this goal, aluminium production had to be expanded to more than one

⁴²Testimony of Carl Krauch in the trial against IG Farben, in Protocol, 5167 f.

⁴³Report "Ausbau der Aluminium-Industrie Norwegen" by Mineralöl-Bau GmbH dated 6 November 1940, in RA, L-sak 16099, box 3.

⁴⁴Ibid.

⁴⁵Øyvind Ødegård, *Kampen om vannkraften. Tyske planer og norske reaksjoner 1940–45* (Unpublished MA-thesis, University of Oslo, 1992) 1992: 54; Mats Ingulstad, "'We Want Aluminum, Not Excuses.' Business-Government Relations in the American Aluminium Industry, 1917–1957" in Hans Otto Frøland and Mats Ingulstad (eds.) *From Warfare to Welfare. Business-Government Relations in the Aluminum Industry* (Oslo: Akademika, 2012), 56.

⁴⁶Protocol from the meeting 23 June 1941, BArch R2/5481.

Table 12.1 Leichtmetallausbau Norwegen, 1 July 1941^a

	Alumina tpa	Aluminium tpa
Existing capacity	18,000	36,800
Expansion of existing plants		3,100
"The immediate programme":		
Glomfjord		24,000
Eitrheim I		8,000
Herøya ^b	50,000	24,000
Tyin (Årdal)	50,000	24,000
Sauda	85,000	
The second phase:		
Eitrheim II		16,000
Sunnalsøra		60,000
Osa und Hardanger		48,000
In total	203,000	243,900

^aPlan dated 1 July 1941, in BArch-MA, RL 3/914

^bHerøya I and II, in addition 10,000 magnesium tpa

million tons annually and the production of magnesium to more than 100,000 tons. 60 % of the planned aluminium production was to be reserved for the *Luftwaffe*. Göring's vision resulted in renewed plans for the Norwegian aluminium industry (Table 12.1).

In addition, several new hydropower plants were to be erected to provide the necessary electricity for the light metal production. The so-called immediate programme was to be implemented until end of 1942, the second phase in mid-1944. Altogether, the light metal plan of 1 July 1941 represented a completely outsized expectation of how many plants could be expanded and erected at the same time, what production capacities could be achieved and how fast the plans could be accomplished.

When, in Berlin on 3 December 1940, Koppenberg established Nordische Aluminiumgesellschaft AG (Nordag)—the company that was to steer the light metal project in Norway—it was completely dominated by the RLM (and the *Luftwaffe*) and headed by Koppenberg himself.⁴⁷ In autumn 1940, IG Farben was unsatisfied with its role in the light metal expansion in Norway. Despite its channel for influence through Krauch's and Neukirch's positions in the Four-Year Plan, IG Farben didn't have considerable influence in Nordag. Furthermore, IG Farben had to accept

⁴⁷ Founding protocol Nordag AG 3 December 1940, in BArch R 2/5749.

that a new magnesium plant, scheduled to be built in Gersthofen, was cancelled.⁴⁸ IG Farben played a powerful role in the German rearmament, but in the case of Nordag, IG Farben could not assert itself against Koppenberg and RLM—for the time being. The Koppenberg project in Norway at first only involved production of aluminium and alumina. This presented a window of opportunity for Norsk Hydro and IG Farben to look into the possibilities of establishing a magnesium plant in Herøya.

In the early negotiations between Norsk Hydro and IG Farben, the two companies planned to share control over the magnesium plant equally. However, subsequently the division of shares was shifted to 51–49 in favour of IG Farben.⁴⁹ This change caused short-term concern among the representatives of Norsk Hydro, although it was a minor annoyance when weighed against the fulfilment of Norsk Hydro's plans for diversification.⁵⁰ Norsk Hydro's initial uneasiness was justified, however. In January 1941, as representatives of IG Farben were in Oslo for talks with Norsk Hydro, they secretly also met with Koppenberg at the same time.⁵¹ Koppenberg made IG Farben an offer the company could not or would not refuse. Koppenberg wanted the magnesium plant in Herøya to be part of the Nordag light metal plan; in return he offered IG Farben an influential position in the light metal programme.⁵² IG Farben's magnesium expert, Wilhelm Moschel, who had participated in the drafting of the light metal plan of 16 October 1940, was to hold a leading position in Nordag; in return the magnesium plant in Herøya was to be owned in equal parts by IG Farben, Norsk Hydro and the RLM.⁵³ For IG Farben, Koppenberg's proposal was a good offer, one that would strengthen the company's influence in light metal production as well as in Norway. For Koppenberg, this expanded the light metal project

⁴⁸Eberhart Neukirch, "Die Entwicklung des Leichtmetallausbaues im Vierjahresplan mit besonderer Berücksichtigung der Zeit des grossdeutschen Freiheitskampfes ab 1939", unpublished manuscript, dated 1943: 234 f., in BArch R3112/150–152.

⁴⁹Testimony of Mayer-Wegelin in the trial against IG Farben, in Protocol, 3092.

⁵⁰Anette H. Storeide, *Norske krigsprofitorer. Nazi-Tysklands velvillige medhjelpere*. Oslo 2014: 142.

⁵¹Anette H. Storeide, *Norske krigsprofitorer. Nazi-Tysklands velvillige medhjelpere* (Gyldendal, Oslo 2014), 142.

⁵²Protocol from the trial against IG Farben, 2740 f.

⁵³Petric, *Leichtmetallausbau*, 104–106.

into magnesium. Furthermore, with VAW on the side-lines, the involvement of IG Farben secured necessary expertise for the planned expansion. Koppenberg and IG Farben finding each other wasn't good news to the Norwegian partner in the light metal plans.

The light metal company Nordisk Lettmetall A/S was founded 2 May 1941 in Oslo.⁵⁴ According to the revised light metal plan, this plant was to produce magnesium, aluminium and alumina, and be established next to Norsk Hydro's fertilizer plant at Herøya. The shares in Nordisk Lettmetall were divided equally between Norsk Hydro, IG Farben and Nordag (on behalf of RLM). A partnership with the German state-owned Nordag and a reduced ownership in Nordisk Lettmetall did definitely not correspond with what Norsk Hydro wished for when the first negotiations with IG Farben on establishing magnesium production in Herøya started in autumn 1940.⁵⁵ However, the new plant was more than a magnesium plant, as it also produced alumina and aluminium. With Nordisk Lettmetall, Norsk Hydro's long-awaited strategy of diversification had finally succeeded. The involvement of Nordag and thereby of RLM was apparently of secondary importance, not least because Nordag's involvement was limited to the duration of the war, and the RLM would withdraw from the company when the war ended.⁵⁶ On 8 May 1941, Aubert wrote to the executive board: "As my colleagues on the board will know, I have for years tried to implement plans of new plants to manufacture other products than our current main-product nitrogen fertilizer. (...) Therefore I have no doubt that, as we now have got the opportunity to fulfil these plans in cooperation with I. G. Farbenindustrie and Nordische Aktiengesellschaft, this is a resolution that will greatly benefit our company."⁵⁷

⁵⁴ Protocols and agreements on the founding of Nordisk Lettmetall, 5 May 1940, in RA, L-sak 16099, box 2.

⁵⁵ Storeide, *Norske krigsprofitorer*, 147–148.

⁵⁶ Petrick, *Leichtmetallausbau*, 105.

⁵⁷ Letter by Aubert to the executive board 8 May 1941, in RA, L-sak 16099, box 3 (trans. AHS).

The Norwegian Business Elite and Investments in German War-Related Production

Norsk Hydro's investment in Nordisk Lettmetall was expensive and required an increase of the share capital by 50 million NOK.⁵⁸ According to the statutes of Norsk Hydro, the executive board could freely decide on the distribution of 43.05 % of the new shares.⁵⁹ The Norwegian and German representatives on the board decided, along with CEO Marcus Wallenberg, that this 43.05 % of the new shares should be offered exclusively to a German–Norwegian group.⁶⁰ In spring 1941, IG Farben and RLM attempted to get control of the majority shareholding of Norsk Hydro that was currently in French possession and represented by Paribas. Supported by the Dresdener Bank, IG Farben and Nordag were jointly buying shares in Norsk Hydro from French shareholders.⁶¹ Because of the upcoming increase of share capital and the establishment of Nordisk Lettmetall, Norsk Hydro negotiated with Paribas in March 1941 to get the support of the French shareholders.⁶² How much did the Norwegian representatives and CEO Wallenberg tell them? Was the extraordinary distribution of the new shares communicated to Paribas or not? After the war, French shareholders accused Norsk Hydro of betraying Paribas by not providing all the details of the new company and the share capital increase.⁶³ To prevent French shareholders from participating in the subscription of new shares in autumn 1941, the German representatives claimed transactions difficulties. Both IG

⁵⁸Testimonies of Bjarne Eriksen dated 20 November 1946 as well as 9 and 10 January 1947, in RA, L-sak 16099, box 1.

⁵⁹Ibid.

⁶⁰Ibid.

⁶¹Ibid. In addition, this was achieved through the confiscation of Jewish property in France. IG Farben and Nordag arranged joint purchases of shares to prevent imbalance in the shareholding of Nordisk Lettmetall because IG Farben owned parts of Norsk Hydro. See Petrick, *Leichtmetallausbau*, 108; Andersen, *Flaggskip*, 353.

⁶²Testimonies of Bjarne Eriksen, who participated in the negotiations, dated 9 and 10 January 1947, in RA, L-sak 16099, box 1; Letter from Kerstens to Wallenberg 21 March 1941, in SEB-archive Stockholm, Norsk Hydro, box 21; Memo by Wallenberg 13 March 1941, in RA, L-sak 16099, box 4.

⁶³Sverre A. Christensen, *Statens forhold til Norsk Hydro 1945–1952* (Unpublished MA-thesis, University of Oslo, 1997).

Farben and Nordag actively tried to buy the subscription rights from French shareholders.⁶⁴ Norsk Hydro knew of the discussions between the German and the French shareholders, but claimed that the question of French participation was an issue between two of its shareholder groups and refused to interact. However, as the participation of the Swiss company IG Chemie in the increase of share capital was about to fail due to the same transaction difficulties, Norsk Hydro chose to intervene by providing loans in Norwegian banks for IG Chemie.⁶⁵ Norsk Hydro thereby knowingly and intentionally contributed to eliminating French shareholders and putting the company under German control.⁶⁶ In 1947, Norwegian authorities reached an agreement with the French shareholders partially cancelling the emission, while at the same time offering compensations.

The well-known Norwegian ship-owner and investor Thomas Fearnley, a member of Norsk Hydro's executive board for several years, put together the group of Norwegian investors that participated in the increase of share capital in autumn 1941. The Fearnley family belonged to Norway's business elite, owned the shipping company Fearnley & Eger, and furthermore contributed to the industrialization of Norway by investing in mining, light metal, pulp and explosives industries. Fearnley had an extensive network of business partners that were linked by mutual economic interests, family relations, friendships and long-term cooperation, often spanning generations. The network enabled Fearnley and the other affiliates to engage in a large number of industrial activities and to spread their capital across several companies without losing control. This "associate capitalist" network⁶⁷ became handy when he established the Oslo Consortium—the group of investors that acquired shares in Norsk

⁶⁴ Petrick, *Leichtmetallausbau*, 108–109.

⁶⁵ Memorandum by Bjarne Eriksen 6 May 1941, in RA, L-sak 16099, box 3; Letter from Norsk Hydro to IG Chemie 31 May 1941, an attachment to the testimonies of Bjarne Eriksen dated 9 and 10 January 1947, in RA, L-sak 16099, box 1; Wiersholm's preliminary report, p. 24–25, in RA, L-sak 16099, box 1.

⁶⁶ Storeide, *Norske krigsprofitorer*, 183.

⁶⁷ Knut Sogner, *Plankeadel: Kjør- og Solberg-familien under den 2. industrielle revolusjon* (Oslo: Andresen og Butenschøn, 2001).

Hydro in 1941.⁶⁸ With the Oslo Consortium, the Norwegian social and economic elite participated in the largest industrial project launched by the Nazi regime during the occupation of Norway. According to the diary of Thomas Fearnley, the members of the consortium viewed their participation as a “national obligation”, in order to increase Norwegian ownership in the “flagship” Norsk Hydro.⁶⁹ This had been a long-standing goal and now a window of opportunity had finally opened. In his diary he failed to mention that their investment financed Norsk Hydro’s participation in German war-related production, contributed to eliminating French shareholders and enabled a German takeover of the company.

“An Investment for Peace”

Following the establishment of Nordisk Lettmetall, Hydro, IG Farben and Nordag had to work out a comprehensive plan defining roles and responsibilities for their common endeavour. With Nordag in a somewhat withdrawn position, the two private companies were leading the way. Up front was IG Farben, taking responsibility for the construction of both the magnesium and the aluminium factories with interrelated infrastructures and supporting functions. Hydro’s contribution was nevertheless significant, as the company was to build the alumina factory designed to match the specifications of the new labradorite process. The Norwegian company also was to build the facilities needed for mining and refining labradorite at the deposit in western Norway. Hydro was

⁶⁸ The Oslo Consortium included the shipping companies Fearnley & Eger, Fred Olsen & Co, A. F. Klaveness and Klaveness Dampskibs A/S, the mining company Orkla Grube, the explosive industry Norsk Sprængstofindustri, the banker Johan H. Andresen, the landowner and forestry owner Fritz M. Treschow, the lawyer Jens P. Heyerdahl (lawyer for both Orkla and IG Farben in Norway), as well as Bjarne Eriksen and Christopher Kahrs Kielland, both managers in Norsk Hydro. The mining company Orkla was the largest participant of the consortium with almost 52 % of their shares. This was due to Orkla’s investment on behalf of the Wallenberg family, a secret transaction due to the agreement with the German representatives on the board that the 43.05 % was to be split between German and Norwegian investors only. Marcus Wallenberg and Thomas Fearnley were close friends and their families were connected through friendships and business for more than a century. In addition, they both knew each other from the executive board of Orkla; Wallenberg was the CEO, Fearnley his deputy. See Storeide, *Norske krigsprofitorer*, 191 f.; Trond Bergh, Harald Espeli and Knut Sogner, *Brytningstider. Storselskapet Orkla 1654–2004*. (Oslo: Orion Forlag, 2004).

⁶⁹ Diary of Thomas Fearnley quoted as part of his statement, 5 June 1946, in RA, L-sak 16099, box 1.

further responsible for everything in connection with power supply; erecting a new power plant at Mår close to Hydro's existing facilities at Rjukan and transmitting the power down to Herøya.⁷⁰

The German companies were to compensate Hydro for making available land and harbour facilities at Herøya. Contracts regulating deliveries of intermediate goods and services from Hydro to Nordisk Lettmetall were signed. Most importantly, Hydro was to provide Nordisk Lettmetall with nitrogen acid—vital not only in fertilizer production, but an ingredient in the new labradorite process as well. Nordisk Lettmetall generously paid three quarters of a million Norwegian kroner for licensing this still unfinished process. On its side, Hydro was prepared to put large sums into the light metal project. Eventually 77 million NOK was invested directly in Nordisk Lettmetall.

The interconnection between Hydro's and Nordisk Lettmetall's production processes was of course a strong argument for locating the new factories at Herøya. No doubt aware of the risk in starting up war-related production on the peninsula, the Hydro management never protested at this choice of location. The decision was welcomed, it seems. In addition to the 77 million NOK of direct investments, Hydro without hesitation put another 30 million on the table to secure the full integration of the new factories into the existing facilities at Herøya.⁷¹ This was done to ensure the realization of Hydro's long-term strategy. Inclusion of Nordisk Lettmetall not only opened up for production of magnesium and aluminium, it laid the foundations for turning Herøya into a large-scale chemical complex with a highly diversified production. Aubert was still aiming at the inclusion of methanol, and even synthetic fuel, at Herøya. There were discussions also of moving into plastics and other synthetic substances on the basis of the chlorine factory starting up as part of the magnesium production line.⁷² Hydro's willingness to carry the cost for developing new industrial infrastructures at Herøya strongly indicates that it was not fear or German force motivating the company. Hydro was seizing opportunities!

⁷⁰ "Styrets redegjørelse av. 1. april 1946"; Kjell Meinich-Olsen "PM vedr. Avviklingen av våre engagementer i Lettmetall", 27 June 1945, HA, 09.42.a1.2; Andersen, *Flaggskip*, 378–379.

⁷¹ Ibid.

⁷² Andersen, *Flaggskip*, 379.

Not everyone inside the company welcomed this course. Especially the preparations for sending engineers and foremen to IG Farbens factories in Bitterfeld to learn the new light metal processes elicited protests. Unable to justify the intimate collaboration with German interests, the local director at Herøya called upon Aubert to spell out the right perspective. On a visit to Herøya in the summer of 1941, Aubert explained the necessity of the partnership with the Germans. According to one of the persons present, the general director mobilized all his authority when explaining that the arrangement had to be understood in a long-term perspective. The light metal factories opened up a bright future for Hydro, and the war would be over long before the factories could start production. Aubert made it clear that anyone challenging this way of thinking “had no place in Hydro.” On another occasion his rhetoric soared to new heights when Aubert referred to the factories as “investments for peace”.⁷³

At the moment Hydro’s participation in Nordisk Lettmetall was secured, Aubert retired as general director, leaving the tiller to crown prince Bjarne Eriksen. Aubert stepped down, but he did not go far. Well into his 68th year he remained a member of the Hydro board, and kept his position as chairman of Nordisk Lettmetall’s *Aufsichtsrat* (Supervisory board). As a lawyer and the first non-engineer in the top management, Eriksen’s main qualification was his central role in all previous dealings with IG Farben, his ability to handle negotiations like “a cunning fox”.⁷⁴ Whereas Aubert was to enter history as the daring strategist, his successor’s place in history was that of the implementer. In 1941, Bjarne Eriksen was faced with the task of his life, implementing Hydro’s participation in the German light metal programme.

⁷³ Statements by Fredrik Sejersted, Chr. W. Graben and Nicolai Rygg, in connection with the post-war investigation of Hydro, L-sak 16099, RA; Andersen *Flaggskip*, 381.

⁷⁴ This characteristic was used by the lawyer Fredrik Sejersted, according to his son Francis Sejersted.

Allocating the Resources

Besides holding the highest position in Hydro, Eriksen was a highly paid member of the Nordisk Lettmetall *Vorstand* (Managing board), giving him the perfect opportunity to balance the interests of the two companies. One might perhaps have expected that Eriksen, as a Norwegian, would have used his position to delay the progress of the light metal project as much as possible. The opposite seems to have been the case. Right from the start, Eriksen worked hard to make decisions concerning Nordisk Lettmetall efficient and robust. The clever lawyer spent much energy legalizing the utilization of the Mår waterfall for the light metal project. Hydro had in fact been trying for years to buy the water rights at Mår, but it was owned by the Norwegian state and earmarked for general power supply. After the establishment of Nordisk Lettmetall, Hydro saw a new opportunity to acquire the attractive waterfall. One problem, however, was that the development of the waterfall by the German–Norwegian group ran afoul of the Norwegian concession laws. After the war, Eriksen claimed his effort in trying to satisfy the conditions of the law was motivated by his wish to secure national interests and by his instinct to act in accordance with Norwegian law in general. He failed to mention, however, that being in conflict with the law was not a very good thing for the German–Norwegian group. It threatened progress and reduced the chances of attracting private investors to the project. In the long-term perspective, legal binding of Mår to the enterprise at Herøya was of great importance to Hydro. It could be hard to substantiate a claim on Mår after the war if it turned out that the company had broken the concession laws during the war.⁷⁵ Indeed it's hard to see how striving to legalize the use of Mår for German war-related production was in tune with national interest.

Another matter preoccupying Eriksen was to secure resources for the light metal project. In a correspondence with German colleagues in August 1941 he expressed worries over lack of workers. Without more workers, delays would be unavoidable. Eriksen's worries were passed on to the appropriate authorities in Berlin, among them Carl Krauch. Representing the Four-Year Plan under Göring and IG Farben, Krauch

⁷⁵ Andersen, *Flaggskip*, 391.

had every interest in contributing to a light metal success in Norway; especially for the project on Herøya, where his own company played the key role. In the autumn of 1941, Krauch was instrumental in earmarking workers for the Norwegian light metal programme. To make Norwegian workers employed on German military construction projects available for Hydro, Soviet prisoners of war would be transferred to the *Wehrmacht* in Norway. Similar initiatives in 1942 also helped secure workers for the programme.⁷⁶ In addition to the 12,000 Norwegian workers already employed by the end of 1942, several thousand forced labourers and prisoners of war from Europe, including more than 1,100 Frenchmen and 2,200 Soviet civilians, ended up working on the light metal programme in Norway. More than 1,000 of them worked directly for Nordisk Lettmetall at Herøya and Mår.⁷⁷

The Norwegian managers had no direct part in the recruitment of forced labourers. They preferred that all questions relating to “non-Norwegian workers” were handed over to German colleagues.⁷⁸ By stressing the need for more workers in a situation with a grave, general shortage of workers, Hydro indirectly may have contributed to the escalating importation of forced labourers from 1942 onwards. No protests over the recruitment of this kind of labour were heard from the Hydro management. And the company willingly paid its part of costs for police and SS guards needed to employ forced labourers at Herøya and Mår.⁷⁹

Securing resources for Herøya probably became easier after Nordisk Lettmetall was put on top of the list of prioritized German war-related projects in the spring of 1942. But especially skilled workers continued to be scarce. In the summer of 1943, Hydro once again faced alarming labour shortages. With the completion of the light metal factories approaching, the slow progress at Mår was creating great concern. If left

⁷⁶ Andersen 2005: 4001; Bohn 2000: 377; Petrick *Leichtmetallausbau*, 138–140.

⁷⁷ Andersen, *Flaggskip*, 401–403. Gunnar Hatlehol suggests that over 1000 forced laborers were employed by IG Farben at Herøya in 1943. Gunnar Hatlehol, “*Norwegeneinsatz*” 1940–45. *Organisation Todt og gradene av tvang*. (unpublished PhD manuscript, Norwegian university of Science and Technology, 2015). 135, 295, 347.

⁷⁸ “Aktenvermerk” 9 September 1942, Moschel and Choinowski, IV/9, nr. 29, L-sak 16099, RA; Andersen, *Flaggskip*, 402.

⁷⁹ Andersen, *Flaggskip*, 403–404.

unfinished, power could not be transmitted to Herøya by the date scheduled for production start in the autumn. To Hydro this might prove dramatic, as the company had guaranteed the supply of power for the light metal factories. If Mår could not handle the supply, then Hydro had to find power elsewhere. In practice, this meant cutting back on fertilizer production. To meet the crisis, Hydro management appealed both to Norwegian and German authorities to secure more workers. In desperation, Hydro ended up addressing *Reichskommissar* Josef Terboven himself.⁸⁰ However, before Terboven could respond, the need for workers had changed dramatically. On the 24 July 1943 the Herøya peninsula became the venue of a massive Allied airstrike.

The Return of an Old Warrior

The attack on Herøya was a turning point in the collaborative approach chosen by Hydro at the beginning of the occupation, especially for Bjarne Eriksen. As well as taking part in the light metal project, Hydro was collaborating in other areas as well, not least through deliveries of heavy water to a top secret research project in Berlin. Allied sabotage of the heavy water plant at Vemork in February 1943 did not alter Hydro's collaborative attitude at first. But after the bombing of Herøya in July, Eriksen put his foot down. He declared himself unwilling to comply with German demands for increases in heavy water production, and did not seem too happy about participating in the light metal project either.

While Eriksen was arrested in August and eventually sent into custody in Germany, armament minister Albert Speer decided not to rebuild the bombed light metal factories.⁸¹ In Speer's view the factories could not be finished in time to serve the German war effort. The decision upset the management of IG Farben and Nordag who joined forces in an attempt to change the minister's mind. One would expect that any Norwegian citizen would appreciate not having to rebuild a war-related factory

⁸⁰ Andersen, *Flaggskip*, 421.

⁸¹ Neukirch, "Leichtmetallausbaues", 245; Milward, *Fascist Economy* 203; Petrick, *Leichtmetallausbau*, 174.

bombed by the Allies. With Axel Aubert this was not the case. Aubert reappeared as Hydro's general director after Eriksen's arrest, and immediately joined his German colleagues in their plea for the rebuilding of the light metal factories. Aubert's attitude may not be so hard to understand; he just would not give up his quest for diversification. He still believed the light metal factories to be an investment for peace. Along with the *Aufsichtsrat* of Nordisk Lettmetall, Aubert attempted to reverse Speer's decision, but failed.⁸²

Most historians judge the German light metal programme to be a failure.⁸³ Hans Claussen Korff from the *Reichskommissariat* called it "an outstanding miscalculation" and "one of the largest misinvestments by Germany during the war".⁸⁴ And they are right. The programme is a case study of unsound investment on a massive scale. After the tide of war turned against Germany, there were plainly not enough resources to go through with such a large-scale project. Not realizing this, the main strategists of the light metal programme, Koppenberg and Göring, drew up plans for a disaster. Instead of contributing to the war effort, the light metal programme drained it of resources. The aluminium production in Norway did not increase during the war, it shrank.

The disaster was first and foremost put on parade in the case of Nordag, the company initially controlled by Koppenberg and Göring. Right from the start, Nordag was haunted by bad planning, setbacks and corruption. The construction process was heavily delayed, and by summer 1943 none of the scheduled plants had been completed. By comparison, Nordisk Lettmetall, where the two private companies led the way, was doing far better. Nordisk Lettmetall may in fact be described as the relative success of the light metal programme. The Herøya endeavour was well planned and well conducted. When the bombs fell over the peninsula, the light

⁸² Memorandum by Kjell Meinich-Olsen 30 August 1943, in RA, L-sak 16099, box 3; Testimony of Haavard Martinsen 5 November 1946, in RA, L-sak 16099, box 1. See also letter by Albert Speer to Paul Häfliger 10 August 1943, in RA, RAFA-2188 Tyske arkiver, Organisation Todt, Einsatzgruppe Wiking, archive E, box 19.

⁸³ Milward *Fascist Economy*, 208; Hayes *Industry and Ideology*, 296–297; Bohn *Reichskommissariat*, 384; Ødegaard, *Kampen om vannkraften*.

⁸⁴ Excerpt of the report by Hans Clausen Korff p. 31, in RA, L-sak 16099, box 1 (trans. AHS).

metal factories were almost ready for production, after a remarkably short construction period.

No Success Like a Failure?

IG Farben was prosecuted in Nürnberg and several top managers, including Carl Krauch, had to serve long prison sentences. Abuse of forced labourers and economic exploitation accounted for the most serious accusations. Krauch could not accept that his company's dealings with Hydro at Herøya had anything to do with economic exploitation, however. As he stated in court, resources put into the project had been transferred from Germany to Norway, not the other way around.⁸⁵ To a large degree Krauch was right. Nordisk Lettmetall was very much the result of capital and competence brought in by the German actors. This fact didn't help Krauch and his company much in court though. The verdict against IG Farben was based on the premise that the company, in connection with the establishment of Nordisk Lettmetall, exerted pressure on both Hydro and the French shareholders and thereby carried co-responsibility for the damage inflicted upon Hydro by the Allied bombing.⁸⁶ The verdict does not take into consideration any voluntary actions or participation on Norsk Hydro's behalf and may thereby be read as an acquittal of Norsk Hydro.

Whereas IG Farben rightfully was held responsible for serious crimes during the war, Hydro got away with a few scratches. In Norway, investigations for national treason were ushered through, starting in the autumn of 1945. The investigators could find no traces of threatening German behavior and concluded that Hydro's engagement in Nordisk Lettmetall had to count as "assistance to the enemy". Aubert's proactive role was noticed and partly confirmed in interviews by the upper management of Hydro. Aubert had passed away in 1943 and could not speak for himself.⁸⁷ For sure, Aubert carried a large responsibility for taking Hydro

⁸⁵ Andersen, *Flaggskip*, 433.

⁸⁶ US Military Tribunal: *The IG Farben Trial 14th August 1947-29th July 1948*, pp. 20–21 (http://www.worldcourts.com/ildc/eng/decisions/1948.07.29_United_States_v_Krauch.pdf, retrieved on 5 October 2015.) See also Storeide, *Norske Krigsprofitorer*, 333–343.

⁸⁷ Kaare Haavik, Innstilling, 6 June 1950, Riksarkivet, (RA), L-Sak 16099.

into close collaboration with the Germans. But blaming him for everything that happened through the war years was a little too convenient, especially when the name of the general director since 1941 was Bjarne Eriksen.

The engagement in Nordisk Lettmetall represented both new and intended war-related production activity, and there is little doubt that Hydro acted independently and voluntarily. Due to the fact that Hydro, through Nordisk Lettmetall, had entered a business area outside its regular trade—a top priority armament project even—one might expect that Hydro would have a bad case. But in the end Hydro fared well. No indictment was ever raised and in 1950 the case was closed. A likely reason for this outcome was politics. Hydro was the largest and most important company in the Norwegian economy and was designated for an important role in the reconstruction of the national production system. Through its export sales the company also generated vital earnings in foreign currency. To see Hydro discredited in a treason trial was not on the government's wish list when trying to mobilize private capital for economic revival. Furthermore, due to the confiscation of German shares, Hydro was now partly owned by the Norwegian state and had already, since summer 1945, acted as an entrepreneur on behalf of Norwegian authorities in projects linked to the remains of the German light metal plans.⁸⁸

In 1948, the National Bank of Norway was working to release two million dollars deposited in American banks by Hydro during the war. To release the money, the Americans demanded an official declaration stating that the company was not under suspicion of collaboration with the Germans. A declaration vouching for Hydro was eventually signed by the Norwegian Minister of Justice, opening up for the transfer of money to Norway. The declaration was not entirely truthful, however. Along with its general director, Hydro at this stage was being investigated for treason. Coming close to a political exoneration, the declaration may be part of the explanation of why Hydro was left unstained.⁸⁹

⁸⁸ Andersen, *Flaggskip*, 338–442.

⁸⁹ Andersen, *Flaggskip*, 441.

In the 1950s and 1960s, the quest for diversification was at last successful. Norsk Hydro entered both the field of magnesium and aluminium. Aluminium production was developed together with British and American interests, the new magnesium facilities were built on the ruins of the Nordisk Lettmetall factories at Herøya. For the German actors, the investments in Norway in 1940–45 were an expensive failure, for Norsk Hydro it marked the starting point for a career as world-leading producer of light metal.

13

Facing Disincentives? Norwegian Aluminium Companies Working for the German Aircraft Industry

Hans Otto Frøland

Introduction

On 22 October 1940, Heinrich Koppenberg, whom *Reichskommissar* Terboven the previous month had appointed as German Trustee of enemy property in Norway's aluminium industry, met the leading representatives of the companies. The ten people making up the Norwegian group consisted of managers and board members, of which the latter were lawyers representing foreign owners. The purpose was to reach an agreement on how the Trustee would exercise his authorities. Should he appoint German trustees and staff for each individual company? A formal agreement was not necessary. The parties soon reached an understanding to avoid institutional changes. The companies would operate as before and without direct German interference, but would be subjugated to a common commercial arrangement set up by the Trustee. Koppenberg's agency, *Norsk Aluminium-Kontor*, would sell raw materials to the companies, whereas the companies would sell their aluminium produce to the agency. The agency would set sales prices but profits

would remain with the companies.¹ As the companies' operations were already regulated by individual contracts with the two German companies Junkers Flugzeug und Motorenwerke (JFM), an aircraft producer, and Dürener Metallwerke (DM), a light metal manufacturer famous for its duralumin patent, the new overall agreement would be implemented as the existing contracts expired on 31 December 1940.

Whereas the failed German plans to build a new large aluminium industry in Norway have been well researched, scholars have neglected the fate of the existing industry. In April 1940, it consisted of five companies, which altogether comprised six smelter plants, one alumina refinery and one manufacturing plant. As they were predominantly subsidiaries of foreign aluminium companies, the occupier treated them as *Feindvermögen* (enemy property). Although their Norwegian managements remained intact, the companies were under permanent surveillance of the Trustee, who set up institutional arrangements in Norway and Europe to supply them with raw materials and intermediate goods from abroad, as well as to facilitate their exports to the German aircraft industry.

Judging from aggregate figures in Table 13.1, the integration of the industry into the German war economy was not a failure, although it certainly did not meet expectations. First, already from 1940 the bulk of output went to Germany. Second, production in 1940 was 29,106 tons, and output thereby exceeded pre-war levels, although the smelters

Table 13.1 Production of primary aluminium and export to Germany, 1938–44

	1938	1939	1940	1941	1942	1943	1944
Aggregate output (tons)	28,579	24,084	29,106	16,506	17,679	21,249	17,500
Exploited capacity (%) ^a	79	67	81	46	49/65	78	65
Export to Germany (tons)	3,386	1,360	18,185	14,267	15,911	17,212	15,335
Export share (%)	12	6	62	86	90	81	88

Source: Statistisk Sentralbyrå: *Statistisk-økonomisk oversikt over krigsårene*, (Oslo: H. Aschehaug & Co., 1945), 95

^aBased on 36,000 tons until August 1942 and 27,000 tons from September 1942

¹Aktenvermerk betr. Versammlung der Direktoren und Aufsichtsräte der Norwegischen Aluminium-Industrie in Oslo am 22.10.1940, 26.11.1940, Riksarkivet Oslo (RA), RAFA-2191, G, box 1, file 1.

were off stream for about a month after the 9 April invasion. The smelters actually operated at a higher level of capacity utilization than before the war, at 81 %. Yet annual production subsequently fell, and lingered between 16,506 tons and 21,249 tons from 1941 to 1944. As compared to the aggregate pre-war capacity of 36,000 tons per year, the industry was operating at below 50 % capacity until August 1942. That month, British troops sabotaged the power supply of a smelter operating an annual capacity of 9,000 tons, Haugvik Smelteverk. It remained largely off stream for the rest of the war.² Consequently, from September 1942, between 65 and 78 % of capacity was exploited.

Whereas one strand of scholarship has emphasized the Norwegian aluminium industry's profound dependence on foreign supplies, and judged its allegedly poor performance in the light of supply shortages,³ another has invoked silent resistance towards the enemy to explain the poor performance. For instance, a commissioned history of Det Norske Nitridaktieselskab, the largest among the five companies, maintains that the management kept wheels going to avoid unemployment among its employees, but still deliberately dragged its feet to keep production as low as possible.⁴ The purpose of this contribution is to scrutinize the impact of the new institutional arrangement set up by the Trustee. To what extent did it fit the industry's systemic import dependence, and how did the new incentive structure operate for the companies? I argue that the arrangement settled in 1940 with the Norwegian companies established an incentive-based regime of business collaboration, which offered stable foreign supplies at a profitable price ratio between input and output. However, the regime changed in 1941 because the Trustee made the price ratio between input and output less generous. Therefore, the contribution suggests that from 1941 the companies' sluggish performance followed not so much from business resistance as from structural bottlenecks and German price policy.

²Limited production resumed between April and October 1943.

³Alan S. Milward, *The Fascist Economy in Norway*, (Oxford: Clarendon Press, 1972), in particular 171–208; Robert Bohn, *Reichskommissariat Norwegen*. “Nationalsozialistische Neuordnung” und *Kriegswirtschaft*, (Munich: Oldenburg Verlag, 2000), in particular 383–452.

⁴Egil Kollenborg, *Det norske Nitridaktieselskap, 1912–1962* (Oslo, DNN, 1962), 79.

The Aluminium Industry

In autumn 1940, Koppenberg estimated the cost of aluminium production in Norway to be only two-thirds of the German cost.⁵ Cheap hydro-electric power located at fjords providing accessible transportation had made the majors of the global industry invest in the country since 1906. The British Aluminium Company (Baco) owned two small companies: Stangfjorden Elektrokemiske Fabrikker (Stangfjorden) and Vigelands Brug (Vigeland). The Compagnie des produits chimiques et électrométallurgiques d'Alais, Froges et Camargue (Pechiney) had owned Det Norske Nitridaktieselskap (DNN), which operated two smelters, at Eydehavn and at Tyssedal. Pechiney in 1923 sold two-thirds of its stakes in DNN, of which one to Baco and one to Aluminum Company of America (Alcoa), on the basis that it would retain the management of the company for itself. Since 1923, Alcoa had a 50 % stake in Norsk Aluminium Company (NACO), which in 1928 was transferred to Aluminium Canada Limited (Alcan). In 1927, the International Aluminium Company (IAC) established Haugvik Smelteverk (Haugvik), the last aluminium company to be established before World War II. Table 13.2 shows the upstream capacity of the various Norwegian companies in 1940, with total smelting capacity at 36,000 tons per year and alumina refining at 15,000 tons per year. Vigeland, DNN and NACO also produced their own anodes.

As Germany invaded Norway, the top management of all companies except NACO and Haugvik soon fled the country, leaving management to more junior Norwegian staff. If the German invading forces

Table 13.2 Production capacity of aluminium and alumina in 1940 (tons)

	Stangfjorden Elektrokemiske	Vigelands Brug	DNN Eydehavn	DNN Tyssedal	NACO	Haugvik Smelteverk
Aluminium	700	3,500	5,500	9,500	7,800	9,000
Alumina					15,000	

Source: S. Kloumann & J. Mührer: Kort oversikt over den nuværende produksjon av aluminium og aluminiumoksyd i Norge, 09.10.1940, RA, L-sak 4226, box 1, file 1

⁵ Note Koppenberg to Udet, 11.10.1940, RA, L-sak 4226, box 1, file 1.

wanted to take interest in Norwegian aluminium, they would under any circumstance approach NACO's management. To understand why, we must briefly look back on NACO's history.

NACO was established as a fully Norwegian company in 1915. The ambition was to develop a vertically integrated concern controlling the whole chain of production, ranging from extraction of bauxite ore to sales of manufactured goods. It controlled an aluminium smelter and an aluminum refinery at Høyanger. As Norway lacked bauxite, the refinery would receive supplies from NACO's fully owned subsidiary in southern France, Société anonyme de bauxite et alumines de Provence. NACO also owned a manufacturing plant located at Holmestrand, for which part of NACO's aluminium was produced. This manufactured mainly pots and crockery, and had an annual rolling capacity of 3,000 tons in 1940. However, NACO's pursuit of independence soon failed. Partly because it failed to bring its French company into operation, the owners in 1923 invited Alcoa to take a 50 % stake in the company. Alcoa/Alcan would supply NACO with bauxite, as the other Norwegian companies received their supplies of alumina from their parent companies. Yet NACO maintained a dominant position in the industry throughout the inter-war period. Whereas the foreign parent companies provided top management and technical engineering for all other companies, NACO retained the Norwegians in such leading positions. While most other companies simply exported aluminium to their foreign parent companies on a barter basis for alumina, NACO supplied its own subsidiaries and traded its surplus in Scandinavia. As from 1933 the majors allowed NACO to run a monopoly in the Scandinavian market. NACO set up a Swedish smelter in 1934, supplied by the alumina plant in Høyanger, and a manufacturer in Denmark, supplied by its smelter in Høyanger. NACO was the national champion as Germany invaded Norway, and the only company running its own purchase and sales division. This was a result of Sigurd Kloumann's work. Kloumann was an engineer who worked unstoppably to exploit Norwegian hydroelectric power for the expanding electrometallurgical industry, but was also advocating Norwegian power export to Germany.⁶ As NACO's founder and director, he maintained

⁶Lars Thue, Den politiske kraften. Fredrik Vogt og historien om norsk krafteksport, in Knut Endresen (ed.), *Fredrik Vogt og norsk vannkraftutbygging*, (Oslo: Universitetsforlaget, 1992), 123–181.

close liaison with Alcan, which convinced the international cartel about NACO's benign policy.⁷

Through Kloumann, NACO exerted strong influence on the operations of Haugvik. Kloumann was instrumental when in 1932 the international aluminium cartel, through their Swiss based company Alliance Aluminium Compagnie (AAC), purchased IAC. Kloumann was appointed deputy chairman of the board of Haugvik.⁸ Close liaison existed between the managements of the two companies, and in the winter of 1940 NACO leased some of Haugvik's smelting capacity. German records after the invasion maintain that NACO controlled the operations of Haugvik.

Although autarky policy had made Germany the world's largest aluminium producer by 1938, the Nazi's war plans forced them to sustain imports. Germany took much of Haugvik's output. Haugvik also received much alumina from German Gebrüder Giulini. Through their stakes in the AAC the 'German group', consisting of state-owned Vereinigte Aluminium Werke (VAW) and Aluminiumwerk Bitterfeld, the latter owned by IG Farben and Metallgesellschaft, controlled 20 % of Haugvik. Swiss AIAG, which cooperated closely with German industry, controlled 16 %.⁹ Consequently, as experts from industry were brought into the planning apparatus, as well as the corporatist consensus mechanisms of the Nazi government, we must assume profound German knowledge about NACO and Haugvik as the *Wehrmacht* invaded Norway in pursuit of aluminium.

However, lured by the cheap energy the invader would not escape the structural constraint of the industry's profound import dependence. In addition to alumina, smelters would need cryolite and electrode materials for the electrolytic process. In addition to bauxite, the alumina refinery would need coal for the dehydration of bauxite. To produce one unit of

⁷ Espen Storli, Out of Norway falls Aluminium. The Norwegian Aluminium Industry in the International Economy, 1908–1940, unpublished Phd thesis, Norwegian University of Science and Technology, 2010, 150–236.

⁸ Storli, Out of Norway, 273–312.

⁹ Letter from Lous and Johanssen to Miehle, 20.2.1941, RA, PA 0892, D, L0275. On AIAG's relation with Nazi policy, cf. Cornelia Rauh, *Schweizer Aluminium für Hitlers Krieg? Zur Geschichte der "Alusuisse" 1918–1959*, (München: C.H. Beck, 2009), 130–251.

aluminium by electrolysis would take almost two units of alumina, and to produce the two units of alumina would take almost four units of bauxite. From the formula 4:2:1 follows that imports of bauxite would demand twice as much transport capacity than imports of alumina. Consequently, to lower transportation costs it was always rational for the parent companies to base their subsidiaries' aluminium smelting on imported alumina. Pechiney imported alumina from France, whereas Baco and Alcan imported from South America. Haugvik bought alumina from Germany and the UK. NACO was self-supplied of alumina but took its bauxite mainly from Greece.

1940: Incentive-Based Collaboration

The German *Generalluftzeugmeister*, a rank established in the Nazi Ministry of Aviation to secure resources for aircraft production for the *Luftwaffe*, had assigned Heinrich Koppenberg, the Director of JFM and a major player during the expansion of the *Luftwaffe* in the 1930s, to collect aluminium stocks in Czechoslovakia.¹⁰ The assignment was extended to cover Norway as it was attacked. On 10 May 1940, the *Generalluftzeugmeister* authorized Koppenberg not only to procure existing stocks but also to organize new production.¹¹ The same day, Koppenberg's deputy Werner Miehle arrived in Oslo to set up a permanent staff, referred to as *Büro Miehle*. Recruited from DM, which had cooperated intimately with JFM for years, Miehle would run the daily operations of Koppenberg's authorities. These were formally strengthened, yet not extended in any way, as *Reichskommissar* Joseph Terboven on 7 October 1940 authorized Koppenberg as Trustee for enemy properties of the aluminium industry.

Koppenberg had arrived in Norway on 14 April, five days after the invading *Wehrmacht* troops. On 19 April, he organized a meeting with representatives from the Norwegian aluminium companies in Oslo.

¹⁰ Lutz Budraß, *Flugzeugindustrie und Luftrüstung in Deutschland 1918–1945* (Düsseldorf: Droste Verlag, 1998), 607.

¹¹ Letter Udet to Koppenberg, 10.05.1940, RA, L-sak 4226, box 1, file 1.

This would serve the purpose of identifying existing stocks, which DM and JFM would purchase from each company. Koppenberg also called for the companies to take up new production. Well aware that foreign supplies of alumina and bauxite had stopped, he would provide for alumina supplies. Unsurprisingly, the technical manager of NACO, Johan Mührer, was the Norwegian speaker.¹² He immediately invited DM into cooperation with NACO's manufacturer Nordisk Aluminiumindustri. The first sales agreement, of 30 April, consisted of 310 tons of metal from Nordisk.¹³ Well aware of Koppenberg's intention to secure aluminium for German warfare, NACO's major motive to cooperate proactively was to maintain its position in Scandinavia and to secure sufficient supplies to keep all NACO's plants on stream.¹⁴ As the Administrative Council—the self-appointed civilian Norwegian authority to deal with the occupier after King, Cabinet and leading MPs had fled Oslo—pursued a policy of collaboration in order to avoid economic and social disorder, Mührer's initiative conformed to the Council's policy.

When on 11 June, a few days after the German campaign ended, representatives from the German *Wehrwirtschaftsstab* eventually visited Haugvik to identify stocks, Koppenberg had further visited Norway twice to close agreements with the companies. Supported by Eberhard Neukirch, an IG Farben magnesium expert responsible for light metals under the Four-Year Plan, between 16 and 21 May, Koppenberg identified existing aluminium stocks in southern Norway in close cooperation with NACO's management. Already by the end of May, *Büro Miehle* had purchased close to 4,500 tons for DM and JMF.¹⁵ Including the metal from Haugvik, its purchases of existing stocks added up to slightly more than 5,000 tons. Records provide no evidence of resistance among the

¹²Erling Foss: P.M. vedr. Konferanse med tyske forhandlere angående metallsalg til Tyskland, 01.05.1940, RA, RAFA-2191, G, box 8, file 3.

¹³Johan Mührer: Forhandlingler angående Norges aluminiumbehov og salg av overskytende kvanta, 18.05.1940, RA, RAFA-2191, G, box 8, file 3.

¹⁴Hans Otto Frøland, *Nazi Planning and the Aluminum Industry*, in Fernando Guirao et al. (eds.), *Alan S. Milward and a Century of European Change*, (New York: Routledge, 2012), 168–188, in particular 178–181.

¹⁵Johan Mührer: Vedr. Produksjon av aluminium ved de norske bedrifter innenfor det besatte område, samt de salg som er foretatt til de tyske myndigheter, 28.05.1940, RA, RAFA-2191, G, box 8, file 3.

companies. On the contrary, it seems that they eagerly sought advantage of the situation and tried to negotiate a good price. In May 1940, still independent of Koppenberg's efforts, Haugvik received NOK 1817 per ton.¹⁶ NACO and DNN failed to negotiate NOK 2400 per ton.¹⁷ All companies except for NACO would receive NOK 1900 per ton, whereas NACO would receive NOK 2150. The German argument to allow NACO a more generous price was that Norwegians owned half the company.¹⁸ Implicitly however, it was nothing but a reward for NACO's proactive collaboration. Mührer wrote in a letter to the economic branch of the Administrative Council that the price was good and would allow for a fair profit.¹⁹ NACO would also keep 160 tons of aluminum per month for its subsidiaries, referred to as the Norwegian quota, of which 150 tons for its Norwegian and ten tons for its Danish manufacturer. However, Koppenberg denied export of alumina to NACO's Swedish smelter.

Koppenberg's mandate was also to keep the smelters on stream in order to buy future output. Nor did the companies exert any resistance on this matter. All were smelting new metal by mid-July. On 23 May, Mührer wrote a memorandum for Miehle in which he presented how the companies most swiftly could start operating again and how their capacity might be expanded most easily. NACO's own smelter, which had closed down on 27 April, would shortly be on stream. NACO had stocks of bauxite equivalent to 10–12 months of alumina production, and the refinery would be running soon as well. Because DNN in Eydehavn lacked alumina, Mührer suggested that NACO could supply the smelter in anticipation of future German supplies.²⁰ Between 6 and 10 June, Koppenberg and Miehle visited all sites in southern Norway

¹⁶ Haugvik Smelteverk Operation Report for Month of May 1940, RA, PA0892, D, box L0275.

¹⁷ Johan Mürer: Forhandlinger angående Norges aluminiumbehov og salg av overskytende kvanta, 18.05.1940, RA, RAFA-2191, G, box 8, file 3; Kollenborg: *Det Norske*, 75–76.

¹⁸ Eberhard Neukirch: Bericht über Norwegen-Reise 16.5. –21.5.40, RA, L-sak 4226, box 1, file 1.

¹⁹ Letter Johan Mührer to Nevnda for industri og omsetning, 11 June 1940, quoted in Oversiktsrapport Administrasjonsrådet – Nevnda for industri og omsetning, NHM-338, G0005, MP1.

²⁰ Johan Mürer: Oversikt over Norges aluminiumindustri, 23.05.1940, RA, L-sak 4226, box 1, file 1.

together with Mührer.²¹ Formally on behalf of JFM/DM, they agreed monthly production targets with each company for 1940. Aggregate monthly production would be at least about 2,060 tons from July, from which NACO would retain 160 tons for its Scandinavian manufacturers, before stabilizing at 3,000 tons per month from October. With an annual output of 36,000 tons from October, the industry would surpass pre-occupation level. In addition to exploit capacities, the agreed schedule anticipated that DNN would shortly expand capacity in Tyssedal and Vigeland by 200 and 70 tons per year, respectively. *Büro Miehle* would supply the materials the companies needed. Every company would pay NOK 400 per ton for the procured alumina.²² Again, Mührer anticipated that NACO would provide initial support. Haugvik would, for instance, receive anodes from NACO in the first months, whereas Stangfjorden would receive all its alumina on a long-term basis. They pointed explicitly at the German commitment to supply input materials in due time. Importantly, they included a proviso that if input prices increased, a rise in the price of output would occur as well.

In August, Miehle negotiated with the companies a regime for procurements and shipments, insurance regulations, as well as procedures for their reporting to his office in Oslo. The agreements included provisions, under which the companies adopted their production to the needs of JFM and DM. Before the invasion, the smelters largely produced ingots; now some would produce wire and rolled plates. Haugvik would also take up production of silumin, an aluminium alloy containing between 7 and 13 % silicon. Used in machines, silumin was in high demand by the *Wehrmacht*. Whereas monthly *Wehrmacht* consumption was 1,500 tons by the end of 1941, Haugvik would produce 300 tons per month.²³

²¹ Zusammenfassung des Ergebnisses der Besichtigungsreise und der Besprechungen des Treuhänders für die norwegische Aluminium-Industrie in der Zeit vom 6.6. bis 10.6.40, 20.06.1940, RA, RAFA-2191, G, box 1, file 1.

²² Letter Feindvermögensverwalter to Haugvik Smelteverk, 10.8.1940, RA, PA0892, D, L0275.

²³ Silumin-Produktion für Wehrmachtbedarf, 6.12.1941, BA-MA, RL3/3362; memorandum Högh to Kloumann, 9.11.1940, RA, PA 0892, D, L0275.

Mührer found the agreements satisfactory also because they would allow for an extension of Norway's quota.²⁴ Taking into account that the companies would operate at full capacity, Koppenberg in October agreed with Carlo Otte, the head of *Hauptabteilung Volkswirtschaft* in the *Reichskommissariat*, that NACO would subsequently keep 500 tons monthly for its Norwegian manufacturing plant and 75 tons for its Danish counterpart.²⁵ This was close to what Mührer had asked for in May. However, the main argument for extending the quota was that Nordisk Aluminiumindustri and DM had signed a contract (*Werkshilfevertrag*) on 2 October, under which the former would take up annual production of 600 tons of duraluminium. To extend capacity accordingly, capital stock was raised so that DM would control 25 %. Production would start in November.

Viewed in retrospect, Koppenberg's efforts were consistent and met with great success in 1940. The companies accommodated without conditions the plans of the occupier. Complying with the agreed framework, they worked to have their smelters at maximum speed. Table 13.3 displays their production after the German invasion. The figure for NACO excludes the primary metal that NACO kept for its manufacturers, as well as the 308 tons manufactured by Nordisk. Knowing that already from June NACO kept 160 tons for its manufacturing plants, 1,120

Table 13.3 Aluminium output under German occupation in 1940 (tons)

	DNN Tyssedal	DNN Eydehavn	NACO Høyanger	Haugvik Smelteverk	Vigelands Brug	Stangfjorden
For Germany	6,694	3,879	3,299	2,679	2,090	542
Stock 31.12.40	257	310	0	780	297	21
Total	6,951	4,189	4,419	3,459	2,387	563

Source: Kurzbericht Norwegische Aluminium-Industrie 1940 für Herrn Koppenberg, January 1941, RA, RAFA-2191, 4, box 1, file 1

²⁴ Letter Johan Mührer to Nevnda for industri og omstening, 11.06.1940, quoted in Oversiktsrapport Administrasjonsrådet – Nevnda for industri og omstening, NHM-338, G-0005, MP2.

²⁵ Kurzbericht Norwegische Aluminium-Industrie 1940 für Herrn Koppenberg, January 1941, RA, RAFA-2191, G, box 1, file 1.

tons must be included, bringing NACO's total production to 4,419 tons. Hence, total Norwegian output made up 21,968 tons after the smelters restarted. Dividing this by the seven months from June means 3,138 tons per month, which is evidence that the smelters were working at maximum capacity.

The main problem for resuming production was not Norwegian resistance but simply that alumina supplies from the parent companies had stopped after the invasion. Working at full capacity and producing 36,000 tons annually, the smelters would need about 70,000 tons of alumina. Further, based on the information from Mührer, already in June Koppenberg anticipated a 3,500 tons capacity expansion at DNN's plants. Hence, normal demand of alumina would be close to 75,000 tons. Having prepared for supplies before he met the companies in early June, to reach specific production targets with each of the companies Koppenberg offered them a comprehensive supply scheme. The first shipment of alumina procured by *Büro Miehle* arrived on June 8. When monthly aluminium production reached 3,000 tons, it would supply at least 4,550 tons of alumina per month, of which NACO would provide 140 tons from its production in Høyanger.²⁶

Koppenberg had the powers to implement the agreed scheme. On 23 July, *Generalluftzeugmeister* Udet extended his Norwegian trustee authorities to include Western Europe, and on 20 August he established the *Junkers Aluminium Büro* within JFM to organize the Norwegian trade.²⁷ Koppenberg immediately went to France in search for alumina stocks for the Norwegian industry, and took over a short-term supply agreement VAW had already negotiated with the French cartel, Aluminium Français. He nevertheless failed to procure large quantities in 1940 because the Vichy government dragged its feet.²⁸ Therefore, he relied more on supplies from Italy and Hungary in 1940, countries with which Germany had friendly relations. Negotiated by VAW, and possibly supported by Göring's direct intervention with the Italian government, an

²⁶ Zusammenfassung des Ergebnisses der Besichtigungsreise und der Besprechungen des Treuhänders für die norwegische Aluminium-Industrie in der Zeit vom 6.6. bis 10.6.40, 20.06.1940, RA, RAFA-2191, G, box 1, file 1.

²⁷ Budrass, *Flugzeugindustrie*, 611.

²⁸ Alan S. Milward, *The New Order and the French Economy*, (Oxford: Clarendon Press, 1970), 87.

agreement provided for alumina from AIAG's Italian refinery SAVA.²⁹ By the end of 1940, *Junkers Aluminium Büro* had procured 21,500 tons of alumina and 4,824 tons of bauxite for the Norwegian companies. The bauxite supply was far too small, but NACO had sufficient stocks to avoid a paralyzing supply shortage in 1940.

NACO's cordial support during 1940 was rewarded. Formalized in an agreement of March 1941 between NACO and Koppenberg's newly established company, Nordische Aluminium AG, NACO would retain its monopoly in Scandinavia for a quota of 16,000 tons per year when additional Norwegian capacity was established outside the existing companies. The agreement would expire after ten years, but a proviso maintained that the future revision would take account of the fact that Scandinavia was NACO's "natural market". Admittedly, the reward was part of a wider deal in which NACO would provide technological know-how for the larger expansion programme now under way.³⁰

Norsk Aluminium-Kontor, Hansa Leichtmetall and a European Supply Network

Having successfully reached consensus with the Norwegian companies, and established an incentive-based collaboration regime in 1940, Koppenberg's confidence was well justified. The next step was to form a trans-European supply network on which the companies would depend, the magnitude of which, however, also took account of the targets of the larger expansion programme.

Based on a contract signed by all the companies, *Büro Miehle* was on 14 February 1941 converted into *Norsk Aluminium-Kontor*.³¹ Koppenberg's deputy Werner Miehle served as head of the office, whose staff would consist of around ten persons, until he in June 1941 was replaced by Wilhelm Moschel, who came from Aluminiumwerk Bitterfeld.

²⁹ Rauh, *Schweizer Aluminium*, 220.

³⁰ Kontrakt mellom firmaene Nordische Aluminium A.G. Berlin og Aktieselskapet Norsk Aluminium Company, Oslo, 05.03.1941, RA, RAFA-2191, G, box 8, file 6.

³¹ Vertrag zwischen Treuhänder für die norwegische Aluminiumindustrie und die unterzeichneten Firmen, 14.02.1941, RA, RAFA-2191, G, box 2, file 1.

The companies would pay for the operating costs of the office relative to their share of the industry's total turnover. The change originated in a decision to centralize the trading machinery with the Norwegian companies. Whereas in 1940 each company had signed a contract with JFM/DM, they now signed with *Norsk Aluminium-Kontor*, which would centralize purchases and sales, as well as coordinate transport. *Büro Miehle* had spent much effort to coordinate supplies among the companies, and Koppenberg hoped to avoid the temporary logistical bottlenecks some of the companies had faced in late autumn 1940.³² Soon, the office also took charge of allocating other materials for the companies, varying from steel to tools and working clothes. It also wanted to move manpower among the companies in accordance with situational needs, but this turned out to be difficult as workers rejected it.³³

Norsk Aluminium-Kontor operated as a de-facto branch of the company *Hansa Leichtmetall AG* (Hansa), a holding company set up by the Ministry of Aviation in Berlin, for which Moschel served as director and Koppenberg as chairman of the board. The ministry controlled 19.7 million of its RM 20 million stock capital. Three companies producing for the *Luftwaffe* (including JFM) controlled the rest. The company had really existed since November 1940, under the name *Nordische Aluminiumgesellschaft AG*. Its main purpose was to create new production capacity for light metals in Norway. However, as in May 1941 two companies based in Norwegian law were established to implement the expansion programme, on 28 May the company's name was changed. Hansa took over the aluminum division of JFM, established in August 1940.

One of Hansa's three mandates was to arrange supplies of bauxite, alumina and other materials for the Norwegian aluminium companies through *Norsk Aluminium-Kontor*.³⁴ To achieve this, in addition to trading it would acquire bauxite fields and start up alumina production in designated European countries according to an overall agreement among

³² Letter from Miehle to the aluminium companies, 10.2.1941, RA, PA 0892, D, L0275.

³³ Verwaltung der norwegischen Aluminiumindustrie seit der Besetzung Norwegens, 07.08.1942, RA, RAFA-2191, G, box 2, file 1.

³⁴ Another was to fund Nordag AS, its subsidiary in Norway, which had stakes also in Nordisk Lettmetall AS. The last was to procure bauxite, alumina and aluminum for the Ministry of Aviation from Western Europe, which would supply German companies producing for the *Luftwaffe*.

German ministries, the aluminium companies and the *Wehrmacht*. Hansa would control Greece, except for a few bauxite fields left for VAW. In turn, VAW would control Croatia, except for a few bauxite fields left for Hansa. The Soviet Union would be divided, as Hansa would control northern Russia, and VAW southern Russia and Ukraine. Hansa would also take the bulk of alumina imports from France, whereas VAW would take the bauxite. The two companies would jointly establish an alumina plant close to the French bauxite fields. In sum, this was an over-stretched scheme to reorganize European aluminium industry for the Nazi course, which could only be reached if Germany took full political control over Europe.³⁵

By late 1941, Hansa had set up a network of five offices in its designated territories. In addition to the Berlin headquarters and the Oslo office, it ran offices in Paris, Agram (Zagreb) and Athens, each consisting of around 25 staff.³⁶ It is telling of Koppenberg's ambition that, although he in April 1941 failed to have his trustee authorities extended to the Balkans, Hansa the same month made agreements to search for and exploit bauxite in Croatia.³⁷ Because transport capacity generally was a bottleneck, Hansa's objective was to establish large alumina refineries close to the bauxite fields. Hansa entered into contracts to this end in France, Croatia and Greece during 1941, but for various reasons the direct investments failed. When Hansa was audited after its liquidation on 31 May 1943, the account revealed a grim situation. The company had assets estimated at almost 19 Million RM, largely consisting of stocks in its two Norwegian subsidiaries. Assets elsewhere in Europe were doubtful but would under no circumstance cover the large outstanding debts.³⁸

³⁵ Hans Otto Frøland, Nazi Germany's Pursuit of Bauxite and Alumina, in Robin S. Gendron, Mats Ingulstad and Espen Storli (eds.), *Aluminium Ore. The Political Economy of the Global Bauxite Industry*, (Vancouver: UBC Press, 2013), 79–106.

³⁶ Aufsichtsratsbericht zum 30. September 1941 der Hansa Leichtmetall Aktiengesellschaft, BA, R2/5693, fol 6–7; Aufsichtsratsbericht zum 31. Dezember 1941 der Hansa Leichtmetall Aktiengesellschaft, Bundesarchiv Berlin (BArch), R2/5694.

³⁷ Letter Koppenberg to Udet, 19.04.1941, BA-MA, RL 3/913; Bericht der Deutschen Revisions- und Treuhand-Aktiengesellschaft Berlin über die bei der Hansa Leichtmetall Aktiengesellschaft, Berlin, Abteilung Agram (Kroatien) vorgenommene Prüfung des Abschlusses für die Zeit vom 14. Juni bis 31. Dezember 1941, BArch., R 8135/3484.

³⁸ Bericht der Deutschen Revisions und Treuhand-Aktiengesellschaft, Berlin, über die bei der Hansa Leichtmetall Aktiengesellschaft in Liquidation, Berlin, vorgenommene Prüfung der Liquidations-Eröffnungsbilanz zum 1. Juni 1943, BArch., R 8135/7473.

Whereas the German Ministry of Aviation took over the company's assets and liabilities, VAW took over its activities for the rest of the war.³⁹ Koppenberg's position within the Nazi polity had weakened already from autumn 1941, and in October 1942 VAW's director Ludger Westrick had taken over his trustee functions in Norway and Western Europe.⁴⁰

However, the trading operations of Hansa to supply the Norwegian companies were more successful. The bauxite supplies destined for NACO, which in 1940 was a persistent concern, did not force NACO to close down its alumina refinery. The supply was supposed to originate from Greece, but seems to have come largely from the Hungarian company Aluerz. Further, it was supplied on profitable terms for Hansa.⁴¹ Admittedly, the alumina trade caused more problems and will be elaborated more in detail.

In addition to the Paris office, Hansa also established an office in Avignon, because French bauxite deposits were all located in southern France. Although alumina supplies in 1940 largely originated from AIAG's SAVA plant, supplies were supposed to come from France, which had five alumina works with an aggregate capacity of 185,000 tons.⁴² During negotiations in 1940 with the French industry, Koppenberg had demanded that the German quota must include 90 % of French alumina output. Working at full capacity, the Norwegian smelters' annual demand, NACO excluded, would be 50,000 tons, less than a third of French capacity. French alumina supplies were nevertheless a weak point, although the Franco-German agreements instructed the plants to operate at full capacity. The French aluminium cartel wanted to keep as much alumina as possible for its own smelters and the Vichy government was

³⁹ Bericht der Deutschen Revisions und Treuhand-Aktiengesellschaft, Berlin, über die bei der Hansa Leichtmetall Aktiengesellschaft in Liquidation, Berlin, vorgenommene Prüfung des Liquidationszwischenabschlusses zum 31 Mai 1944, BArch., R 8135/7473.

⁴⁰ Letter Göring to Koppenberg, 19.10.1942; letter Milch to Westrick, 24.10.1942, both in RA, RAFA-2191, G, box 5, file 6.

⁴¹ Bericht der Deutschen Revisions- und Treuhand-Aktiengesellschaft Berlin über die bei der Hansa Leichtmetall AG, Berlin, vorgenommene Prüfung des Jahresabschlusses zum 31. Dezember 1942, BArch., R2/5692.

⁴² Eberhard Neukirch, Die Entwicklung des Leichtmetallausbaues im Vierjahresplan mit besonderer Berücksichtigung der Zeit des grossdeutschen Freiheitskampfes, (unpublished manuscript, 1943), BArch., R 3112/150–152, 146.

able to support its industry when negotiating with Koppenberg under the terms of the Armistice Agreement. Consequently, supplies to Germany were soon constrained by shortages. Of the 84,572 tons of alumina agreed for procurement to Germany between September 1940 and April 1941, much of which consisted of existing stocks, only 61,904 tons passed the German border.⁴³

Necessarily, the supply deficit would affect Norwegian output, and explains some of the poor performance in 1941 (Table 13.1). Hansa took action, as some smelters were operating at only 30 % capacity.⁴⁴ Koppenberg fiercely accused French producers of withholding alumina at the expense of Norway's industry.⁴⁵ Hansa therefore again approached AIAG to negotiate a delivery scheme for the Norwegian smelters, adding to 40,000 tons until summer 1942, to be taken from AIAG's plant DFIA close to Marseilles.⁴⁶ Simultaneously, Koppenberg intervened with the Franco-German Armistice Commission, under which Germany formally negotiated trade agreements with Vichy France. This resulted in a revised delivery scheme sanctioned by the Vichy government in May 1941, which slightly increased monthly supply targets. With a capacity of 14,000 tons of alumina per month, French industry was now bound to leave 7700 tons for the German quota. The agreement catered to a set of new institutions that would make supplies more stable. First, a Franco-German bilateral commission that included representatives from the French producers, and was led by Eberhard Neukirch, would supervise the scheme. Second, the French producers would establish a new organization, the *Comité d'organisation de l'aluminium et du magnésium*, to improve the industry's productivity. Hansa and VAW would set up a holding company in France, the *Groupement d'importation et de répartition de l'aluminium et des alliages légers*, to coordinate their imports of bauxite, alumina and aluminium from France. Although the bilateral com-

⁴³ Eberhard Neukirch, Tätigkeitsbericht der deutsch-französischen "Gemischten Kommission" Ausbau der Leichtmetallindustrie in Frankreich, in Neukirch, Die Entwicklung, 483.

⁴⁴ Postbesprechung vom 19. Mai 1941, BArch., R/121, 2313.

⁴⁵ Letter Koppenberg to Hemmen, 28.03.1941, letter Koppenberg to Udet, 31.03.1941, both in Bundesarchiv-Militärarchiv Freiburg (BArch-MA), RL 3/93.

⁴⁶ Rauh, *Schweizer Aluminium*, 231–233.

mission found that French companies deliberately withheld stocks of alumina, it concluded that low French output was the main problem. Between August 1940 and April 1941, it operated at only 77 % capacity. Therefore Germany, as part of the agreement, was bound to supply the French works with necessary materials to increase productivity, such as steel and coal.⁴⁷

Table 13.4, which shows French alumina production and its German quota for the period May to December 1941, confirms that Koppenberg's intervention in spring 1941 was successful. French works operated on average at 94 % of capacity during these months, and German supplies were above the agreed floor, except for a few hundred tons in September. Stability was finally established with French producers. In 1941 and 1942, French alumina production amounted to about 135,000 tons, of which about 92,000 made up the German quota. The trend continued in 1943, after Germany had also occupied southern France, and the *Wehrmachtbefehlshaber* in France took over much of the surveillance of the supply scheme.⁴⁸

Norway was supposed to receive the bulk of Germany's French quota, but for all Koppenberg's success in France from May 1941, according to official Norwegian figures (revealed in Table 13.5) the alumina did not reach the Norwegian companies in sufficient quantities. The customs-cleared imports of alumina (as shown in row three), is far away from the 50,000 tons needed for the smelters (excluding NACO) to operate at full capacity. Admittedly, in 1940 the deficit made little impact

Table 13.4 French production and export of alumina to Germany, May to December 1941 (tons)

	May	June	July	Aug	Sept	Oct	Nov	Dec
Production	12,175	12,352	11,842	14,226	12,597	13,867	12,715	14,133
To Germany	7,596	9,688	8,386	9,545	6,721	7,988	6,890	8,295

Source: Neukirch, Tätigkeitsbericht der deutsch-französischen „Gemischten Kommission“, 482–484

⁴⁷Neukirch, Tätigkeitsbericht, 479–506.

⁴⁸Ibid.

Table 13.5 Norwegian alumina deficit, 1940–44 (tons)

	1940	1941	1942	1943	1944
Aluminium production	29,106	16,506	17,679	21,249	17,500
Alumina required	58,212	33,012	35,358	42,498	35,000
Alumina imports	29,769	19,165	29,365	26,496	15,256
Alumina deficit	28,443	13,847	5,993	16,002	19,744
Bauxite imports	4,824	23,967	27,239	41,449	28,558

Source: Statistisk Sentralbyrå: *Statistisk-økonomisk oversikt over krigsårene*, (Oslo: H. Aschehaug & Co., 1945), 69, 95.

anyway because the smelters were able to draw on existing stockpiles, and in 1942 excess stocks from NACO's refinery might have been able to close the 6,000 tons deficit. However, real imports must have been higher, because the official import is too small to account for the actual performance of the smelters. Taking account of the production figures for aluminium in row one, and using the formula 2:1 to estimate their required alumina supply, row two shows figures for the latter. Because these are much higher than official imports shown in row three, Norway must have been supplied also outside the official clearing account. This is supported by an account from Hansa, which reveals that Norway also received alumina from Hungary and Germany itself in 1941, adding total imports to at least 23,000 tons that year. It nevertheless concluded that the import deficit was profound in late 1941, because of an acute lack of transport capacity.⁴⁹ As a consequence of the deficit, the Berlin authorities decided to increase supply efforts: "*dass die Tonerdelieferung aus Frankreich zunächst restlos nach Norwegen gehen sollen*".⁵⁰ The monthly reports from the *Aluminium-Kontor* support the hypothesis that supplies were larger than officially accounted for. They never indicate that to fully meet Norwegian demand would be impossible, and they often state that, except from late 1941, supplies were satisfactory until autumn 1944. The problem was more that supplies were unstable.⁵¹

⁴⁹ Allgemeiner Situationsbericht auf Grund der Direktionssitzung vom 13.2.42, 20.2.1942, BArch, R121/2313.

⁵⁰ Ibid.

⁵¹ Norwegische Aluminiumwerke. Monatsberichte, 10.1941–11.1944, RA, RAFA-2191, box G3, file 1.

Electricity and alumina made up 70 % of total costs of producing aluminium, and in particular the alumina price had increased after war broke out because of poorer bauxite.⁵² Arguably, from Hansa's perspective, the problem was also as much that French supplies were expensive. Hansa estimated that the full cost of producing a ton of aluminium in France was RM 1443, whereas it was only RM 1270 in Norway. Already in 1940, French industry had taken advantage of Koppenberg's urgent needs and negotiated that Hansa must pay the full French cost. Because German price regulations did not allow for selling at RM 1443, in 1940 *Junkers Aluminium-Büro* carried the costs of selling at a lower price.⁵³ Under the revised supply agreement in 1941, Hansa agreed to supply for free various input materials, such as coal, coke and others, in order to purchase aluminium for the price of RM 1158. This would bring the sales price in compliance with German price regulations with a good margin. The extra costs following from Hansa's free supply of input materials would be paid by the Ministry of Aviation.⁵⁴ Because this policy endured, the public auditors already for 1942 pointed at the weak aspects of Hansa's trade relation with the French industry.⁵⁵ When Hansa was liquidated in 1943, they concluded that much of the company's French trading had worked at a loss.⁵⁶ Presumably this endured after VAW took over Hansa's trading.

⁵²Neukirch, *Die Entwicklung*, 139; Jonas Scherner, *Die Logik der Industriepolitik im Dritten Reich. Die Investitionen in die Autarkie- und Rüstungsindustrie und ihre staatliche Förderung*, (Stuttgart: Franz Steiner Verlag, 2008), 267.

⁵³Bericht der Deutschen Revisions- und Treuhand-Aktiengesellschaft Berlin über die bei der Nordischen Aluminiumgesellschaft AG, Berlin (am 15. Mai 1941 in Hansa Leichtmetall AG umbenannt) vorgenommene Prüfung des Rumpfgeschäftsjahres vom 16. November bis 31. Dezember 1940, BArch., R 8135/458.

⁵⁴Aufsichtsratsbericht zum 31. Dezember 1941 der Hansa Leichtmetall Aktiengesellschaft, BArch., R2/5694.

⁵⁵Bericht der Deutschen Revisions- und Treuhand-Aktiengesellschaft Berlin über die bei der Hansa Leichtmetall AG, Berlin, vorgenommene Prüfung des Jahresabschlusses zum 31. Dezember 1942, BArch., R2/5692.

⁵⁶Bericht der Deutschen Revisions und Treuhand-Aktiengesellschaft, Berlin, über die bei der Hansa Leichtmetall Aktiengesellschaft in Liquidation, Berlin, vorgenommene Prüfung der Liquidations-Eröffnungsbilanz zum 1. Juni 1943, BArch., R 8135/7473.

The problem was German price policy. In the 1930s, the Nazi government had allowed for a high aluminium price to move the companies to invest in new capacity, yet tended to reduce the price.⁵⁷ The *Reichskommissar für Preisbildung*, who were authorized to adjust prices based on a 1936 general price freeze, reduced the price by 8 % in 1937, at which level it remained until 1941. Hence in 1940, the German price ceiling for aluminium was RM 1330 per ton, well below the French price. By June 1941 the *Preiskommissar* lowered it further to RM 1270 per ton, at which level it remained until 1945.⁵⁸ The price was obviously based on calculations that full production costs for aluminium in Germany was about RM 1245.⁵⁹ The French alumina price was in 1941 brought well below the German maximum price. However, the real costs were indeed still high for Hansa and the Ministry of Aviation. Obviously, Hansa would take out the French cost-push in Norway. The *Reichswirtschaftsministerium* (Ministry of Economy/RWM) had decreed that Hansa's Norwegian trade "*preislich und rohstoffmässig als Inlandsgeschäfte zu behandeln sind*" (must be treated as domestic business in terms of prices and raw materials rationing).⁶⁰ By converting the new German maximum price of RM 1270 into NOK on the basis of the official parity of the clearing account (1 RM equals NOK 1.76), we see that the German maximum price of June 1941 equalled NOK 2235 per ton. As most Norwegian companies in 1940 received NOK 1900 per ton, there was room for a price increase. Hansa, informed that the *Preiskommissar* might lower the German price further, would immediately integrate at least some of the French cost-push into the Norwegian price.⁶¹

⁵⁷ Scherner, *Die Logik*, 237–241,

⁵⁸ Länderrat des Amerikanischen Besatzungsgebiets (Hrsg.), *Statistisches Handbuch von Deutschland 1928–1944*, (München: Ehrenwirth, 1949), 466.

⁵⁹ Peter Josef Belli, *Das Lautawerk der Vereinigte Aluminium-Werke AG (VAW) von 1917 bis 1948. Ein Rüstungsbetrieb in regionalen, nationalen, internationalen und politischen Kontexten (zugleich ein Beitrag zur Industriegeschichte der Niederlausitz)*, (Münster: LITVerlag, 2012), 269, 684; Scherner, *Die Logik*, 269, table 53, confirms that full cost for VAW was 1250 per ton.

⁶⁰ Letter Reichswirtschaftsminister to Leiter der Prüfungsstellen, 19.12.1941, BArch., R11/1332.

⁶¹ Protokoll über die Direktionsbesprechung vom 12.12.1941 im Büro Bellevuestrasse, 12.12.1941, RA, RAFA-2191, G, box1, file 1.

Later documents suggest that Hansa would prefer to gradually adjust the Norwegian price to the German one.⁶²

Distortion of Norwegian Incentives

Having elaborated the terms under which Hansa conducted its French alumina trade, it comes as no surprise that *Norsk Aluminium-Kontor* in 1941 changed the commercial conditions under which the Norwegian companies operated. Whereas the conditions had been generous in 1940, they were made more restrictive in 1941. This weakened the companies' incentives, which had been quite forceful in 1940.

In March 1941, before the new regulations were negotiated with the French industry, Werner Miehle informed the Norwegian companies why prices must change retroactively from 1 January 1941. Because the French alumina was more costly than the NOK 400 per ton the companies had paid in 1940, JFM/DM would be continuously subsidizing Norwegian supplies. This could not endure, and Miehle had decided that the companies must pay the real costs of supplying alumina and other input materials. For the moment, they must pay NOK 500 per ton for the alumina as well as for anodes, for which they previously had also paid NOK 400 per ton. To partly compensate for the 20 % increase, he would raise the aluminium price from NOK 1900 to NOK 2000 per ton, implying that less than 50 % of the cost-push for input would be compensated from increased aluminum price. Miehle anticipated that increased productivity must compensate for the rest.⁶³ However, whereas Haugvik as a temporary exemption was allowed to charge NOK 2100 because of the higher transport costs, NACO's price for aluminium sales, which had been NOK 2150 per ton in 1940, was subsequently reduced to NOK 2100.⁶⁴ The new price ratios distorted the incentive structure so successfully settled in 1940.

⁶² Besprechung am 5. März mit Herrn Dr. Koppenberg/Dr. Dehne, 10.03.1942, RA, RAFA-2191, G, box 1, file 1.

⁶³ Letter Miehle to Board of Haugvik Smelteverk, 05.03.1941, RA, PA 0892, D, L0275; Letter Miehle to Haugvik Smelteverk, 07.05.1941, RA, PA 0892, D, L0275.

⁶⁴ Verbesserung der wirtschaftlichen Verhältnisse der Treuhänderwerke, 29.04.1943, RA, RAFA-2191, G, box 1, file 5.

Table 13.6 Break-even for aluminium production among the Norwegian companies (NOK per ton)

Vigeland Brug	DNN Eydehavn	DNN Tyssedal	Haugvik Smelteverk	NACO	Stangfjorden Elektrokemiske
1,780	1,830	1,870	1,900	2,000	2,500

Source: Verbesserung der wirtschaftlichen Verhältnisse der Treuhänderwerke, 29 April 1943, RA-RAFA, 2191, G, box 1, file 5

In April 1943, Ludger Westrick, who in October 1942 replaced Koppenberg as Trustee, made an investigation into the companies' operating costs when smelting aluminium on full capacity under the new regulations. Their relative cost structure is displayed in Table 13.6.

From this account we acknowledge that, theoretically, four of the companies would still be able to make profits. Only the old and small plant at Stangfjorden was trapped in a profoundly unprofitable endeavour, probably overshadowing any incentives whatsoever. The company operated at a loss also in 1940.⁶⁵ However, the calculation was based on the premise that the smelters worked at full capacity. As elaborated above, this seldom occurred after 1940. As the companies slowed down production, their costs per unit of output were higher than Westrick's estimate. This was, however, often due to temporarily unfavourable weather conditions, which limited power supply.⁶⁶ Supply of alumina and other imported input materials surely was an enduring challenge, but whereas there was little *Norsk Aluminium-Kontor* could do about the weather, it worked continuously to overcome logistical constraints and keep the smelters on stream. Thereby, the supply regime operated at continuous risk of close-down because it did not allow the companies to keep reserves. For instance, in 1942 the *Aluminium-Kontor* pushed the companies to increase capacity exploitation by 8 % as compared with 1941, but admitted that this had occurred at considerable risk because war-related

⁶⁵ Bericht der Deutschen Revisions- und Treuhand-Aktiengesellschaft Berlin über die bei der A/S Stangfjorden Elektrokemiske Fabrikker, Stangfjorden über Bergen, vorgenommene Prüfung des Jahresabschlusses 1940, BArch., R 8135.

⁶⁶ Norwegische Aluminiumwerke. Monatsberichte, 10.1941–11.1944, RA, RAFA-2191, box G3, file 1.

bottlenecks continuously constrained supplies.⁶⁷ Lack of alumina supplies occasionally caused a temporary slow-down of production, but supplies tended to arrive at the last moment. It was not until 1944 that lack of supplies really became paralyzing. The combination of a latent supply risk and the weakened price ratio between input and output nevertheless had an immediate impact on the companies.

The companies complained bitterly about the new price regulations. Haugvik claimed their full cost was NOK 2236 per ton but was paid only NOK 2100.⁶⁸ NACO informed they would lose NOK 260 for each ton they produced.⁶⁹ The companies argued that their full costs were higher than NOK 2000 per ton, because they seldom operated at full capacity. They rejected that input prices should vary according to actual costs, whereas the output price would be permanently fixed, which would cause a permanent uncertainty in trading relations. They also complained about cash-flow problems, because they were paid for their aluminium only as it was shipped. Having produced the metal, they often had to wait a long time before ships arrived. In sum, the new regulations would force debts upon them because their equity was marginal at the outset and consisting of returns in 1940.⁷⁰ Every complaint was valid, but *Norsk Aluminium-Kontor* did not accommodate. It responded that a certain level of production was needed to operate economically, and that it would sustain supplies at that level, but also that increased productivity was expected on the part of the companies.⁷¹

An audit report for 1941 observed that the companies had continuously operated at a loss that year.⁷² As complaints continued, in 1943 Westrick ordered an investigation into the companies' economic returns

⁶⁷ Norwegische Aluminiumwerke. Gesamtbericht über das Jahr 1942, 16.01.1943, RA, RAFA-2191, box G3, file 1.

⁶⁸ Letter Haugvik Smelteverk (Høgh) to Norsk Aluminium-Kontor, 21.03.1941, RA, PA 0892, D, L0276.

⁶⁹ Letter NACO (Kloumann) to Norsk Aluminium-Kontor, 14.08.1941, RA, PA 0892, D, L0276.

⁷⁰ Letter DNN (Heliessen) to Norsk Aluminium-Kontor, 10.03.1941; letter Haugvik Smelteverk (Høgh) to Norsk Aluminium-Kontor, 21.03.1941, letter NACO (Kloumann) to Norsk Aluminium-Kontor, 14.08.1941; Festlegung der Rohmaterialpreise und der Verkaufspreise für Hüttenaluminium für das Jahr 1941, 5.5.1941, all in RA, PA 0892, D, L0276.

⁷¹ Letter Miehle to Haugvik Smelteverk, 07.05.1941, RA, PA 0892, D, L0275.

⁷² Wirtschaftliche Lage der Werke, 07.08.1941, attached the report Verwaltung der norwegischen Aluminiumindustrie seit der Besetzung Norwegens, 7.8.1942, RA, RAFA-2191, G, box 2, file 1.

for the first half of 1942. This concluded that all smelter companies except for Vigelands Brug had operated at a considerable loss.⁷³ An internal report at Haugvik is revealing. During spring 1942, operating costs had generated a loss of NOK 40,000 per month, causing a strained cash-flow that had forced the company to raise debts to pay for raw materials. Its liabilities added to NOK 500,000 with Hansa, NOK 270,000 with DNN and 80,000 with NACO.⁷⁴ Haugvik did not earn profits after January 1941 and its debts grew continuously.

NACO's situation was even worse, Westrick's report concluded. The NACO management, which had collaborated so proactively in 1940 to sustain leeway for the company, complained about the new policy even before the new price regulations were announced. Although no company had assisted the Trustee as closely as theirs, their commercial freedom was being restricted, Sigurd Kloumann maintained to his board in February 1941. Because NACO was predominantly Norwegian, and Nordisk Aluminiumindustri had entered into an alliance with DM, NACO had to work to be free of the Trustee's regulations, he concluded.⁷⁵

As this failed and price regulations were introduced, from May 1941 NACO entered into long-lasting negotiations with the Trustee for special treatment. NACO wanted a higher sales price and sufficient profits to pay 8 % dividend for its Norwegian owners.⁷⁶ Aware that dividend was an important incentive to have Norwegians invest in German companies, the Trustee in July allowed NACO a 5 % dividend.⁷⁷ However, when not making profits there would be no dividend, and in August NACO put the question of the relationship between prices, profits, dividend and future investments on the table. Kloumann had in autumn 1940 suggested an expansion at Høyanger, which Koppenberg enthusiastically endorsed. Now NACO stated that, first, that future expansion depended on a better

⁷³ Gewinn- und Verlustrechnung der norwegischen Aluminiumwerke per 30. Juni 1942, attached the report Verwaltung der norwegischen Aluminiumindustrie seit der Besetzung Norwegens, 07.08.1942, RA, RAFA-2191, G, box 2, file 1.

⁷⁴ Rapport over sekretær Thorkildsens reise til Glomfjord i juni 1942, 18.07.1942, RA, PA 0892, D, L0276.

⁷⁵ Letter Kloumann to Board of NACO, 20.02.1941, RA, RAFA-2191, G, box 8, file 6.

⁷⁶ Protocol from NACO's board meeting 09.07.1941, RA, RAFA-2191, G, box 7, file 3.

⁷⁷ Protocol from NACO's board meeting 15.07.1941, RA, RAFA-2191, G, box 7, file 3.

aluminium price, and second, that it was unable to pay the full cost of bauxite transport.⁷⁸ The price controversy with Hansa lingered until the end of 1942, and involved the *Reichskommissariat* in Oslo and the *Preiskommissar* in Berlin as well. The former was eager to have NACO paid dividend, and suggested a compensation for the high bauxite transport costs to be applied retroactively from January 1942. When in October 1942 Westrick replaced Koppenberg as German Trustee, he maintained that German price policy must take into account that profits and dividend was a pre-condition for business, and that an incentive-based regime that increased production must be reestablished.⁷⁹ The *Preiskommissar* granted NACO a generous bauxite compensation of slightly above NOK 700,000 for the past and NOK 65 per ton for the future.⁸⁰ As this was nothing but a hidden subsidy, NACO's aluminium price was reduced from NOK 2150 to NOK 2000 per ton, thereby bringing the company in line with the other companies in southern Norway.⁸¹ Moreover, NACO was allowed to sell its Swedish and Danish quota for a much higher price. It charged NOK 3670 for a ton in Sweden and NOK 3100 for a ton in Denmark.⁸² Thereby, NACO's financial situation improved as it would transfer profits from its subsidiaries through the high sales price. In sum, the new order settled for NACO in late 1942 reintroduced profits, and dividend was paid for 1942.⁸³ Yet expansions at Høyanger were marginal. An investigation of NACO's collaboration after the war concluded that "NACO's management was from the outbreak of war until autumn of 1941 eager to exploit the aluminium boom. As it gradually realized that German price policy did not allow for profits, the eagerness subsided."⁸⁴ This was in a fair way a right conclusion.

⁷⁸ Protocol from NACO's board meetings 27.08.–28.08.1941, RA, RAFA-2191, G, box 7, file 3.

⁷⁹ Besprechung am 11.11. mit Herrn Dr. Westrick, Herrn Dr. Menzen, Herrn Dr. Ginsberg, Herrn Röhrs, 12.11.1942, RA, RAFA-2191, G, box 1, file 1.

⁸⁰ Besprechung bei der Hansa Leichtmetall AG am 22./23.10.1942, 27.10.1942, RA, RAFA-2191, G, box 1, file 1.

⁸¹ Besprechung Herr Bähr und Herr Billand am 10.12.1942, RA, RAFA-2191, G, box 1, file 1.

⁸² Verbesserung der wirtschaftlichen Verhältnisse der Treuhänderwerke, 29.04.1943, RA, RAFA-2191, G, box 1, file 5.

⁸³ Protocol from NACO's board meeting 11.03.1943, RA, RAFA-2191, G, box 7, file 3.

⁸⁴ Ole Borge, Innberetning til Oslo politikammer. Vedrørende A/S Norsk Aluminium Company og Nordisk Aluminium Industri A/S, NHM-338, 0005, MP2, 153. (Translation from Norwegian by HOF).

Conclusion

The German Trustee appointed to supervise Norway's aluminium industry in 1940 easily built up an incentive-based regime of collaboration. Supported by the management of NACO, who saw proactive collaboration as a means to maintain its position in Scandinavia, the arrangement established such strong incentives that also the rest of the companies accommodated unconditionally. As they came on stream again after the invasion, they operated at full capacity for the rest of 1940. Sufficient quantities of alumina were supplied from abroad. An incentive-based system was successfully established, which also sufficiently conceded to the industry's systemic import dependence.

Scholars have argued that lack of supplies was the main cause of the industry's poor performance during the occupation. Certainly a supply risk endured and temporary shortages occurred. But it was only from late 1944 that they paralyzed the industry. Hence, the reasons for the poor performance of the companies between 1941 and 1944 are more complex. The Trustee in 1941 established a successful order with French alumina producers, which however was expensive. The Norwegian price regulations that were introduced in spring 1941 distorted the forceful incentive structure that was established in 1940. They generally forced the companies to operate at a loss. Therefore, they removed incentives to invest in capacity expansion and possibly also to implement measures to improve productivity. The companies would do what they were forced to by the *Aluminium-Kontor*, but nothing more. In retrospect, this has been interpreted as deliberate resistance, but their potent efforts in 1940 suggest that this interpretation is false. Incentives and profits were only restored for NACO in late 1942, but the scheduled investments were not implemented, because from 1943 steel and other construction materials in high demand were scarce. The German actor's ability to cope with the Norwegian aluminium industry's import dependence certainly weakened but as the incentive structure of 1940 crumbled within a year, the companies became less eager to follow the German lead well before Germany's war fortune faded. It was only in retrospect that this change in corporate behavior was justified as resistance.

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Hitler's Achilles Heel? Norwegian Molybdenum as a Bottleneck in the German War Economy

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Introduction

One week after the surrender of Germany in May 1945, the expertise of the German armaments minister Albert Speer was still in high demand. Allied airmen vied for the attention of their prisoner at the *Schloss Glücksburg* in Schleswig-Holstein, and they all wanted to know how their bombing raids had impacted on German war production. Only too happy to lecture his captors about their mistakes, Speer “compared German war production to a stream. Instead of bombing the source (steel), we chose to concentrate on the mouth. This could not decisively alter the course of the war.”¹ The interrogation of Speer was not only a matter of gathering evidence for a trial, but also of finding answers to the question of whether it is possible to shut down a mobilized war economy by severing the supplies of key input factors.²

¹ Initial interrogation of Albert Speer, May 15, 1945, Library of Congress, Carl Spaatz Papers, Box 135, Interrogation, Speer Albert.

² Mancur Olson “The Economics of Target Selection for the Combined Bomber Offensive” *Royal United Services Institution Journal* 107, 628, (1962), 308–314.

During the war, the German supply chain for steel, and particularly the metals needed to make hard steel alloys, were subject to close scrutiny by military analysts on both sides. One of the potential bottlenecks was Norwegian molybdenum—a soft grey metal used to impart strength and heat resistance to steel. The Norwegian industry was the largest European supplier to Nazi Germany, but also heavily concentrated around a small mining complex at Knaben in Southern Norway, which rendered it highly vulnerable. According to the eminent Norwegian historian Olav Riste, the “value of molybdenum for the German war machine seems to have been clear to everybody”, which explains why it was bombed twice.³ Economic and military historians have likewise considered Knaben to be a target of the highest strategic importance; some insist (incorrectly) that it was the sole European source of molybdenum available to Germany.⁴ There are even claims that the bombing of Knaben had a direct impact on the quality of the German panzer, making it more brittle and leading to a reduction in its shock-resistant qualities.⁵

Whether the war-making capabilities of the German war machine could be reduced by severing the supply of the raw materials for high-quality steel is not just a question of whether a well-placed bomb could put the Knaben mine out of commission. The supply chain also depended on the willingness of the Swedish owners of the mine and the Swedish government to facilitate the transfer of raw materials to Germany.⁶ Finally, it also required the collaboration of the Norwegian managers, as well as the labour provided by Norwegian miners. This also raises the question of whether Germany was able to successfully extract the desired resources from what they frequently termed one of the most

³ Olav Riste, “*London-Regjeringa.*” *Norge i krigsalliansen 1940–1945, vol II: Vegen Heim, 1942–45* (Oslo: Samlaget, 1979), 51, 54.

⁴ Fritz Hodne and Ola Grytten, *Norsk økonomi, 1900–1990* (Oslo: Tano 1992), 167. Christina Goulter, *A forgotten offensive: Royal Air Force Coastal Command's anti-shipping campaign, 1940–1945* (London: Frank Cass, 1996), 118, 303.

⁵ Steven Zaloga, *Panther vs Sherman. The Battle of the Bulge 1944* (Oxford: Osprey Publishing, 2008), 13.

⁶ Rolf Karlbom, “Sweden’s Iron Ore Exports to Germany, 1933–1944,” *Scandinavian Economic History Review* XIII (1965): 65–93; Alan Milward, “Could Sweden have stopped the Second World War?” *Scandinavian Economic History Review* XV (1967): 127–138.

important mines in Norway.⁷ Did they manage to establish a functioning relationship with the Swedish owners and Norwegian management, or did they have to rely on threats of force and forced labour to overcome resistance and deliberate under-production?

Mobilizing Molybdenum

The First World War had been an important lesson for all the Great Powers regarding the importance of strategic raw materials for modern industrialized warfare. New implements of war required an unprecedented amount of different raw materials, and embargoes became an important tool for the prosecution of the war. This included targeting the supply from neutral countries, and the Norwegian government was forced to cease exports of molybdenum to Germany. For Adolf Hitler and many of his fellow Nazis, the experiences of wartime shortages inspired a deep faith in autarky as the key to security.⁸

In the mid-1930s, autarky in ferro-alloys definitively looked like an uphill struggle for Germany. The USA enjoyed an almost complete natural monopoly in molybdenum. In 1938, it produced 15,100 tons, while Mexico and Norway accounted for another 500 tons each, with the rest of the world producing just 300 tons. The research institute of IG Farben estimated that Europe, excluding the Soviet Union, was dependent on outside sources for 92.5 % of all manganese, 92.2 % of all molybdenum, 89.2 % of all wolfram and 68.6 % of all antimony.⁹ The German stockpiles of ferro-alloys, including molybdenum, were desperately low by 1936. Nevertheless, Hitler dismissed suggestions that Germany should slow down armaments production to accumulate reserves. Instead, Hitler established the *Vierjahresplan* (Four-Year Plan), under the leadership of

⁷ GB Bau, Gabsdil to Naschschubleiter, 17 September 1943, Riksarkivet, RAFA 2188, E, E1, E1g, Box 32, M1. (2600).

⁸ Ian Kershaw, *Hitler: Nemesis, 1936–1945* (London: Allen Lane, 2000), 402.

⁹ Werner Abelhauser, Wolfgang von Hippel, Jefferey Johnson and Raymond Stokes. *German industry and Global Enterprise. BASF: The History of a Company* (Cambridge: Cambridge University Press, 2008), 275–7.

Hermann Göring, to adapt the German economy to the requirements of rearmament and reduce its dependence on imports.¹⁰

To reduce the German dependency on molybdenum imports was beyond the scope of even the most determined geological exploration or substitution programme. Some German metallurgists tried to improve molybdenum extraction from copper and iron by-products.¹¹ The Four-Year Plan established a domestic production target of 140 tons, an overall increase of roughly 40 %. Nevertheless, this covered only 4.2 % of German consumption in 1938. The dependence on imports ensured that for any prolonged campaign, German consumption of molybdenum would have to be dramatically reduced, and the remaining requirements had to be covered by stockpiling and looting.

In April 1938, the *Reichsstelle für Wirtschaftsausbau* (RWA) calculated that Germany had only five months consumption worth of molybdenum, and even less for other ferro-alloys. The RWA recommended acquisition of a stockpile that could last for 24 months of wartime production. If the foreign currency reserves were insufficient for the entire stockpiling programme, ferro-alloys must be prioritized.¹² This meant brisk business for Knaben. In 1935, Germany had only ranked third among its customers with 107 tons, well behind Sweden and France.¹³ In 1938, Germany imported 5,340 tons of molybdenum, roughly 32 % of world output, which was 2,000 tons more than it consumed. Norwegian molybdenum provided approximately 8 % of this.¹⁴ The stocks on hand rose rapidly, and by the outbreak of war, Germany had 3,800 tons of molybdenum available, equivalent to 13.4 months according to the prevailing consumption pattern.¹⁵

¹⁰ Dieter Petzina, *Autarkiepolitik im Dritten Reich*. (Stuttgart: Deutsche Verlags-Anstalt, 1968).

¹¹ Paul Krusch, "Deutschlands Vorräte an Stahlveredlungsmitteln," *Zeitschrift für praktische Geologie*, no. 44 (1936).

¹² Jörg Johannes Jäger, *Die wirtschaftliche Abhängigkeit des Dritten Reiches vom Ausland* (Berlin: Berlin Verlag, 1969), 117–118.

¹³ Statistisk Sentralbyrå, *Norges Handel* for the years 1933–1939.

¹⁴ Estimate calculated from figures provided by Jäger and *Norges Handel*, 1938.

¹⁵ United States Strategic Bombing Survey. 1945. *The effects of strategic bombing on the German war economy*. (Washington: Overall Economic Effects Division, 1945), 110, table 63.

Molybdenum Diplomacy

After German troops marched into Czechoslovakia in March 1939, US president Franklin Roosevelt tried to defuse the situation by asking the German dictator not to attack a long list of nations. Hitler responded by publicly mocking Roosevelt, among other things for his poor grasp of Germany's precarious resource situation: "The countless treasures of the earth that are placed at your disposal in unlimited amounts are denied to us."¹⁶ The very same month, Roosevelt received an analysis prepared by the US Treasury, which made the same point: an embargo on minerals could be a highly effective tool against the Axis nations, due to their "extreme vulnerability".¹⁷ The author of the study, Harry Dexter White, suggested that the highly concentrated molybdenum supply made it a suitable candidate for an embargo, but that such small tonnages were involved that it was not worth the effort. In the meantime, US exports of molybdenum rose sharply, predominantly to Germany's erstwhile allies, trading partners and other countries that were soon to fall under German domination.

After the outbreak of war, an embargo against Germany was coordinated between the still neutral USA and the Allies through the so-called Anglo-French Coordinating Committee. When Morgenthau asked the committee whether molybdenum was essential to Germany, the British replied that molybdenum and its substitutes were "absolutely essential to Germany for war purposes, since without them, she can make no special steels".¹⁸ The large German imports of molybdenum especially gave cause for concern (see Table 14.1). The US State Department issued a letter in mid-December 1939 to its domestic producers, suggesting that since molybdenum was used in aircraft steel, it was covered under Roosevelt's

¹⁶ Foreign Relations of the United States 1939, vol. I, 130–133; Adolf Hitler, *Der Führer antwortet Roosevelt: Reichstagsrede vom 28. April 1939*. (München: NSDAP Zentralverlag, 1939), 60.

¹⁷ White to Morgenthau, 8 April 1939, Mudd Library, Princeton, Harry Dexter White Papers, Box 9, Preliminary Report on the Possibilities of Depriving the Aggressor Countries of Needed Strategic War Materials, 1939 April 8.

¹⁸ Lothian to war cabinet, 12 December 1939; Foreign Office to Lothian 23 December 1939, Public Records Office, Kew, CAB 85/60. This archive is hereafter referred to as PRO.

Table 14.1 Molybdenum purchases by the Great Powers from the US Climax mine, 1937–39 (metric tons)^a

	1937	1938	1939
Germany	2,676	3,102	1,109
Russia	3,039	2,268	4,399
England	1,688	762.5	1,134
France	480	399	483
Japan	263	552	1,587

^aNotes on World Production of Molybdenum and consumption by certain countries, December 5 1939, PRO, Cab 85/60. The Climax mine accounted for roughly 75 % of US output

moral embargo.¹⁹ US exports of molybdenum thereafter fell drastically, from 67 % in 1939 to 19 % of domestic output in 1940.²⁰

The discussion of a molybdenum embargo set off a competition for the Norwegian output that saw Knaben courted by French, British and German buyers. The Coordinating Committee hoped to purchase the entire Norwegian production of molybdenum, if necessary to put it in storage: “It is essential from the point of view of economic warfare to prevent the Germans getting this.”²¹ The rising profile of Knaben as the main European supplier to Germany made the company uncomfortable, prompting the management to seek advice from the government. The Norwegian government hoped to remain neutral in another Great Power conflict, and needed to tread carefully. Knaben received assurances that as long as it held export licences, any diplomatic fallout was the responsibility of the government. The risk of being blacklisted by the Allies would in no case outweigh the risks involved in antagonizing the German government.²²

Even if Knaben hypothetically had sold its entire production to the French and British, the embargo was in any case a matter of too little, too late. The British estimated that Germany would not need substantial imports of non-ferrous metals for the first 15 months of an eventual war,

¹⁹ Max Schott to stockholders, 28 December 1939, Ibid.

²⁰ US Geological Survey, *Minerals Yearbook Review of 1940*, 609–613.

²¹ Monnet to Purvis, 16 February, PRO, CAB 85/60, 1940 Ibid.

²² P.M. angående direktør Sverres og ingeniør Borchgrevinks besøk i UD, 11 September 1939, RA, Landssviksarkivet, Oslo Politikammer Dnr. 3139, dokument nr. 98. This is hereafter referred to as RA, L-sak 3139.

although the frenetic German activity made them wonder whether they had overestimated their stocks.²³ This was not the case. The *Reichswirtschaftsministerium* (Ministry of Economy/RWM) calculated that if consumption could be cut from 210 to 160 tons per month, German molybdenum stockpiles would last for 17 months.²⁴ The German government carefully tended to its stocks, and when Mussolini called for supplies to enable Italy to fight France and Great Britain, the so-called *lista molibdeno*, the request for 600 tons of molybdenum was rebuffed.²⁵ In fact, just before the outbreak of war, the RWA warned that the German economy over time would face large deficits of molybdenum, a shortfall that Finland and Norway could help make up for.²⁶

Look to Norway! And Then to Sweden

The occupation of Norway provided tantalizing opportunities to expand the German resource base. *Reichskommissar* Josef Terboven entertained great plans to integrate the Norwegian economy into the *Grossraumwirtschaft*, which would entail a “happy and secure future” for the Norwegian people.²⁷ The *Reichskommissariat* immediately started exploration for new mineral deposits. It quickly established contact with Knaben’s management and urged an immediate expansion of production. The role of finding some arrangement with the company soon passed to the main German consumer of molybdenum, the steel giant Krupp, who retained this responsibility for the remainder of the war.

The disposition of Knaben’s output and an eventual expansion could not be settled between the Germans and Norwegians alone. Majority

²³ William Medlicott, *The economic blockade, vol.I.* (London: H.M. Stationery Office, 1978), 32. “Molybdenum” Undated memorandum discussed at Permanent Executive Committee for Economic Warfare, 15 February 1940, PRO CAB 85/60.

²⁴ Figures derived from Jäger, *Abhängigkeit*, table 12 and 13, p. 119–121.

²⁵ William Shirer and Ron Rosenbaum, *The Rise and fall of the Third Reich: A History of Nazi Germany* (New York: Simon and Schuster, 2011).

²⁶ Dietrich Eicholtz, “Die Grossraumwehrwirtschaft für den grossen Krieg. Zwei Geheime Memoranden der Reichsstelle für Wirtschaftsausbau vom Frühjahr/sommer 1939” *Bulletin des Arbeitskreises “Zweiter Weltkrieg”* 1–4 (1986): 86–160. Particularly 116, 126.

²⁷ Berit Nøkleby, *Josef Terboven, Hitlers mann i Norge* (Oslo: Gyldendal, 2008), 141.

ownership was held by the Swedish firm Axel Johnson & Co, which used molybdenum to produce specialty steels at Avesta. Facing unprecedented demand, Axel Johnson had already resolved to secure the entire output in 1940 for itself. This was naturally unacceptable for the Germans, and negotiations in late May resulted in an agreement where Krupp would buy two-thirds of the remaining production in 1940.²⁸

In September 1940, Axel Johnson and Krupp reached a new deal for the next four years. The deal included an expansion of daily output of raw ore from 1,300 to 2,000 tons, equivalent to an annual production of 1,000 tons MoS_2 . This expansion plan actually pre-dated the war. Even before the long-term deal was finalized, Knaben's Norwegian director solicited the Norwegian government for new land and materials for the imminent expansion, stressing that "explorations were already under way, and needed to be expedited as much as possible".²⁹ The expansion would be financed by Krupp through an extra premium of \$1.50 on top of the already agreed price of \$14.50 pr. unit (10.16 kg) MoS_2 . In return for financing the expansion, Krupp's share of the output would increase from 66.67 % to 75 %.³⁰ Of the production, 65 % would be shipped directly to Germany as MoS_2 -concentrate, while another 10 % would be sold as ferromolybdenum from Avesta.

Krupp held good cards in the negotiations. There was an underlying threat that the mine could be placed under German administration, which could have severed the supply to Axel Johnson and the entire Swedish arms industry. Yet, the German authorities also needed a workable relationship with neutral Sweden, which was an important source for many Norwegian imports, including the machinery needed for the expansion of Knaben. Under the circumstances, Axel Johnson

²⁸ Fried. Krupp AG to A. Johnson & Co. 11 June 1940, RA, L-sak. 3139, dokument nr. 24; Minutes of Knaben Board Meeting 28 May 1940, Ibid.

²⁹ Sverre to Handelsdepartementet, Industrikontoret, 8 July 1940, RA, S-4153 Direktoratet for industriforsyning, D, De, 1940–1942, Box 23, Diverse malmer; Questionnaire, A/S Knaben Molybdængrubber, 19 June 1940, Riksarkivet, S-2345 Forsyningsdepartementet, Nemnda for industri og omsetning, D, Box 1, Bergverk; P.M. by Director Sverre 6 June 1940, RA, L-sak 3139, dokument nr. 50.

³⁰ Aktenvermerk 3 August 1940, Krupp archive, WA 69/983; Vertrag zwischen Krupp und A. Johnson & Co. signed 17 September 1940 (Krupp) and 5 December 1940 (Johnson). Krupp archive, WA 142/2902.

obtained a very favourable deal.³¹ The contract price was much higher than what the company had obtained before the war, which allowed for a very handsome profit, but also included a cost-plus floor price. The managing director anticipated that this arrangement would fully pay for the expansion over a few years, improve the company's finances and make it more robust for the post-war period.³²

The arrangement between Johnson and Krupp was also very favourable for Norwegian state finances. The deal stipulated that Johnson would receive payments for the molybdenum over the German–Swedish clearing, and the company would then pay Knaben over the Swedish–Norwegian clearing. Consequently, even the molybdenum shipped directly from Norway to Germany would be paid over Swedish–Norwegian clearing. This arrangement was altered by the RWiM in the summer of 1941. Eager to save its Swedish currency for other German imports, the RWiM dictated that 90 % of the molybdenum shipped directly from Norway to Germany would be paid over the German–Norwegian clearing, which showed a clear Norwegian deficit.³³ Protests from the Norwegian puppet government and Knaben management were summarily dismissed. Despite this, with 41.5 % of Knaben's molybdenum exports still paid through the Swedish–Norwegian clearing, it remained a highly valuable source for Swedish currency.³⁴

After 1940, all Norwegian exports of molybdenum went exclusively to Sweden and Germany. The tri-lateral relationship worked well at first, as all parties shared an interest in maintaining production and expanding the facilities. However, disagreements over what constituted a reasonable profit for Axel Johnson were a source of friction between the two companies. The arrangement was revised on several occasions, mainly to adjust the prices to offset rising production costs.³⁵ Nevertheless, compared to other sources of molybdenum, Knaben provided a good return on the

³¹ Sverre to Blekum 3 August 1940. RA, L-sak. 3139, dokument nr. 23.

³² P.M. by Director Sverre 6 June 1940, RA, L-sak 3139, dokument nr. 50.

³³ Hein Klemann and Sergei Kudryashov, *Occupied Economies: An Economic History of Nazi-occupied Europe, 1939–1945*, English ed. (London: Berg, 2012), 210, Table 13.3.

³⁴ A/S Knaben Molybdængruber to Handelsdepartementet, 29 November 1941 RA, S-2218 Handelsdepartementet, Dir. for eksport og importregulering, Dir. Bjerkes arkiv, Box 1.

³⁵ Protokoll 24 June 1942. Krupp archive, WA 142/2902.

money for Krupp.³⁶ It had a stake in numerous smaller Norwegian mines through its subsidiary *Det Norske Bergselskap*,³⁷ and conducted extensive mineral explorations. Only the mines in Oterstrand and Sørumsåsen became fully operational during the war. Opening these two mines alone cost Krupp a total of 4.4 million RM,³⁸ and required hundreds of Norwegian workers and German *Bergbausoldaten* (mining soldiers) to extract only 148 tons of low-grade molybdenum concentrate during the whole war.³⁹ In comparison, Krupp spent only 6.5 million RM on Knaben, which included the reparations following two air raids, ultimately providing over 1,600 tons of high-grade concentrate for Krupp.⁴⁰

Demand Surplus

As German troops advanced relentlessly across the Russian steppes in late 1941, Adolf Hitler regaled *Reichswirtschaftsminister* Walther Funk with his plans of incorporating the newly conquered territories into a new Europe, thereby transforming it into a region of boundless possibilities: “There can be no country that can be to a larger extent autarkic than Europe will be. Where is there a region capable of supplying iron of the quality of Ukrainian iron? Where can one find more nickel, more coal, more manganese, more molybdenum?”⁴¹ While the *Führer* pontificated, the strains of war were depleting the molybdenum stocks faster than anticipated. Furthermore, Operation Barbarossa had naturally terminated the contract for 500 tons of molybdenum from the Soviet Union, signed

³⁶ Aktenvermerk (Kyllman) 18 January 1943. Krupp archive, WA 142/2902.

³⁷ Reichskommissariat Hauptabteilung Volkswirtschaft, Deutsche Wirtschaftsinteressen in Norwegen, 21 March 1941, RAFA 2200, Serial 1114.

³⁸ Including mineral explorations, but not including operational costs.

³⁹ “Übersicht über die wichtigsten Beteiligungen der Firma Fried. Krupp, Essen, an ausländischen Unternehmungen zur Gewinnung und Beschaffung von Legierungserzen”. Krupp archive, WA40/B («Krupp-Prozess»). See also annual reports given in *Norges Bergverksdrift* 1940–1945.

⁴⁰ Hans Claussen Korff “Norwegens Wirtschaft im Mahlstrom der Okkupation” RA, PA 951, Hans Claussen Korff, box 2, p 123.

⁴¹ Hugh Trevor Roper, ed. *Hitler's Table Talk, 1941–44: His private conversations* (New York: Enigma Books, 2007), 43.

as late as mid-April 1941 and not yet delivered.⁴² By the end of 1941, remaining stocks were estimated to last only another six months, causing the German authorities to further tighten rations and look desperately for new sources.⁴³

The increasing importance of molybdenum is evident from the management practices at the Knaben mine itself. Despite Krupp's strong interest in molybdenum deliveries, the capacity was not fully utilized during the first two years. This was due to manpower shortages and a lack of construction materials, rather than any attempt at under-production. The Norwegian management had anticipated shortages early on, and had extracted promises that Krupp would help to secure the necessary materials.⁴⁴ Another problem was that Knaben's employees left in droves for better-paid jobs in the construction sector, which was booming with *Wehrmacht* contracts for airfields, bunkers and infrastructure. Due to a nationwide wage cap, Knaben could not match the often illegally high wages offered by entrepreneurs, and it unsuccessfully pleaded with the *Reichskommissariat* to make the *Wehrmacht's* contractors refrain from hiring its workers.⁴⁵ In the summer of 1941, the mining trade organization issued a warning to "open the eyes of Berlin" and force the regime to intervene against the disruptive effect of the construction programme.⁴⁶ The situation reached its nadir in the summer of 1941, when the Knaben mine was forced to close for several months due to shortages of water for the flotation plant, and concrete for a new dam to solve the water problem.⁴⁷ In the meantime,

⁴² Edward Ericson, *Feeding the German Eagle: Soviet Economic Aid to Nazi Germany, 1933–1941* (Greenwood, 1999), 170, Table 5.1, 211. These were not delivered by August 1941, according to table 5.4, 220.

⁴³ Jäger *Abhängigkeit*, 292 on looking for new sources.

⁴⁴ Knaben to Raabe, A. Johnson & Co. 10 August 1940, RA, L-sak 3139, dokument nr. 23.

⁴⁵ Sverre to Reichskommissar, Wirtschaftsabt. 23 August 1940. L-sak 3139, dokument nr. 23.

⁴⁶ Sverre to the Board of Knaben. 6 June 1941. RA, L-sak 3139, dokument nr. 50. Bergverkenes Landssammenslutning (Rogstad) to Bergverksutvalget. 11 June 1941. RA, L-sak 3139, dokument nr. 20.

⁴⁷ Knaben to Forsyningsdepartementet 26 March 1941. Sverre to Engelmann/Reichskommissar 5 May 1941. L-sak 3139, dokument nr. 24.

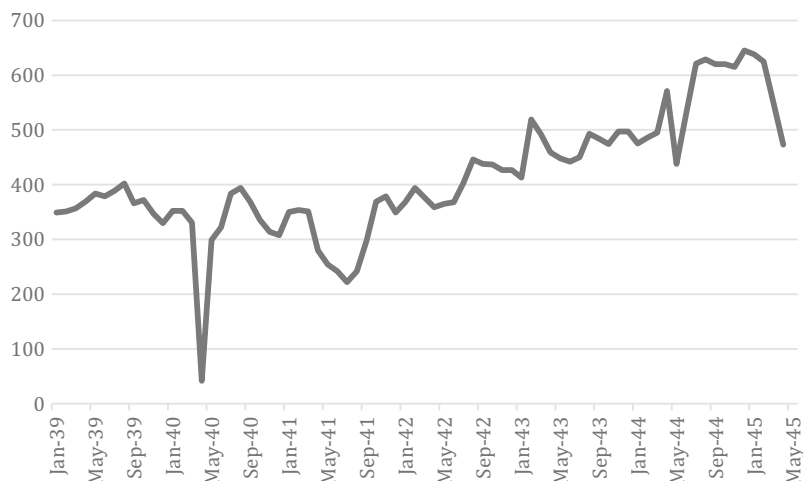


Fig. 14.1 Workforce at Knaben, 1939–45 (Figures are from: Knaben Molybdengruber (Krogh) to Flekkefjord Politikammer. 17.10.1945. RA, L-sak 3139, dokument nr. 18. These figures include Soviet forced labourers, but not the 130 Bergbausoldaten)

the available labour was transferred to Lista airport, and a number of workers took the opportunity to abscond (Fig. 14.1).⁴⁸

The *Reichskommissariat* was certainly aware of the labour shortages, but curtailing the demand from the *Wehrmacht* proved difficult. Instead, it introduced new measures of coercion on the supply side. Already in April 1941, the *Reichskommissariat* passed a new regulation that prohibited workers in certain industries (including mining) from resigning.⁴⁹ Another wide-ranging decree came into law on 9 July 1941, which allowed the authorities to forcefully conscript Norwegian civilians for “work particularly important to society”. While this decree aimed at covering the *Wehrmacht’s* ever-increasing labour demand, mines such as

⁴⁸ Direktør Sverre, Knaben Molybdengruber til Handelsdepartementet, 23 January 1943; Sverre til Handelsdepartementet 11 November 1941, Rolf Andersen til Norges Clearinginstitut, 25 January 1943, Notat, Molybden fra Norge som kompensasjon for molybdenholdige varer fra Sverige, 23 August 1941, Riksarkivet, Handelsdepartementet, Dir. for eksport og importregulering, Dir. Bjerkes arkiv, S-2218, Box 1.

⁴⁹ Knaben Headquarter to Knaben Gruber 3 May 1941; Knaben Headquarter to Knaben Gruber 14 June 1941. Blekum to A/S Knaben Molybdengruver 28 May 1941; Sverre to Direktorat for Arbeidsformidling, 4 June 1941. RA, L-sak 3139, dokument nr. 25.

Knaben would also be prioritized.⁵⁰ With the legal foundation in place, the *Reichskommissariat* conscripted 220 Norwegian civilians to the molybdenum mine, of which 150 were former employees forced to “return to where they belonged”.⁵¹ By the end of 1942, the number of people engaged in the molybdenum industry in Norway had reached 621, of which 415 were employed at Knaben.⁵²

The new powers of conscription did not solve the labour problem. Low morale, truancy and under-performance were rife, as the workers disliked being moved about and having their conscription periods prolonged.⁵³ The first steps to instil discipline were taken in the late summer of 1941, when the Norwegian management realized that it somehow had to police the unfree labour. Since it wished to avoid deployment of German soldiers, the managers explored the possibility of fining workers who shirked. After conferring with the *Reichskommissariat*, they were informed that absenteeism was covered by the new anti-sabotage laws introduced on 17 September 1941, punishable by prison or even death in serious cases.⁵⁴ Since the legal framework for issuing fines was still pending, the managers made an example by reporting three particularly troublesome employees to the *Reichskommissariat* and the SS.⁵⁵ This was later followed up by a further “lesson”, when 24 absent workers were fined sums equivalent to

⁵⁰ Gunnar Hatlehol, ““*Norwegeneinsatz*” 1940–1945: Organisation Todts arbeidere i Norge og gradene av tvang” (Unpublished PhD manuscript NTNU, 2015), 128–134.

⁵¹ Reichskommissariat (Ashoff) to County Governour of Vest-Agder 25 July 1941. Statens Direktorat for Arbeidsformidling to Vest-Agder fylke. 12 August 1941. RA, L-sak 3139, dokument nr. 51. Quote from B.V.L.A. (Rogstad) «Cirkulerskrivelse nr.17» 5 August 1941. RA, L-sak 3139, dokument nr. 77.

⁵² Belegschaft der wichtigsten norwegischen Bergwerke am 31 December 1942. RA, S-1331 Næringsdepartementet, D, Db DbA, L 0064.

⁵³ Letter from Reichskommissariat, Abt. Arbeit und Sozialwesen to Reichskommissariat, Abt. Ausfuhrwirtschaft und Bergbau, Gruppe Bergbau, 26.1.1943. RA, Reichskommissariat, Eci, box 66. Letter from Direktorat für Arbeitsvermittlung und Arbeitslosenversicherung to Reichskommissariat, Abt. Arbeit und Sozialwesen, 17 February 1943. Ibid.

⁵⁴ Sverre to Blekum. 21 August 1941; Sverre to Blekum. 18 September 1941. RA, L-sak 3139, dokument nr. 23.

⁵⁵ Sverre to Parbrot. 4 October 1941; Sverre to Blekum 6 October 1941; Sverre to B. Christiansen 22 October 1941, RA, L-sak 3139, dokument nr. 23. Blekum til Sverre 23 September 1941. RA, L-sak 3139, dokument nr. 24.

80–160 hours' wages.⁵⁶ Moreover, Johnsons' Swedish overseer reworked the wage system over the spring of 1942 to introduce stricter minimum standards and penalize under-performance.⁵⁷ Even so, the Germans remained unimpressed, and warned the leadership that they themselves could also be held responsible if they allowed absenteeism under false pretences.⁵⁸

Knaben Under German Management

Knaben not only struggled to deliver on its promised expansion due to shortages, but also failed to come close to its pre-war production in 1941. The molybdenum content of the extracted ore was far below the company's projections, and the manpower problem persisted.⁵⁹ These problems tried the patience of their Swedish owners and German customers. As part of a new agreement reached between Johnson and Krupp in September 1941, Johnson sent an engineer to oversee production.⁶⁰ This arrangement lasted until the summer of 1942, when Johnson agreed to give one of Krupp's engineers, Dr. Böhne, full authority over the facility. Böhne appointed Detlef Schmarje to run and reorganize the operation, bolstered by a team of German and Swedish mining engineers. Krupp also decided to import a team of German miners.⁶¹ For the remainder of the war, mining operations at Knaben were fully subordinated to Krupp's authority.

Krupp and Johnson for a long time retained a cordial relationship, and both parties were in full agreement that more efficient management was

⁵⁶ Blekum to Sverre 8 November 1941. RA, L-sak 3139, dokument nr. 24. Witness statement by Aadne Senland 12 January 1946. Witness statement by Bernhart Biktjörn. 28 January 1946. RA, L-sak 3139, dokument nr. 42.

⁵⁷ Sverre to A. Johnson & Co. 28 March 1942. RA, L-sak 3139, dokument nr. 23.

⁵⁸ "22. April 1942 ankom uanmeldt følgende tyske herrer til Knaben Gruber". 21 April 1942. RA, L-sak 3139, dokument nr. 104.

⁵⁹ See various transcripts regarding "Production and labourers", pp.1–10. RA, L-sak 3139, dokument nr. 25.

⁶⁰ Sverre to Brodtkorb 19 September 1941. RA, L-sak 3139, dokument nr. 23. For the deal in general, see: Kyllmann and Soll to Johnson. 19.09.1941. Krupp archive, WA 142/2902

⁶¹ The team consisted of 17 miners, who arrived to Knaben in August 1942. Knaben Molybdengruber (Krogth) to Flekkefjord Politikammer. 17 October 1945. RA, L-sak 3139, dokument nr. 18.

necessary.⁶² To keep workers productive, the German overseers employed both the stick and the carrot. Schmarje introduced a more efficient piecework system, and in addition to increased wages and rations, productive workers would receive additional tobacco and alcohol.⁶³ The *Reichskommissariat's* propaganda division even arranged a Christmas party, with booze, cigarettes and a brand new romantic comedy film, noting that it resulted in a rowdy, but joyous, Aryan comradeship. While there had been some fighting, no knives or chairs were used, and all in all "the overall racial impression was that of a pleasant German *Bürgergesellschaft*".⁶⁴

With the mine under Krupp's authority, Schmarje introduced a tighter control system for the workforce. Offenders were reported to and fined by the German *Sicherheitspolizei* (Security Police).⁶⁵ Krupp wanted even more vigorous policing and harsher punishment for absenteeism and absconding, but Dr. Böhne's suggested level of fines was dismissed by the *Reichskommissariat* as "out of the question".⁶⁶ While Knaben was an important supplier to the German war industry, the *Reichskommissariat* was also responsible for maintaining order and integrating the Norwegian population into the future Aryan brotherhood. With this in mind, there was limited room for harsh measures.

No such inhibitions existed for the workers who did belong to the Germanic community. To relieve the labour shortages, Dr. Böhne tried to obtain 200 "cheap Russians", that is, civilian forced labourers from the Soviet Union.⁶⁷ However, Carlo Otte, head of *Hauptabteilung Volkswirtschaft* and a close aide to Terboven, preferred to obtain the necessary workers by conscripting more Norwegians in order to keep

⁶² "Besprechnung in Oslo" 24 June 1942. Krupp archive WA 142/2902.

⁶³ Jan Rob, "Erst die Maschinen—dann die Menschen," in *Knaben II: I berget det blå*, ed. Knabens Venner, *Knabens Historie* (Kvinlog: Knabens Venner, 2007), 31.

⁶⁴ "Der rassische Gesamteindruck war der einer angenehmen deutschen Bürgergesellschaft". Hauptabt. Propaganda to Reichskommissar Terbhoven, 14 December 1942. RA, RAFA-2174, Reichskommissariat, Eci, box 66.

⁶⁵ See statements by Eilif Reftein 25 January 1946 and Bernhart Biktjörn 28 January 1946, RA, L-sak 3139, dokument nr. 42.

⁶⁶ Reichswirtschaftsministerium (Gabel) to Reichskommissariat Norwegen (Maucher) 9 November 1942. Reichskommissariat Abt. Arbeit to RK. Abt. Ausfuhr und Bergbau, dated 15 January 1943. RA, RAFA-2174, Reichskommissariat, Eci, box 66.

⁶⁷ Dr. Böhne to Knaben, Oslo 12 November 1942. RA, L-sak 3139, dokument nr. 24.

Russian forced labourers separate from civilian Norwegians.⁶⁸ Böhne would have to wait until 1944 to get his way.

The new measures led to increasing output over the course of 1942. According to witnesses after the war, the installation of new machinery, as well as the reorganized reward and punishment system, played an important part. By late January 1943, daily production had reached 1806 tons of raw ore pr. day, which on average would produce 2.85 tons of MoS₂.⁶⁹ This was still 600 tons short of the planned daily capacity, but Knaben was creeping back towards its pre-war production level after two difficult years. It was not to last.

The Utility of Strategic Bombing

The main source of molybdenum for Nazi-occupied Europe presented a convenient target. The Casablanca meeting of the Allied powers in January 1943 resulted in a coordinated effort to destroy the German war-making capabilities through a round-the-clock bomber offensive.⁷⁰ But what targets were to be hit? The US Army Air Force (USAAF) sought to hit the “vital nodes, the destruction of which would have wide-ranging and perhaps catastrophic consequences”.⁷¹ The British Ministry of Economic Warfare (MEW) also believed that there were weak spots in the German industrial economy that could be attacked with great effect.⁷² The British Bomber Command preferred area bombings designed to destroy the morale of the German population. The chief of Bomber Command, Arthur “Bomber” Harris, frequently ridiculed economic experts for their belief that the destruction of “panacea targets”, like

⁶⁸ Memorandum for Otte. 23 October 1942. RA, RAFA-2174, Reichskommissariat, Eci, box 66. Carlo Otte (Haubtabteilung Volkswirtschaft) to Reichskommissariat, Abt. Ausfuhr und Bergbau. 30 October 1942. Ibid.

⁶⁹ Oslo Main Office to Knaben Gruber 25 January 1943. RA, L-sak 3139, dokument nr. 25.

⁷⁰ Edwin Snell and Maurice Matloff, *Strategic Planning for Coalition Warfare, 1941–42* (Washington DC: Department of the Army, 1953), 381.

⁷¹ Williamson Murray, Allan Millett, *A war to be Won. Fighting the Second World War* (Cambridge: Belknap Press, 2000) 31.

⁷² Levine, *Strategic Bombing*, 37–38.

synthetic oil, ball bearings, or molybdenum, would spell disaster for the German war effort.⁷³

Knaben could provide an important test case regarding the ability to stop the flow of a vital resource and thereby halting the armaments production of the enemy. Just as the bombing campaign got underway in March 1943, a strike force of ten Mosquitos hit the mining facilities at Knaben on 3 March. The first reports regarded the operation as a "complete success".⁷⁴ Archibald Sinclair, the Secretary of State for Air, reported to the War Cabinet that the attack on what they believed to be the source of 75 % of German molybdenum would cease production for at least ten months.⁷⁵ Dingle Foot, the parliamentary secretary of the MEW, concluded that: "Area bombing [...] is no longer the only weapon in the armament of the bomber offensive. To the bludgeon, the Royal Air Force and the United States Air Force have now added the rapier."⁷⁶

After the first British elation at the successful strike, aerial reconnaissance revealed that it was far from a decisive blow.⁷⁷ At the same time, the USAAF had started to seriously question whether the sources of raw materials were the proper place to strike. Even a successful attack took months to impact on the output of war material, and there were always possibilities of reducing consumption and substituting other materials. Yet, the Americans did not abandon the idea of eliminating the "vital nodes" in the enemy's war economy.⁷⁸ The realization that the initial strike had been less debilitating than expected, and that the Germans were hard at work in restoring the facilities, prompted the USAAF to strike at Knaben in November 1943. On 16 November, 130 B-17 s

⁷³ Arthur Harris, *Bomber Offensive* (London: Greenhill Books, 1947), 76, 221–2.

⁷⁴ War Cabinet Weekly Résumé no 183 of the Naval, Military and Air Situation from 0700 February 25th to 0700 March 4th 1943, W.P. (43) 94, 11 March 1943, PRO, CAB/66/34/44; War Cabinet Weekly Résumé no 184 of the Naval, Military and Air Situation from 0700 March 4th to 0700 March 11th, 1943, W.P. (43) 107, 4 March 1943, PRO, CAB/66/35/7.

⁷⁵ War Cabinet memo by Secretary of State for Air, Summary of operations of Bomber Command for fortnight ending 1200 hours, Sunday march 14, 1943, W.P. (43) 126, 25 March 1943, PRO, CAB 66/35/26.

⁷⁶ *Hansard*, 8 July 1943.

⁷⁷ War Cabinet Memo, by Secretary of State for Air, Summary of operations of Bomber Command for Fortnight ending 1200 hours, Sunday March 28, 1943, 5 April 1943, W.P. (43) 142, PRO, CAB/66/35/42.

⁷⁸ Tooze, *Wages of Destruction*, 653.

dropped 313 tons of bombs over Knaben, destroying the flotation mill, the ore conveyor, the workshop and the barracks.⁷⁹ Mining restarted in the beginning of February 1944, but the flotation mill was not in operation before the summer of 1944, and would not be completely repaired before the end of the war.⁸⁰

The second bombing raid provided grist for the mill for those who argued for precision bombing. On Christmas Eve 1943, the MEW reiterated its conviction that the German position in ferro-alloys was more serious than at any previous moment, and that their stocks were nearing exhaustion.⁸¹ Lord Harry Louis Nathan, later the Undersecretary of State for War, explained to his fellow lords that:

[T]his, my Lords, is a war of scarce metals, of precision engineering, of alloys like nickel, chrome, cobalt and tungsten. So we bombed the molybdenum mines at Knaben; we attacked them twice and successfully. [...] Our economic warfare is taking the cutting edge off the German war machine on the eve of our invasion.⁸²

Even on the eve of the invasion of the European continent, the MEW and the Norwegian High Command still listed Knaben as a suitable target.⁸³ But for all the bluster about economic warfare and precision bombing, there was no mistaking the change in priorities as the invasion drew nearer. The effects of the second raid at Knaben in November 1943 were expected to wear off by May 1944.⁸⁴ As the date approached, the US Foreign Economic Administration urged a new push against the German

⁷⁹ Attack on Fertiliser Works at Rjukan by USAAF, dated 9 December 1943. PRO, AIR 2/8002. Vorläufiger Bericht über den Bombenangriff auf Knabengrube am 16 November 1943, signed Müller 19 November 1943, RA, RAFA 2174, Reichskommissariat, Eci, box 66.

⁸⁰ Rob, "Erst die Maschinen" 46–47.

⁸¹ War Cabinet Memo, Ferro-Alloys. "The German Supply position" from the minister of Economic Warfare, W.P (43) 583, 24 December 1943, PRO, CAB/66/44/33.

⁸² *Hansard*, 9 May 1944.

⁸³ Bombing Targets in Norway, Mutual agreement between HM Govt & Norwegian Govt re bombing of shore establishments Letter from the Admiralty to the Foreign Office 24 July 1944; Norwegian High Command's Comments on Priority Targets in Norway 31 May 1944, PRO, ADM 1/16,347.

⁸⁴ Charles Webster and Noble Frankland, *The Strategic Air Offensive against Germany, 1939–1945*, pt. 4. (London: H.M Majesty's Stationery Office, 1961), 256.

supply of ferro-alloys, suggesting that "Germany's war production would be materially affected within six months." But by then, President Roosevelt had concluded that the only way to halt the Norwegian flow of molybdenum and other ferro-alloys was through direct military action, but he did not propose to meddle with Soviet military dispositions to make it happen.⁸⁵

The Knaben Bombings and the German–Swedish Relationship

Two weeks after the first attack, Dr. Plotzki from the *Reichskommissariat, Abteilung Ausfuhrwirtschaft und Bergbau* (Division of Export Industry and Mining) toured the area with the *Organisation Todt Oberbauleiter* from Kristiansand. They found the entire lab in ruins, and that of the five flotation machines, two were damaged and two were completely destroyed. Only two of the six transformers survived intact. The raid had also killed 16 Norwegian labourers, as well as Krupp's zealous overseer, Detlef Schmarje.⁸⁶ Plotzki, who was Krupp's man in the *Reichskommissariat*, quickly determined that every measure had to be taken to restore production. *Reichmarschall* Hermann Göring personally ordered every German institution, whether in the *Reich* or in Norway, to put the mine back into operation as quickly as possible. The *Luftwaffe* subsequently also took a keen interest in improving the defences of the mine area.⁸⁷

Besides the immediate damage to the actual facilities, the first bombing of Knaben made it clear that the Allies considered it an important contributor to the German war economy. This increased the pressure not only on the Swedish owners, but also on the Swedish government. As a

⁸⁵ Crowley to Franklin Delano Roosevelt (FDR), 19 May 1944; FDR to Crowley, 30 May, 1944; Crowley to FDR, 5 June, 1944; Stettinius to Crowley, 28 June, 1944; Crowley to FDR, 16 June 1944, Franklin Delano Roosevelt Library, Franklin Delano Roosevelt Papers, Private Secretary File, Box 134.

⁸⁶ Rob, "Erst die Maschinen", 36.

⁸⁷ Vermerk, Wiederaufbauarbeiten bei der Knaben Molybdän-Grube, undated; Note by Feuchtinger, 19 May 1943; Chef des Generalstabes, Luftgaukommando Norwegen an der Norwegischen Industrieverband, Kontor für Industrieluftschutz, 18 April 1943, RA, RAFA 2188, E,E1 E1g, 32, M1. (2600).

neutral country surrounded by belligerents, Sweden walked a tightrope in its economic relations with Germany. Pressuring Germany was not easy, as it in 1943 accounted for 47 % of all Swedish foreign trade, while the UK accounted for 2 % and the USA a mere 1 %.⁸⁸ Nevertheless, German military reversals forced the Swedes to adapt to a different prospect for the post-war world.⁸⁹

After the war, the Swedish ambassador to Norway, Johan Beck-Friis, claimed that the Mosquito bombing raid marked a turning point in Swedish policy towards the Knaben mine. Sweden's access to molybdenum had taken precedence before 1943, but following the attack the Swedish government, Axel Johnson and Knaben's Norwegian leadership took action to limit the output from the mine.⁹⁰ Yet, the change in policy seems to have occurred later, and the Swedish government was initially very hesitant. In the wake of the first bombing, a demarche from the Allied governments implored the Swedish exporters to halt deliveries of necessary machinery to Knaben. However, when the private firms refused to incur the losses this involved, the Swedish government concluded that it could not force them to cease deliveries already agreed under the Swedish–Norwegian trade agreement for the first half of 1943.⁹¹ The turning point seems to have come with the conclusion of the Swedish–Allied Tripartite War Trade Agreement, signed on 23 September 1943. Under Allied pressure, the Swedish government agreed to reduce export of a large number of goods to the German *Großraum*, including machinery.⁹² Once the USAAF had pounded the mine again, the British and Norwegian governments sent an official protest to Sweden, in which they pointed to the decisive significance

⁸⁸ Peter Hedberg, *Handeln och betalningarna mellan Sverige och Tyskland 1934–1945: Den svensk-tyska clearingepoken ur ett kontraktsekonomiskt perspektiv* (Uppsala: ACTA UNIVERSITATIS UPSALIENSIS, 2003), 154.

⁸⁹ Martin Fritz, "Swedish Adaptation to German Domination in the Second World War," in Joachim Lund (ed.) *Working for the New Order. European business under German Domination, 1939–1945*. (Copenhagen: University Press of Southern Denmark, 2006), 129–140.

⁹⁰ Johan Beck-Friis to Harald Jentoft 19 July 1946. RA, L-sak 3139, dokument nr. 77.

⁹¹ Ingela Karlsson, "Sveriges Ekonomiska Relationer med det Ockuperade Norge," in *En (O)Moralisk Handel?– Sveriges Ekonomiska Relationer Med Nazityskland*, Martin Fritz, Birgit Karlsson, Ingela Karlsson & Sven Nordlund (Stockholm, Forum för Levande historie, 2006) 81–117.

⁹² Gunnar Häggelöf, *Svensk krigshandelspolitik under andra världskriget* (Stockholm: Norstedt, 1958), 249–306.

of Knaben for German military capabilities, and warned of consequences for the post-war relationship if Sweden again provided assistance for its reconstruction.⁹³

While the Swedish government was slowly beginning to re-evaluate its policy regarding exports of machinery to occupied Norway, Axel Johnson decided to hedge its bets. Following the Mosquito bombing raid, Johnson provided machinery and spare parts for the reconstruction of the mine. This was handled in a way that deliberately circumvented the German–Swedish clearing.⁹⁴ At the same time, Johnson was also in contact with the British ambassador in Stockholm to see if Knaben's board could be held accountable for not resigning, after not being consulted before reconstruction commenced.⁹⁵ Theodor Sverre, Knaben's Norwegian director, took a less ambiguous step. In the autumn of 1943, he contacted the Norwegian exile government's ambassador in Sweden, and provided information on the mine and its air defences.⁹⁶ Whether this information ever reached Bomber Command is unknown.

The changing fortunes of war changed the attitudes of Knaben's Swedish trading partners, but the bombings also directly impinged on the clearing balances. Due to the bombing raids at Knaben and Herøya in 1943, there were large outstanding deliveries of calcium nitrate and molybdenum owed to Sweden. During negotiations for a new trade agreement between Norway and Sweden in January 1944, Sweden refused further exports of mining machinery. In retaliation, the German authorities denied export licences for molybdenum. The concentrates were put in storage, awaiting a change in policy. But when Sweden hesitantly agreed to allow exports of machinery, the Swedish suppliers themselves refused to honour their contracts, on the grounds that they risked blacklisting by the Allies.⁹⁷ The *Reichskommissariat* understood the

⁹³ Karlson, "Ekonomiska Relationer", 100.

⁹⁴ Aktenvermerk, 8 June 1943. Krupp archive, WA 142/2902. See also witness statement from Carl Böyesen 8 February 1947. RA, L-sak 3139, folder "Diverse".

⁹⁵ Lawrence Collier to Ræder 12 June 1945. RA, L-sak 3139, dokument nr. 22.

⁹⁶ Hans Christian Berg to Sverre 11 December 1945. RA, L-sak 3139, dokument nr. 37, Hans Christian Berg to L. Rode 25 September 1946. RA, L-sak 3139, dokument nr. 78. Witness statement by Carsten Jacob Helgeby, 1 February 1947. RA, L-sak 3139, dokument nr. 89.

⁹⁷ Alan Milward. *The Fascist Economy of Norway* (Oxford: Clarendon Press, 1972), 161.

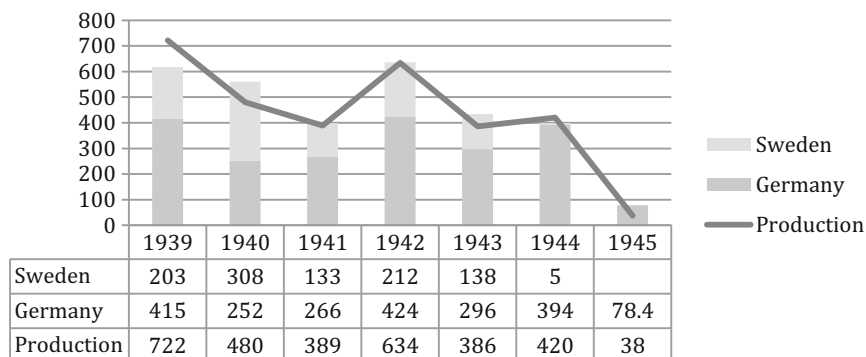


Fig. 14.2 Norwegian exports and production of molybdenite, 1939–45 (Hans Claussen Korff—“Norwegens Wirtschaft im Mahlstrom der Okkupation” RA, PA 951, Hans Claussen Korff, box 2, p 123. The figures for 1945 include January through May)

Swedish sensitivity to criticism that it was contributing to the German war economy, but expected to have a stronger negotiating position by mid-1944.⁹⁸ But when the machinery had not been delivered by July 1944, the *Reichskommissariat* had had enough. It ordered Knaben to disregard its contract with Johnson and ship all concentrates to Krupp, overruling any protest from the company board (Fig. 14.2).⁹⁹

The end of the molybdenum exchange with Sweden coincided with harsher measures in the management of the mine. As Table 14.3 shows below, the German stocks of molybdenum were rapidly diminishing, and the Allied advances had also stopped the trickle of molybdenum from North Africa. In this pressed situation, the German authorities abandoned their previous sensitivities on the use of forced labour. Shortly after the Swedish ban on machine exports, the *Reichswirtschaftsministerium* reported that 200 *Ostarbeiter* (Soviet civilian forced labourers) would

⁹⁸Otte to Næringsdepartementet, RA, S-2799 Næringsdepartementet, Da,Daa 1942–1945, L-0003, Handelsavtaler.

⁹⁹Reichskommissariat (Berghold) to A/S Knaben Molybdengruber 24 July 1944. Sverre to Berghold 15 August 1944. Berghold to A/S Knaben Molybdengruber 23 August 1944. RA, L-sak 3139, dokument nr. 50.

become available for Knaben.¹⁰⁰ Some were transferred from other Norwegian industrial sites, while others were rounded up in Eastern Europe.¹⁰¹ In order to oversee them, 130 German *Bergbausoldaten* were also sent to Knaben in September 1944.¹⁰² The *Ostarbeiter* had more freedom, received wages (at least in theory) and were treated somewhat better than POWs. Nevertheless, their living conditions were squalid, and the German overseers at Knaben did not shirk from beating those who did not work hard enough.¹⁰³ Production picked up during 1944, as the labour force increased to over 700. As late as February 1945, the *Reichskommissariat* still hoped to attain production of 419 tons for 1945, roughly equal to the output of 1944.¹⁰⁴

Under-Production?

The projected output for 1945 was still only equivalent to half of the pre-war heights. So why did Knaben not reach its full potential? During the post-war investigation into the company's economic collaboration, both the workers and the management claimed that they had sabotaged production through slow work, absenteeism and obstructionism. The fact that there was a marked drop in 1940 and 1941, when the Norwegian leadership was still in charge, seemed to support this version of events. Upon closer examination, the picture is not so clear-cut. In both these years, production of molybdenum concentrate stopped for between one and two months due to water shortages. If the stoppages are subtracted,

¹⁰⁰ Krupp Hauptverwaltung des Erzbergbaus to Müller, Knaben 22 January 1944. Krupp archive, WA 142/2901.

¹⁰¹ Aktenvermerk 17 March 1944. Aktennotiz 1 April 1944. Präsident des Gauarbeitsamt Schleswig-Holstein to Fried.Krupp, Habt.abt. Des Erzbergbaus 14 June 1944. Krupp archive, WA 142/2901.

¹⁰² Dr. Böhne to Fachgruppe Metall Erzbergbau der Wirtschaftsgruppe Bergbau. 10 July 1944. Krupp archive, WA 142/2901.

¹⁰³ Michael Stokke, *Sovjetiske og franske sivile tvangsarbeidere i Norge 1942–1945: En sammenligning av arbeids- og leveforhold*. MA-thesis, University of Bergen, 2008.

¹⁰⁴ Statistische Norwegische Produktionszahlen in t, 1940–1944, RA, RAFA 2200, E, Box 16, Serial 1110; Bericht der Hauptabteilung Volkswirtschaft für die Zeit vom 1 bis 28 februar 1945 Ibid, Serial no 1112.

Table 14.2 Output and days worked 1938–45^a

	Ore extracted (tons)	MoS ₂ output (tons)	Days active	Average daily output
1938	339,320	705.233	279	1,216.201
1939	349,156	638.019	292	1,195.74
1940	285,394	470.363	230	1,240.843
1941	223,575	358.939	251	890.7371
1942	364,454	576.67	300	1,214.847
1943	233,082	352.632	N/A	N/A
1944	283,899	386.693	N/A	N/A
1945		75.074	N/A	N/A

^aBased on Norges Bergverksdrift 1938–1944. Active days in 1940 are not stated, and are instead calculated by subtracting the days the mine was closed from the active days in 1939. The output for 1945 is from «Oppgave over salgspriser og produksjon». RA, L-sak 3139, folder “Diverse”

daily ore extraction was in fact higher in 1940 than the two preceding years (see Table 14.2 below). In 1941, it was substantially lower, but this year was also characterized by more severe labour shortages.

Much of the decline in output was not just due to a lower amount of ore extracted, but also its lower molybdenum content. After the war, the management claimed that they had conspired successfully to keep the richer veins secret, and that their apparent efforts and enthusiasm had merely been for show. If the mineral content during the war (1940–44) had held the same average as 1947–56, production would have increased by approximately 230 tons MoS₂—roughly 11 %.¹⁰⁵ Yet there are many incongruities in board members’ accounts of how this decision was made, how it influenced the daily operations, and whether Axel Johnson & Co. had been notified.¹⁰⁶ Furthermore, as Fig. 14.3 shows, the trend of declining mineral content pre-dated the war. The low mineral content in 1943 and 1944 was also due to poor ore being dug out to make room for an underground flotation plant.¹⁰⁷ Pre-war exploration did indicate that

¹⁰⁵ The average molybdenum content of ore extracted between 1947 and 1956 was 0.182 %. This number is calculated from the reported average molybdenum content in the annual mining reports, except 1950 where none is given. After the war, the reported molybdenum content is higher than MoS₂ concentrate divided by total ore extracted. The reason for this discrepancy is not known to the authors.

¹⁰⁶ See witness statements in RA, L-sak 3139.

¹⁰⁷ Witness statement by Arne Bugge 6 February 1947. RA, L-sak 3139, dokument nr. 86.

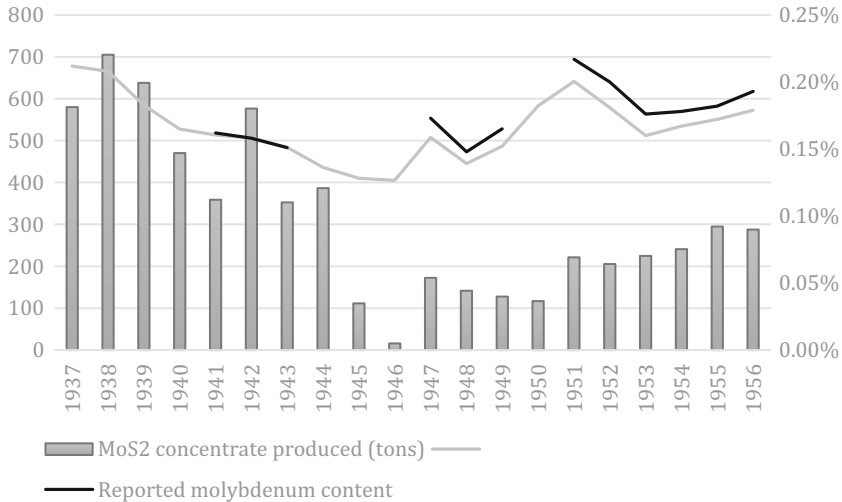


Fig. 14.3 Knaben's annual output and average molybdenum content (Based on *Norges Bergverksdrift* 1937–1956)

there were richer veins in the south of the mine. A shaft leading to these had been planned, but would take another year to yield benefits. Work on the shaft was in fact shut down by the Germans, which indicates that Krupp prioritized immediate returns rather than longer term output. In any case, there was no quick post-war return to an average mineral content of over 0.2 %, as postulated by Knaben's defence lawyer,¹⁰⁸ undermining the claim that rich and accessible ores were deliberately avoided.

Overall, both Knaben's Norwegian leadership and Axel Johnson's seem to have adopted a very pragmatic approach to the changing circumstances. While the mine failed to reach the production level Krupp and the German authorities originally envisioned, the main causes for this were the water shortages of the first two years, labour and material shortages, and the two bombing raids of 1943. Otherwise, Krupp and the German authorities were fairly successful in coopting both Johnson and Knaben's Norwegian management by linking production to exports to Sweden,

¹⁰⁸ Rode to Blom 7 January 1947. RA, L-sak 3139, dokument nr. 84.

using implied or explicit threats, as well as allowing the possibility of considerable profits. In return, Krupp got vital imports of Swedish machinery and a fairly cooperative Norwegian leadership.

The Consequences for the German War Economy

The underlying question for both the investigation into the effectiveness of bombing to reduce the supply of steel for the armaments industry, and the extent of collaboration or under-production, is the premise that either could have a discernible impact on the German war economy. Certainly, various agencies within the German, Norwegian, British and US governments seemed to think so at the time. “Germany was cramped for the metal”, according to one American analysis in February 1945.¹⁰⁹ Subsequent historical assessments differ. Horst Boog, Gerhard Krebs and Detlef Vogel have argued that even if Knaben had been hit by a massive bombing fleet under near optimal circumstances, this would have had little impact on the German supply of molybdenum.¹¹⁰ Alan Levine, on the other hand, argues that Knaben was a good target, even one of which Speer would have approved, since it was the largest source of molybdenum for German quality steel. The problem was that it was not hit often enough, which gave the Germans the leeway they needed to work around the problem.¹¹¹

So how exactly did Knaben figure in the German supply? By the start of the war the German stocks of molybdenum were sizable. The stocks alone were equivalent to more than 17 months of requirements, given the prevailing consumption pattern (see Table 14.3).¹¹² Consequently an expansion of the embargo to Norway in late 1939, or any action targeting molybdenum in the early stage of the war, would have had little immediate effect.

¹⁰⁹ John DeMille, *Strategic minerals. A summary of uses, world output, stockpiles, procurement* (New York: McGraw-Hill Book Company, 1947).

¹¹⁰ Horst Boog, Gerhard Krebs, Detlef Vogel, *Germany and the Second World War: Volume VII: The Strategic Air War* (Oxford: Oxford University Press, 2006), 113.

¹¹¹ Levine, *Strategic Bombing*, 111. (Westport: Praeger, 1992).

¹¹² Reichsministerium für Rüstung und Kriegsproduktion, Planungsamt, Berichtswesen und Statistik, Industriemeldung, Statistische Schnellberichte, Bd 1, 1938–1944. Bundesarchiv, BArch, R3/1797.

Table 14.3 German molybdenum stocks at the beginning of the year and the number of months of usage based on average consumption^a

Tons/year	1940	1941	1942	1943	1944
Stocks	3,184	1,899	1,780	598	377
Months	17	10	12	9	6

^aM. Donath, Rohstoffversorgungsübersichten für Molybdän, Nickel, Schwefel, Schwefelkiesträger, Wolfram für 1942–1946, Bundesarchiv, Reichswirtschaftsministerium, R3101/30,489

But as the prospects for a short war dwindled, so did the stocks of molybdenum. A closer look at the *Reichswirtschaftsministerium's* figures reveals that the bombing raids did have a discernible impact on the German supply. The scheduled imports for the fourth quarter of 1943 amounted to 167.4 tons, of which Knaben accounted for nearly half (73.3 tons). But due to the bombings, deliveries from Norway dropped to a mere 31.9 tons. This shortfall accounted for the discrepancies between German plans and actual deliveries from occupied Europe. For the first quarter of 1944 the deliveries were even smaller, a mere 16 tons.

Nevertheless, even as the stocks were declining, Speer himself did not seem to worry unduly about the molybdenum situation, even as he considered the potential loss of Norway. The decision to retaliate against Sweden by shipping all molybdenum to Germany improved the situation for the short term, and despite a late start, the German imports from Knaben were in fact larger in 1944 than the previous year. Consequently, by September 1944 Speer could assure Hitler that they still had stocks of around 425 tons of molybdenum. This was higher than the stocks on hand in January, and they would last for another eight months based on the current consumption rate, come what may.¹¹³

Knaben was the most important single source for new molybdenum during the war. When the war ended in May 1945, the Knaben mine had shipped over 1,600 tons of MoS₂ concentrate. From 1940, Knaben produced 14.9 % of all molybdenum consumed by the German war industry, rising to as much as 31.8 % in 1942 and 24 % in 1944.¹¹⁴ Consequently, if the

¹¹³Tooze, *Wages of Destruction*, 648. Albert Speer, *Erindringer*, 282–283.

¹¹⁴Jäger, *Abhängigkeit*, 290–294, Table 43 and 44. The numbers for Knaben are calculated based on the relative total of Norwegian output, found in *Norges Bergverksdrift* 1940–1944.

output had reached the planned target of 1,000 tons MoS_2 , German molybdenum consumption towards the end of the war could have been significantly higher. Even so, given the German mastery of substitution of various ferro-alloys, it is doubtful whether anything that transpired at Knaben would have had any direct effect on the Germany war effort.

Concluding Remarks

The Knaben molybdenum mine provides an illuminating microcosm of the German war economy. *A/S Knaben Molybdengruber* and its Swedish parent company displayed a relatively cooperative attitude at the outset of the occupation, and needed little encouragement to use the opportunity to realize their existing plans for expansion. Furthermore, tying together Swedish machinery imports to exports of molybdenum ensured the cooperation of the Swedish state. As long as the German fortunes appeared to be ascendant, economic collaboration went fairly smoothly.

As the war dragged on, with shortages and problems mounting, promises of carrots increasingly gave way to the stick. Forced labour was introduced, first with Norwegian conscripts and later with Soviet labourers. With them came a stricter control regime over the workforce, with clear punishments and rewards. These developments started under Norwegian management, before they were also placed under stricter supervision. Krupp engineers were confident they could manage the mine more efficiently themselves. Throughout this gradual shift, the Norwegian management, the Swedish owners and the Swedish government all followed a course of pragmatic accommodation. As enthusiasm for possible profits gradually wore off, fear of sanctions ensured continued collaboration. Only when German defeat began to move from possibility to certainty did Swedish–Norwegian parties take steps to distance themselves from the collaborative venture. Even then, there is little evidence that substantiates claims of an extensive and effective conspiracy to under-produce. The shortages induced by the war economy itself were a far more important factor in limiting the output.

The Knaben mine, as the largest and most productive molybdenum mine in Europe, became an important test case for the allies to investigate

the effects of a strike at a bottleneck in the German war economy. The continued operations of the *Wehrmacht* after the raids were taken by “Bomber Harris” as confirmation that targeting raw materials sources were a waste of time. According to Harris, the need for molybdenum in alloy steels was so small that no first class power would be unable to “rake up enough here and there” to carry on fighting for many years of war.¹¹⁵ Krupp's Eduard Houdremount also claimed during his post-war interrogation that while the molybdenum situation was tight, it never affected the production of quality steels.¹¹⁶ If Speer was right that the German war economy was indeed like a river, its sources could not be blocked in the mountainous region of Knabeheia.

¹¹⁵ Arthur Harris, *Bomber Offensive*, 221–2.

¹¹⁶ United States Strategic Bombing Survey, *Effects*, 112.

15

The Norwegian Fishing Sector During the German Occupation: Continuity or Change?

Bjørn-Petter Finstad

Introduction

At the time when German troops occupied Norway in April 1940, the fishing sector had experienced two decades of serious economic turmoil.¹ The problems had started already at the end of the First World War. From a situation with growing prices and high demand for Norwegian fish products from both Great Britain and Germany during the war, the 1920s and 1930s represented a period of almost constant crisis in the fishing industry, due to both internal and external causes. In the late 1930s, however, the outlook was a little better. This chapter investigates the changes in the fishing sector during the Second World War from a change and continuity perspective. Most emphasis is put on the cod fisheries in North Norway, because this region experienced the most

¹ Bjørn-Petter Finstad, “Spiskammer for Det tredje riket,” in *Norges fiskeri- og kysthistorie, En næring i omforming 1880–1970, Vol. III*, ed. Nils Kalle (Bergen: Fagbokforlaget, 2014), 357. See also Bjørn Hersoug, Bjørn-Petter Finstad and Pål Christensen, “The System of Norwegian Fish Sales Unions – An Anachronism or a Successful Adaptation to Modern Fisheries?” *Acta Borealia* 32, 2 (2015): 190–204.

profound changes. The three research questions relate to intention and impact of German intervention. Firstly, what were the main goals of the German authorities for the Norwegian fishing resources? Secondly, what kind of changes did the war conditions lead to regarding catch volumes, processing and production, fish prices, and labor? The third question deals with the economic and institutional changes in the sector after five years of German occupation, and whether these changes point backwards to the mid-war period or forwards to the era of modernization after 1945. However, to put this story in its proper context, it is necessary to briefly look at the period prior to the German attack.

The Interwar Crisis and the Fisher's Price Problem

The 1920s and 1930s represented an almost continuous period of crisis in the Norwegian fishing industry, caused by both external and internal factors. The fisheries were always totally dependent upon exports, and therefore vulnerable to fluctuations in the larger world markets. The cycles during the First World War had been favorable. The demand for Norwegian fish products increased from both the warring parties, and fish prices rose.² Officially, Norway was neutral, but maintained her close relationship to Great Britain.³

After the war, the international postwar depression hit the Norwegian economy hard, especially in the export industries. Reduced purchasing power in the most important markets led to serious problems. From the 1920s onwards, there was also a worldwide wave of protectionism in the international fish trade. In order to secure their domestic production, many countries introduced customs, import quotas, and other restrictions on import of fish products.

² Edgar Hovland and Anders Haaland, "I verdenskrigens malstrøm" in *Norges fiskeri- og kysthistorie, En næring i omforming 1880–1970, Vol. III*, ed. Nils Kolle (Bergen: Fagbokforlaget, 2014), 191–209.

³ Ola Honningdal Grytten, "The Economic History of Norway", *EH.net*, <https://eh.net/encyclopedia/the-economic-history-of-norway>

In the north, the small-scale fishermen faced another challenge. The Russian Revolution in 1917 had put an end to the traditional Pomor trade. From the late 17th century onwards, trade vessels from northeast Russia had sailed to the northern regions in Norway in the summer fish season and bartered grains for fish.⁴ This trade was important for the fishing population for several reasons. Not least, the Pomor trade represented an alternative trade channel for the fishing population to their local fish merchants, to whom they were usually deeply indebted. In the Soviet era after the revolution, however, private trade was prohibited, and the contact between North Norway and North West Russia ceased.

The problems in the export markets after the First World War were strengthened by the Norwegian economic policy. The objective of the government in the 1920s was to tie Norwegian currency (NOK) to the Gold Standard. In hindsight, the outcome of the deflationary monetary policy was disastrous. The unemployment rate rose from 1 % in 1919 to more than 8 % in 1927.⁵

For the fishermen, the main problem in the interwar years was low prices. The price level was also very unstable, and could change from one day to another, dependent on how much fish that was landed. Due to the high unemployment level in the industry, many people without work tried to get at least a little cash income from the fisheries, where it was open access. But many of them returned even poorer. In the beginning of the 1930s, more than 30,000 people took part in the seasonal cod fishery in Lofoten, many of them with very simple fishing gear, such as hand lines for jigging. The many newcomers exacerbated the problems for the whole sector, because more fishermen were forced to share a constantly declining outcome. Huge amounts of fish in the markets also contributed to the negative price spiral. *The fisher's price problem* was the concept that the government applied to describe the situation. In 1930, an official report from the so-called "Cooling and Freezing Committee" analyzed the causes behind the difficulties by comparing the Norwegian case with other fishery nations in the North Atlantic.⁶ Norway had the largest

⁴Jens Petter Nielsen et al., "Russefiske og russehandel fram til 1815," in *Russland kommer nærmere. Norge og Russland 1814–1917*, ed. Jens Petter Nielsen (Oslo: Pax forlag, 2014), 60–76.

⁵Honningdal Grytten, *The Economic History of Norway*.

⁶Bjørn-Petter Finstad, "The Frozen Fillet – The Fish that Changed North Norway?" *International Journal of Maritime History*, vol. XIV, no. 1 (2004), 28–33.

catching volumes of cod, but Norwegian fishermen got the lowest prices when they sold their catches, the report stated. The cod price was three times higher in Great Britain compared to Norway. Great Britain had established a system from the second half of the 19th century, where steam trawlers brought fresh fish from the Barents Sea to ports like Grimsby and Hull. Then, the catches were distributed by rail to the bigger urban centers for consumption by a growing working class.⁷ Germany had a similar pattern, with Cuxhaven, Altona, and Bremerhaven as the most important ports.⁸

The Norwegian fisheries had had a different development than the British and German “fish and chips” systems. One of the biggest differences was the role of the home market, which only played a minor role in Norway. Between 80 and 90 % of the total catches were exported in the actual period, and markets in southern Europe, Africa, and Latin America with limited purchasing power were most important. Another difference was the geographical, social, and economic structure. The cod fisheries in North Norway were bound to certain seasons, with a peak in the first quarter of the year, when the migrating cod appeared close to the coast for spawning and breeding. The economic structure in the fishing communities was household-orientated. The fisheries were conducted by a huge fleet of small-scale vessels owned by the fishing population themselves, while trawling only had a minor position in the sector. Traditional production methods dominated, such as salting and drying for clip fish production and air-drying for production of stock fish. On this background, the mentioned report suggested radical changes to solve the price problem. By transforming the production from the old methods to fresh and frozen fillet processing, it could be possible for the Norwegian fisheries to reach new markets in Western Europe and the USA with a better ability to pay for the products than the existing ones. And this would thereafter affect the prices the fishers got in a favorable direction, according to the report.

⁷ Robb Robinson, *Trawling. The Rise and Fall of the British Trawl Fishery*, (University of Exeter Press, 1996).

⁸ Ingo Heidbrink (ed.), *...und heute gibt es Fisch! 100 Jahre Fischindustrie und Fischgroßhandel in Schlaglichtern 1903–2003*, (Bremen: Bundesverband der deutschen Fischindustrie und des Fischgroßhandels, 2003).

The Norwegian authorities adopted the innovative ideas and tried to stimulate the suggested transformation. A huge fresh and frozen fish plan for coastal communities all along the coast was passed in the parliament (Stortinget) in 1931, and more than five million NOK was allocated to support the building of fillet processing plants and cold storages with favorable loans and grants to possible entrepreneurs. However, the outcome of the efforts was modest due to the economic crises. In spite of a small increase of the fresh fish export, especially to Germany (see below), the traditional methods continued to dominate the sector. British West Africa was actually the fastest growing market for stock fish in the 1930s.

Another solution was implemented to solve the price problem in the cod fisheries. In 1926, the Norwegian Fishers Association (*Norges Fiskarlag*) was established. This was the first nationwide organization of professional fishers, and from the start the association acted as a stakeholder for the small-scale coastal fisher's interests. The problem with the fish prices was the first and most important issue the new organization dealt with in the pioneer years. In 1938, the organized fishers succeeded. The Raw Fish Act was passed in parliament, granting the fisher's sales unions legal monopolistic rights to decide the minimum price level on first hand sales.⁹ That is, when the fishermen sold their catches to the fish buyers, the latter had to pay at least the fixed minimum price set by the actual sales union in return. The same year, the Norwegian Raw Fish Association (*Norges Råfisklag*) was founded, which was the sales union for the fishermen in the northernmost counties that fished mainly after cod, saithe, haddock, and other demersal species.¹⁰ The introduction of the new law meant that the tables had turned in favour of the fishers, at least regarding the prices paid by the fish buyers and exporters. A system of financial state support of the raw fish prices from the government was also implemented in order to lubricate the transition to the new order.

Finally, a Trawling Act was passed in 1939 that banned both Norwegian and foreign trawl fishing in Norwegian waters. At the same time, the act limited the total allowed number of Norwegian trawlers to 11. The Raw

⁹ Hersoug, Finstad and Christensen, "Fish Sales Union".

¹⁰ Gunnar Grytås, *Motmakt og samfunnsbygger. Med torskene og Norges Råfisklag gjennom 75 år* (Trondheim: Akademika Forlag, 2013).

Fish Act and the Trawling Act represent a highlight in the anti-capitalistic line in the history of the North Norwegian fishers, with establishment of solid institutions aimed at protecting and securing the rights of the small-scale coastal fishers. The outbreak of war, however, challenged the prevailing structure.

The Norwegian–German Trade Agreement in February 1940

Norwegian–German fishery relations have a history that goes back to the Hanseatic League in the Middle Ages and Early Modern period, when Bergen was one of the most significant ports for export of stock fish to the European continent. A new era occurred in the last part of the 19th century. From about 1870, regular transport routes were established with steamers bringing herring and fresh iced fish from North Norway to Hamburg.¹¹ The export increased during the years 1914–18 as mentioned, and continued after the war. Now, most of the fresh fish products were transported by railway with reefers. Between 1926 and 1934, about 8,000 wagons were sent from Norway to the European continent.¹²

Up to 1933, there was a remarkable growth in the sales of fresh fish and herring to Germany. Then, a policy of protectionism was introduced in Germany with tariffs, currency restrictions, and other sorts of trade barriers. This restrictive trade policy hit the fresh fish exports, while the exportation of fresh herring continued to grow.¹³ After the outbreak of war in September 1939, however, the restrictions were abandoned, which led to an increased German importation of Norwegian goods.

In late February 1940, Norway signed a new trade agreement with Germany. According to the treaty, Germany could buy 50,000 tons of fresh and frozen fish fillets in 1940.¹⁴ The amounts were remarkable, and

¹¹ Rolf Wilman Larsen, *Ferskfiskens historie. Omsetning av norsk ferskfisk gjennom 100 år* (Ålesund: Forlaget Nordvest, 1987), 38.

¹² Kåre Henriksen, *Stafisko – statens ferskfiskkontor på koninentet* (MA thesis, University of Bergen, 1979), 24.

¹³ Henriksen, “Stafisko”, 80.

¹⁴ Nils Ørvik, *Norge i brennpunktet*, bd. 1: Handelskrigen 1939–40 (Oslo: Johan Grundt Tanum Forlag, 1953), 255–259.

represented a tenfold increase in the fillet export from Norway to Germany, which had been about 5,000 tons in 1938. Converted to live weight, 50,000 tons of fish fillet is about 140,000 tons. In addition, Germany was allowed to buy 5,000 tons of stock fish and clip fish. The German fishery interests did not hesitate to implement the agreement. On March 9 1940, exactly one month before the military attack, a German trade delegation arrived in Oslo to discuss the details with the Norwegian Ministry of Commerce.¹⁵ The German delegation also traveled to Lofoten to negotiate directly with Norwegian fishing interests, among them exporters and representatives for the fisher's sales unions that were gathered in Svolvær during the annual seasonal Lofoten fishery. Also Representatives from the German company "Nordsee" Deutsche Hochseefischerei took part in the discussions and negotiations. Nordsee was known as the world's largest fish company, based on a huge trawler fleet that brought fresh iced fish from the Barents Sea to Cuxhaven and Bremerhaven, in order to serve the German market.

The outcome of the meetings in Svolvær was that Norwegian fishing interests were committed to deliver 24,000 tons of fresh and frozen fillets to German importers. The agreement presupposed an extensive transformation in the Norwegian cod fisheries, which overwhelmingly was based on traditional stock fish and clip fish production, as noted above. Norway lacked both processing facilities for production of frozen fillets, as well as sufficient cooling storage capacity, and would hardly have been able to fulfill its part of the agreement. Because of the attack and the occupation some weeks later, however, the agreement was not implemented. But the treaty made it easier for German interests to gain control over the Norwegian fishing resources later on, after the occupation was a fact. Not least, the agreement gave the Germans an impression of the quanta of fish they could expect.

In spite of the fact that Germany already was at war, the agreements between the fishery interests in the two countries that were entered into in Svolvær were a natural continuation of the Norwegian–German trade treaty from February—a treaty that had been approved by Great Britain. It revealed the overall objective of the German authorities for the fisheries:

¹⁵ Finstad, "Spiskammer," 358.

to secure the largest possible amount of Norwegian fishing resources for German purposes.¹⁶ And more than this, the fish should be delivered fresh or frozen. After the invasion in April 1940, the occupiers tried to achieve the goal directly under German leadership. Former markets were closed with immediate effect, and all exportation of fish and other fish products was now under the control of the *Reichskommissariat*.

Cooperation, Collaboration, and Conflict

Shortly after the German attack, a temporary Norwegian Administrative Council (*Administrasjonsrådet*) was established. In a situation with the legal government and the leadership of the parliament on the run, the self-appointed council wanted to take control in order to avoid chaos. The council was in charge for a little longer than five months. During this period, the guidelines for the Norwegian economy under German rule were drawn up, including guidelines for the fisheries: keep up production and employment.¹⁷ A similar message came from the Norwegian government in exile. In those industries that were vital to the occupiers, like the fisheries, the cooperation and collaboration between German and Norwegian interests came to be very close. The management of the fisheries in occupied Norway was taken care of by *Abteilung Fischwirtschaft* in the *Reichskommissariat*.¹⁸ This department had three different leaders during its five years of existence. In summer 1940, Dr Herbst Vogt, became the first leader of the department. His predecessor was Dr von Brünneck. The last one, however, was the most prominent: Dr Gerhard Meseck was inducted to the position in summer 1943.¹⁹ Meseck was educated at the university in Berlin, and had had different leading positions in marine research and fisheries management before he was employed as advisor for the fishing industry at the *Reichsernährungsministerium* in

¹⁶ For a discussion of the role of *die Großraumwirtschaft* and the long-term German objectives, see Ole Sparenberg's chapter in this publication.

¹⁷ Finstad, "Spiskammer," 360–365.

¹⁸ Robert Bohn, *Reichskommissariat Norwegen. "Nationalsozialistische Neuordnung" und Kriegswirtschaft* (München: Oldenbourg Verlag, 2000), 167.

¹⁹ Finstad, "Spiskammer," 366.

Berlin in 1935. According to the German historian Robert Bohn, the appointment of such a central fishery bureaucrat as head of *Abteilung Fischwirtschaft* is an example of how important the Norwegian fisheries were regarded in Berlin.²⁰

As with other interests in the fisheries, the Norwegian Fisher's Association also wanted fishing activity to be maintained during the occupation. One argument was the concern for food supply to the Norwegian population. The organization also feared that the Germans would start an extensive trawling operation if the Norwegian fleet refused to go fishing or were unable to provide for enough fish.²¹

A short time after the German invasion, the "nazification" of Norwegian society and civil administration started. In September 1940, Terboven appointed a council of 15 men to administer the Norwegian ministries on behalf of the *Reichskommissariat*. Sigurd Johannessen became Minister of Commerce, and was therefore responsible for the fisheries. Johannessen was one out of three ministers that were "politically neutral", i. e. not a Nazi Party member. During his one and a half years in this position, Johannessen tried hard to balance the interests of the *Abteilung Fischwirtschaft*, the Nazi Party, and the Norwegian fishing industry. The Ministry of Commerce also tried, in cooperation with other departments, to allocate a share of the catches for Norwegian civil consumption.

The Norwegian Nazi Party (*Nasjonal Samling*) took control over the leadership in the labor union and the farmer's union, as well as other organizations of importance for the economic activity in occupied Norway. But the Norwegian Fisher's Association managed to resist the strong attempts by the Nazi Party to gain control and create a new organization in accordance with fascist corporative ideas.²² The final battle took place at the association's annual meeting in 1941. A committee under strong Nazi influence presented a comprehensive plan for a new organization structure that would mean a forced and compulsory membership for all fishers in one large association. The proposal also

²⁰ Bohn, *Reichskommissariat Norwegen*, 151.

²¹ Bjørn-Petter Finstad, "Fiskerierøringen i Finnmark under okkupasjonen" (MA thesis, University of Tromsø, 1993), 46.

²² Finstad, "Spiskammer," 368; Abraham Hallenstvedt and Bjørn Dynna, *Fra skårunge til hovedsmann. Med Norges Fiskarlag gjennom 50 år* (Trondheim: Norges Fiskarlag, 1976) 157–169.

tried to bridge the gap of conflicting interests between the different economic parties in the sector, by suggesting that fishers, fish merchants, and exporters should be represented within the same organization. Last, but not least, the suggested plan argued for a total transformation of the fishery sector with an extensive capitalization and industrialization of the production with fillet plants and large-scale trawlers under German control. For the Norwegian Fisher's Association, these suggestions were totally unacceptable. In the last and crucial poll at the meeting, the committee's proposal was unanimously rejected by the delegates.

How was it possible that the fishers' association, as one of very few, managed to avoid political influence from the Nazi Party? One answer could be that a forced nazification of this important organization could have disturbed the activity in the fisheries, with serious consequences for the food supply in occupied Norway. For *Abteilung Fischwirtschaft*, it was more important to cooperate with Norwegian fishing interests to keep up the catching rates rather than to enforce a Norwegian Nazi Party leadership against the pronounced will of the members in the influential fisher's organization.

During the occupation, the Norwegian Fisher's Association enjoyed great legitimacy among the fishing population. The number of members more than doubled, from around 22,000 in 1939 to over 48,500 in 1945.²³ The association functioned as a bulwark against Nazi ideology, and the Nazi Party had very little support among the members of the association, both before and during the war. Among the total 55,000 Nazi party members, fishers were probably the single profession that was the least receptive to Nazi ideology. Between 1933 and 1945, there were only 379 fishers that were members.²⁴ Fishing and coastal communities were also among those parts of the country where the Nazi Party had the weakest adherence compared to other districts.

²³ The new members of the Norwegian Fisher's Association were nick-named "denim members." The concept derives from the fact that one of the tasks of the organization during the occupation was to distribute working clothes and other attractive goods among their members in order to stimulate the fishing activity. See Abraham Hallenstvedt and Bjørn Dynna, *Fra skårunge*, 170–171.

²⁴ Estimate made by Dick Kobro (2012) based on figures from the Erstatningsdirektorat (Direktorat of Restitution).

The Nazi Party only managed one victory in its efforts to obtain influence over the Norwegian Fisher's Association: the party insisted that the outspoken secretary Klaus Sunnanå should be removed from his position. Sunnanå, the secretary since 1938, was educated as an economist, and had been working with state support and crisis aid to the fisheries in the *Directorate of the Fisheries* (Fiskeridirektoratet) in the hard 1930s.²⁵ He belonged to the left wing in the *Labour Party* (Arbeiderpartiet), and was a defender of corporative and cooperative solutions in the fisheries, with strong social control over capital and technology. During the occupation, Klaus Sunnanå was a sworn opponent of nazification, and was the main architect of the association's resistance line against Nazism. However, in 1941 he was forced to resign his position after pressure from the Norwegian Nazi Party. Thereafter, he became advisor for fishery issues for the London government in exile.

Even if the fishers rejected the political efforts from the Nazi Party, there was a comprehensive economic cooperation with the Germans during the war. The fishers' sales unions, which were owned by the fisher's association, entered into a close relationship with the Germans, and negotiated over supplies of fish and prices directly with the German authorities. On behalf of the North Norwegian fishers, by the summer of 1940, the Norwegian Raw Fish Association had already made agreements with *Abteilung Fischwirtschaft* about deliveries of fish for German purposes at favorable prices. As mentioned, this sales union had been granted monopolistic rights to decide the fixed minimum price level in the North Norwegian cod fisheries under protection of the Raw Fish Act of 1938. The organization had only been in charge for a short time before the occupation. Therefore, the occupation can be seen as a kind of a breakthrough for the sales union.

The minimum price principle was favorable to the fishers, because in a situation with good market conditions and strong competition among several fish buyers, the fishers were competitive and able to attain higher prices. However, during the German occupation, the system was reversed. In spite of the protests from the fishers, the minimum price principle was

²⁵ Bjørn-Petter Finstad, *Finotro. Statseid fiskeindustri i Finnmark og Nord-Troms – fra plan til utvikling* (Unpublished PhD. thesis, University of Tromsø, 2005), 68.

abandoned, and replaced by a maximum price system. One of the reasons behind this decision from the *Norwegian Price Directorate* (Prisdirektoratet) was to ensure that Norwegian households had an opportunity to buy fish for everyday consumption at affordable prices. In the wartime years, there was a dramatic shortage of foodstuffs, and a strict ration system was introduced. Fish became more important as a protein source due to a substantial reduction in meat production.

The invasion also led to a greater demand from a larger amount of people; in addition to the Norwegian population of about three million people, the domestic food production now had to cover the needs of up to 400,000 German soldiers and civilians. Therefore, there were frequent conflicts over the supplies of fish between different interests. The *Supply Directorate* (Forsyningsdirektoratet), which tried to keep up a “national” line, negotiated with *Abteilung Fischwirtschaft* over the share of the fish catches, and tried to get as much fish and as many fish products as possible for Norwegian consumers, while the representatives for the German interests fought to secure the largest possible share for their requirements. In this situation, the occupiers were of course the strongest party. For a short time after the invasion in 1940, the Germans bought all available canned fish.²⁶ This was the case also for salted herring and other products that could serve as field supplies to the *Wehrmacht*. In 1941, an agreement secured the occupation power 40 % of all of the fish catches. For 1942, the German share rose to 55 % for the first half of the year, and 65 % for the second half. For the coming years, the Germans claimed a larger part of the marine resources. Due to the exploitation of fish, herring, and other goods from Norway, German soldiers and civilians in Norway were granted a much higher level of nutrition than the Norwegian inhabitants.

After the war, the leadership of the Norwegian Raw Fish Association was criticized for having collaborated too closely with the German occupiers, and also for having neglected “national” supply interests by entering into direct negotiations with the Germans. The director Johs. Overå was prosecuted for “economic treason.” However, he was acquitted in court.²⁷ The main argument behind the exoneration was that to keep up

²⁶ Helge Paulsen, “Tysk økonomisk politikk i Norge”, in *Krigen i Norge*, ed. Hans Fredrik Dahl, (Oslo: Pax, 1974), 85–86.

²⁷ Grytås, *Motmakt og samfunnsbygger*, 46–49.

the fishing activity was the main policy also of the legal national government in exile, which necessarily had to lead to a very close relationship with the occupiers.

What kind of alternatives existed to close collaboration between the Norwegian fishery interests and the German occupation power? It is likely that without cooperation from the fishery organizations, such as the sales unions, the Germans could have been able to exploit even more of the fishing resources for their own purposes. Moreover, a bigger share of the profits would definitely have benefited the fish buyers and the exporters without the Raw Fish Act and the specific sales system that had been established just before the outbreak of the war. Now, instead, a significant share of the economic outcome was distributed among the fishing population, which to a large degree had been poor and in an apparently bottomless pit of debt.

The Cod Fisheries: From Stock Fish to Fresh and Frozen Production

When Germany attacked Norway in April 1940, the Lofoten seasonal fishery was coming to an end for the year. The participation had been rather normal with about 6,900 vessels and almost 24,000 fishers.²⁸ As with previous years, there were both local fishers and fishermen from other coastal regions that joined this fishery. However, the following years the participation in the Lofoten fishery experienced a remarkable decline. Already in 1941, the reduction was significant, and only 15,000 fishermen found their way to Lofoten that year. And this was the pattern for the coming years, as it was also for the other Norwegian cod fisheries. In the traditional fishery after young cod in springtime in Finnmark, the participation had shown great variations year by year in the late 1930s—between 20,000 in 1935 and 10,000 in 1939. During the occupation period, there were never more than 4,700 fishers in this important fishery furthest north. Mostly, it was the visiting fishermen from other fishery districts that were absent, due to the difficult wartime conditions.²⁹

²⁸ Finstad, "Spiskammer," 370.

²⁹ Finstad, "Fiskerinæringen i Finnmark", 58–62.

What factors influenced the fishing activity in the occupation years? Firstly, there was a general shortage of fuel, bait, and fishing gear. There were also other practical obstacles. The occupation power had decided that the lighthouses along the coast should remain dark, and that the weather forecast broadcast on radio should cease. Secondly, access to many of the fishing grounds was closed for military reasons, such as the fisheries at the banks and in distant waters. Thirdly, fishing could be a hazardous and risky activity because of the war. A turning point that worsened the conditions was the German attack on the Soviet Union in June 1941. Some months later, the Allied convoy traffic to Murmansk began, which led to intensified sea warfare in the waters off the Finnmark coast. Mine belts also hindered the fisheries in the fjords.

The fishing activity was also affected by the changes in the labor market. The German occupation was a Keynesian injection in the Norwegian economy, and already the first summer, unemployment had disappeared. Fishers, like others, found possibilities for well-paid work in other sectors, and many fishers left their profession and started working on land. Due to the seasonal pattern in the fisheries, the fishers made up a reserve army of workers. The Germans started building the *Festung Norwegen* (Fortress Norway), which meant a great demand for construction workers. Another income source was transportation at sea. The Germans had a need for transport services, and many of the larger fishing boats were recruited as freighters for the occupation, both voluntarily and by force.

With these factors in mind, one should expect reduced catching volumes. Indeed, the catches declined significantly (Table 15.1). However, the volumes in most of the fisheries during the war were surprisingly high and comparable with weak years in the 1930s. Because the number of fishers decreased, it would therefore be correct to say that productivity increased. Somewhat surprisingly, new catching records were set in the wartime years in some of the fisheries. The saithe fishery could serve as example. Since the termination of the Pomor trade two decades earlier, the saithe fisheries had faced serious market problems. But during the war, the volumes in this fishery reached new heights. Never before in history had such huge amounts of saithe been caught and sold. There are several reasons. One of them has to do with modern catching technology. There had been a remarkable growth in the use of purse seiners before the

Table 15.1 Catching volumes and values of cod and other fishing products (except herring), 1938–44

Year	Cod		Other products	
	Quantity (in million kilo)	Value (million NOK)	Quantity (in million kilo)	Value (million NOK)
1938	239	36	115	28
1939	298	41	120	29
1940	199	32	81	20
1941	177	51	85	40
1942	154	50	97	48
1943	124	44	89	45
1944	222	90	–	–

Source: Gerhard Meidell Gerhardsen, *Våre fiskerier under og etter krigen*, (Bergen: Christian Michelsens Institutt, 1945), 27

war, and this development continued. Fishing with purse seiners had one advantage compared to long-line: it was not dependent on bait, which was hard to obtain due to shortages during the war. The most important explanation behind the large saithe volumes, however, was the increased demand from the occupation power, and better prices.

Besides the decrease in the participation and the reduction in the volumes, one of the most striking changes in the cod fisheries is in production, that is, how the catches were used. As mentioned, the overwhelming part of the hauls were normally cured as stock fish or salted and dried for clip fish. The German occupation, however, led to a revolution in the production pattern in the cod fisheries. Already from the summer 1940, the tendency was clear: Most of the catches were produced as fresh fish in all of the commercial fisheries after cod, saithe, and haddock. The reason behind the transformation was the shift in the demand for fresh fish, first and foremost from the occupation power, but also from the Norwegian consumers.

The fish prices also exhibited a remarkable development. Many fishermen who had experienced fishing in the troubled interwar years were now reasonably paid for their efforts for the first time. Between 1938 and 1942, the first hand price of the Lofoten cod increased by 123 %.³⁰ The price of saithe rose by 232 % in the same period.

³⁰ Finstad, "Spiskammer," 372.

What did the changes in the fisheries mean to the different groups in the sector? For the fishers, the daily practical matters concerning the difficulties of fishing were most challenging. But the occupation did not make any principle differences for the fishers compared to a normal situation, besides increased revenues. The fishers caught the fish and sold their catches as before, if they were not hindered by restrictions set by the occupation power. The fishers themselves had no control over the use of the catches or to whom the catches were sold further, neither during the war nor before.³¹

For the economic counterpart of the fishermen, the fish buyers, the situation was different. Normally, they would buy the catches in the winter seasons from the fishers, and then cure the raw fish into products such as stock fish or salted fish, which they then would sell. However, during the war many of them became fresh fish packers, and packed fresh fish either for the German frozen fish plants or for Norwegian consumption. From an economic perspective, the fish buyers reaped great advantages from the changes. The commercial uncertainty from the 1920s and 1930s disappeared overnight with the occupation. They no longer had to take the risk of buying fish at one moment, then processing the catches, and then selling the finished products in a troubled market with strong competition and many providers.³² During the occupation, when the demand for fish was much higher than the supply, the market conditions were favorable for the fish buyers.

The Breakthrough for Industrial Fillet Production

When the war broke out, the total capacity for frozen fillet processing in Norway was only ten tons per day.³³ Due to the economic problems in the interwar years, the transformation of the fishery towards industrial

³¹ Finstad, *Fiskerierøringen i Finnmark*, 108.

³² Inge Strand, "Næringsliv og økonomisk utvikling i Nordland 1940–60", in *Banken, folket og fylket. Nordlandsbanken og Nordlands næringsliv gjennom 100 år 1893–1993*, in ed. Svein Fygle et al. (Bodø: Nordlandsbanken, 1993), 214.

³³ Olav Notevarp, "Fisketilvirkning og fiskeindustri" in *Norsk fiskeri- og fangsthåndbok*, ed. Jan Strøm (Oslo: Alb. Cammermeyers forlag, 1949), 209.

production had failed (see above). Therefore, it was the establishment of the four German processing plants that made the breakthrough for large-scale fillet production in Norway. In 1943, the total fillet freezing capacity had increased to 350 tons per day, due to the new German plants. The German company Nordsee, which was a giant within fish production and distribution, built the first factory in Trondheim, named Frostfilet A/S, which also had some Norwegian shareholders.³⁴ The building of this plant was a part of the above-mentioned trade agreement from February 1940. The freezing capacity was 70 tons per day, and the finished products were sent to Germany by rail.

In late fall 1940, the second Frostfilet plant owned by Nordsee was established in Bodø, in the county of Nordland. The main purpose of this plant was to supply the *Wehrmacht* with fish.³⁵ The processing facilities consisted of 14 modern plate-freezers, which had a total capacity of 130 tons of frozen fillet per day in three shifts. The Frostfilet factory in Bodø was probably the largest fish fillet processing plant in the world. The freezing technology was invented by the American Clarence Birdseye in 1930 and then patent protected. However, the holder of the licenses was the British–Dutch company Unilever. Users of Birds-Eye freezers had to pay royalties to the license-holder for each kilogram of frozen fillets produced, which means that Unilever had considerable income from the German-controlled production in Bodø. The production at the plant started in the summer of 1941.³⁶ In addition to frozen fillets, the Frostfilet factory produced fish meal and canned fish paste for military supplies to the *Wehrmacht*. Connected to the factory there was also a modern laboratory.

Also, the third German fillet factory was established in Nordland. In cooperation with a local entrepreneur, Gunnar Frederiksen, the firm Andersen and Co. from Hamburg built a plant at Melbu in Vesterålen. The company had been the owner of the freezing ship *Hamburg*, which was destroyed by British special forces in March 1940 in the so-called

³⁴ Alan S. Milward, *The fascist Economy in Norway* (Oxford: Oxford University Press, 1972), 243.

³⁵ Reichskommissariat, Hauptabteilung Volkswirtschaft, "Deutsche Wirtschaftsinteressen in Norwegen", 21 March 1941, RA, RAFA-2200 Document Section, E, L0016, Serial No. 1114.

³⁶ Strand, "Næringsliv i Nordland," 216.

Operation Claymore. In addition to the freezing ship, a number of other fish and herring producing facilities were damaged during the raid.

The fourth freezing plant was established in Finnmark county by the company Vereinigte Tiefkühlgesellschaften Lohmann and Co. K. G. The owner Heinz Lohmann was already an established entrepreneur within frozen fish production in several German fishing ports. The business was based on landed fish from trawlers and modern filleting machines manufactured by the firm Baader in Lübeck. Germany's occupation of Norway opened new opportunities for expansion for Lohmann, and after an inspection trip the firm decided to erect a new filleting plant in Hammerfest in 1942. The factory had modern production technology with a capacity of freezing 50 tons of fillets per day. The finished products were packaged in blocks of 30 kilos, and sent with special ships to Germany. From Cuxhaven, Wesermünde, and Hamburg the blocks then were brought further on trucks or rail wagons with cooling technology to the urban centers. In the fall of 1944, before the war destruction started in Finnmark, the workers and the processing plant were removed from Hammerfest to Svolvær, then rebuilt, and functioning again during the Lofoten fishery between January and April 1945.

The German processing plants required constant supplies of raw fish. Normally, industrial fillet production needs supply from huge trawlers to be able to exploit the freezing capacity optimally. However, there was no trawl fishing in Norwegian waters during the war, and it was therefore the huge Norwegian fleet of inshore vessels that kept up the fisheries. The Trawling Act was respected by the occupiers, and the few attempts that the occupiers made for liberalization and obtaining exemptions from the act were rejected.

How then did the processing plants manage to get sufficient and predictable deliveries of fish for the fillet production? In the fall of 1940, German fishery interests grounded a joint venture, *Fischeinkaufsgemeinschaft Norwegen*, which was to provide supplies of fresh fish to the processing plants.³⁷ The company, that was soon nick-named "Fisheinkauf" along the coast, established a network of hired larger fishing vessels, which sailed between the small fishing villages, purchased iced, fresh fish from the fish buyers, and then brought it to the plants as raw material for the German factories.

³⁷ Finstad, "Spiskammer," 377; Finstad, *Fiskerinæringen i Finnmark*, 36–38.

What about the workforce at the processing plants? At Frostfilet in Trondheim, the leaders were recruited from Germany, while the industrial workers were Norwegians. Also at the Melbu plant, the workers were Norwegians. But at the Frostfilet plant in Bodø and at the Lohmann factory in Hammerfest, the workforce consisted mainly of forced laborers from German-occupied parts of the Soviet Union, especially from Ukraine. The forced workers in Hammerfest numbered around 300 to 350 young women. Many of them were taken directly out of school at the age of 16–17 by German soldiers and sent to North Norway.³⁸ At the plant in Bodø, there were more than 1,000 forced laborers in the production plant. In connection to the plant, Frostfilet built a camp for the forced laborers, residences for the managers, a hospital, and a camp for the guards from the *Wehrmacht*. Also, about 200 Norwegians worked at the plant in Bodø, and they had better economic conditions at Frostfilet compared to other competing firms within the fishing industry sector.³⁹

The Herring Fisheries

In April 1940, the winter herring season was over and this fishery was therefore not affected by the outbreak of the war.⁴⁰ Before the next winter herring season in 1941, there was huge excitement among fishing interests as to what the outcome and participation would be. The herring was known to be an unpredictable species, and there was always great variation in the catches year on year. The war contributed to the uncertainty. Finally, the weather conditions could also play a role. As expected, the winter herring fisheries of 1941 were heavily influenced by the extraordinary situation. The number of fishers that took part declined by 25 %—from 20,000 in 1940 to about 15,000 in 1941. This was the case also in the following seasons during the occupation. In 1945, only 12,300 men participated in the winter herring fishery. The reduction in the catches was

³⁸ Bjørn-Petter Finstad, “Hanna Anny from the Ukraine—a pioneer in the fishing industry of northern Norway”, in *Global Coasts: life changes, gender challenges*, eds. Siri Gerrard and Randi Rønning Balsvik (Kvinnforsk Occasional Papers: University of Tromsø, 1999), 30–38.

³⁹ Strand, “Næringsliv i Nordland”, 216.

⁴⁰ Finstad, “Spiskammer,” 378–380.

also dramatic. The 1941 season produced only half the amount of winter herring compared to the previous season. The amounts during the rest of the occupation ranged from 2.3 million hectoliters in 1941 to 3.6 million hectoliters in 1945. Another striking change was the use of fishing gear. The proportion of fishing with shore seines fell sharply, while net fishing for winter herring was growing. The purse seining in the winter herring fisheries declined as well, because so many of the larger winter herring vessels were seized or leased by the Germans for naval purposes.

What about the use of the catches? Usually, most of the winter herring catches were used as raw material for production of herring oil in factories, but this share fell during the war years. In the period from 1930 to 1939, about 57 % was used as factory herring, whereas in the years 1941 to 1945, this share dropped to 45 %. However, the use of salted herring increased, and accounted for 23 % of winter herring catches in the years 1941 to 1945.

The other herring fisheries ran almost as normal in 1940. The catch yield of fat herring fishing increased, and 1940 saw an increase of 200,000 hectoliters of fat herring over 1939. In the years to come, however, these fisheries also experienced a remarkable decline in the catching volume, as Table 15.2 indicates.

The development in the herring sector shows similarities with the cod fisheries: reduction in the catches, but a remarkable increase in values. Still, the volumes are comparable with the weak years in the mid-war years. Therefore, the productivity increased, as in the cod fisheries.

Table 15.2 Catching volumes and values of herring and sprat, with by-products, 1938–44

År	Catching volumes in 10,000 hectoliters	Values in million NOK
1938	710	32
1939	626	31
1940	801	54
1941	549	81
1942	504	76
1943	430	71
1944	420	72

Source: Gerhard Meidell Gerhardsen, *Våre fiskerier under og etter krigen*, (Bergen: Christian Michelsens Institutt, 1945), 27

The most striking change is the values of the catches. Compared to the late 1930s, the values from the herring fisheries more than doubled. The economic development in the fisheries during the war led to a discussion about property rights among the Norwegian Fisher's Association, as many fishermen feared that the booming conditions would lead to capitalization and speculation.

The Property Question

The fishery sector carried a heavy burden during the war. Fishing became an even more dangerous activity than before, and the sector experienced many losses. Many fishermen died when their vessels sank because of mines or Allied attacks. As mentioned, many of the representatives in the fishers' organizations were imprisoned because they stood up against the Nazi Party or the German occupiers. But the occupation also created some political opportunities for the fishers. Since the 1930s, the Norwegian Fisher's Association had had the question about property rights in the fisheries on the agenda.⁴¹ Back then, it was the development in the herring fisheries with growing investments in large purse seiner vessels that had actualized the question. The self-owning fishers feared that capital outside the fisheries should invest in big fishing boats, and make profits at the expense of the small-scale fishers that dominated the sector. Now, with the war boom and a new tendency towards capitalization, the property issue became relevant again. With support from Minister of Commerce Sigurd Johannessen, the Norwegian Fisher's Association made a proposal in 1941 that licenses for new fishing boats only should be granted to active fishers, and not to companies and other interests from outside. Through this measure, the association wanted to avoid economic speculation in the fishery sector, which reaffirmed the pronounced anti-capitalism within the organization. Another motive was to avoid the German sequestering of the fishing fleet.

The property case was dealt with by the head of the Abteilung Fischwirtschaft Oberregeriungsrat, von Brünneck, who was positive and

⁴¹ Finstad, "Spiskammer", 180–181.

signed the proposal.⁴² The new scheme pointed towards the after-war period, and the Property Act of 1950 that secured an exclusive right for active fishermen to get licenses and concessions for fishing boats at the cost of other interest groups.

The Planning for the Future Fisheries in Norway

The occupation was not only a period for establishment of a more modern fishing industry; it was also a period for planning for the development of the Norwegian fisheries for the future. The initiative came from Eivind Blehr, Johannessen's successor as Minister of Commerce and an influential member in the Quisling Nazi Party government. In 1942, he asked if the Directorate of the Fisheries in Bergen could make a plan for how the Norwegian fishing industry and fishing exports should be developed after the war.

That a minister from the Norwegian Nazi Party initiated such a plan for the fisheries is not very sensational; economic planning was a part of the Nazi ideology from the beginning. Moreover, Eivind Blehr was among the most nationally orientated members in the leadership of the Nazi Party, and he strove for strong national control in his economic politics. As Quisling's minister for trade and industry, he often came in conflict with both the demands of the occupiers, as well as with more German-orientated groups within the party because of his defense of Norwegian interests. The Norwegian historian Øystein Sørensen summarizes the economic and social program of Eivind Blehr as "characterized by ideas of economic self-sufficiency and a certain state control over the economy."⁴³ At the same time, Blehr was a strong opponent of socialism, and his social reforms should therefore take place within the framework of a capitalist economy.

⁴² Fiskeridepartementet. Brev fra Handelsdepartementet til Reichskommissariat für die besetzten norwegische Gebiete, Abt. Fischwirtschaft. Verordnung über Erwerbungs-genehmigung von Eigentumsrecht auf Fischereifahrzeuge, 17 December 1941. Riksarkivet, Fiskeridepartementet, See also: *Norsk Lovtidend*, Forordning om konsesjon for ervervelse av rett til fiskefartøyer, 20. desember 1941: 6–17.

⁴³ Øystein Sørensen, *Hitler eller Quisling? Ideologiske brytninger in Nasjonal Samling 1940–1945*, (Oslo: Cappelens, 1989), 174.

What was the outcome of Blehr's initiative? The Directorate of the Fisheries devoted many of its resources to preparing the plan, and finished the work in 1943. It is a comprehensive document that encompasses most aspects of the fisheries, both technological matters, the fillet factory structure, socio-economic factors, and market challenges. The plan argues strongly for the establishment of a fish processing industry that should replace the old production methods and improve the economic conditions of the fishing population. In this respect, the plan was an echo of the recommendation of the "Cooling and Freezing Committee" back in the early 1930s (see above). One of the main conclusions of this report was that the county of Finnmark was best adapted for a fillet industry, because the fishing catches were most evenly distributed throughout the year.

The plan did not have much—if any—practical function for the Nazi Party or the Germans during the war. In this context, it is more interesting that the fishery plan that Eivind Blehr had initiated and advocated finally was smuggled by courier from Norway to the Norwegian exile government in London. As is well known, Finnmark was totally destroyed as the Germans utilized "scorched earth" tactics during their retreat before the Red Army from October 1944 onwards. Thereafter, the plan became an important tool for the government's work with recovery and reconstruction of the fisheries.⁴⁴

The Significance of the Norwegian Fisheries for Nazi Germany

How important was the Norwegian fishing industry for Germany during the war years? When answering this question it is important to emphasize that Norway and Germany also had extensive trade relations for fish, herring, and other fish products before the invasion. The German market was very important for Norwegian exports in the recent years before the outbreak of war. In 1938, Norway exported 137,703 tons of fish, herring and other fish products to Germany. The German share of the total Norwegian exports amounted to 41 % in this year. No other country

⁴⁴ Finstad, *Finotto*, 59–69.

Table 15.3 Total Norwegian exports of fish, herring and other fishery products in 1938 and 1943

Country	1938		1943	
	Quantity in tons	Percent	Quantity in tons	Percent
Germany	137,703	41.4	186,410	98.67
Great Britain	40,785	12.26		
Sweden	16,929	5.09		
Italy	16,548	4.97		
USA	15,191	4.56		
Portugal	24,937	7.49		
Spain	7,327	2.20		
Other countries	73,093	21.98		
Total	332,513	99.95	188,912	

Source: Statistisk sentralbyrå, *Statistisk-økonomisk utsyn over krigsårene* (Oslo, 1945)

bought so much fish and fishery products from Norway. The British market was second to the German one, but was far less important. Only 12 % of Norwegian fish exports went to Britain in 1938 (Table 15.3).

As mentioned, the occupation ended all normal exports of fish from Norway. Sales in all other markets were closed immediately, and Germany took control of all exports of Norwegian fish and herring products, as Table 15.3 shows. The total export volume decreased, but the share of the export to Germany increased. In 1943, 186,410 tons of fish, herring and other fish products were exported from Norway to Germany, an increase of 35 % compared with the level in 1938.

The Norwegian deliveries were very important for Germany. From 1938 to 1939, the German fisheries itself provided for 67 % of the country's supplies of fish, while imports from Norway accounted for only 11 %. After the war had started, however, the German domestic production was heavily reduced, probably because much of the fishing fleet now was converted into naval vessels, and the trawler crews enlisted into the German navy. Another point to be mentioned is that the German fisheries in the 1930s took place in the Barents Sea, which was closed for fishing after the outbreak of the war.

Table 15.4 shows the share of exports to Germany and the German production of fish from the late 1930s onwards. In 1941/42, Norwegian fisheries provided for almost half of the deliveries of fish to Germany, and

Table 15.4 Origins of fish on the German market, 1938/39 to 1942/43 (fish for human consumption only)

	1938/39		1939/40		1940/41		1941/42		1942/43	
	tons	%	tons	%	tons	%	tons	%	tons	%
Germany	592,757	67.5	184,350	41.5	133,476	23.3	150,672	26.6	152,000	27.5
Norway	99,670	11.3	139,846	31.5	307,143	53.6	264,702	46.8	210,000	38.0
Denmark	21,239	2.4	52,920	12.0	96,058	16.8	100,341	17.7	97,000	17.5
Others	164,963	18.8	66,621	15.0	36,194	6.3	50,347	8.9	93,000	17.0
Total	878,629	100	443,737	100	572,871	100	566,062	100	552,000	100

Source: Bohn, *Reichskommissariat*, 286

in the following year nearly 40 %. This was the case also in 1943/44.⁴⁵ Norway was therefore the main supplier of marine proteins to Nazi Germany.

Continuity or Change?

The German occupation was indeed an outright plunder of Norwegian fishing resources. However, the occupation did also mean new opportunities. The previous market problems in most parts of the Norwegian fisheries were solved. But, the economic changes that took place did not threaten the existing structure in the sector. One of the most important changes was the significant growth in the individual income for fishers. And with increased revenues, poverty disappeared from the coast. Fewer fishermen than before had to share the outcome. Fisheries statistics for 1945 reveals that there were about 117,000 registered fishermen in 1944 compared to 124,000 in 1939.

The total value of fisheries in 1939 was NOK 101 million and NOK 169 million in 1944. However, to get an accurate picture of the fishery economy, one has to take into account what the fishermen received in net incomes, and add the rise in the prices of fuel, bait, fishing gear, and so on, to the calculation. It is also a part of the story that the value of the capital, such as boats and equipment, declined significantly as a result of lack of maintenance. However, most fishing households experienced that the availability of cash income was considerably greater during the war than before. And not only did fisheries generate higher incomes, there were also other opportunities for paid work for the inhabitants of the coastal regions. In the annual report for the Norwegian State Fisheries Bank (*Statens Fiskarbank*), for 1942 to 1943 it is stated that the increase in the incomes gave fishermen greater amounts of disposable income, with which to pay off their debt.⁴⁶ As a result, the losses of the bank ceased.

⁴⁵ Paulsen, "Tysk økonomisk politikk", 86.

⁴⁶ Beretning om Den Norske Stats Fiskeribanks virksomhet for regnskapsåret 1. juli 1943 til 30. juni 1944, Riksarkivet, S-1372, Fiskeridepartementet, Fiskerikontoret, Statens Fiskarbank, Regnskaper 1937–45, boks 30.

Another major change was the introduction of freezing technology on a large scale in the cod fisheries. Paradoxically, this did not lead to any deeper changes in the social, economic, and geographical structure of the fisheries. Small-scale coastal fishing was strengthened rather than weakened, and one of the reasons was that the new processing industry was supplied without trawling. Simultaneously, the principle of exclusive ownership rights of the fishers was secured, and this made it possible to prevent vested interests from outside the industry gaining influence. During the war, the coastal fishermen could operate their business as before, and get a larger income in return. In comparison, the fish buyers experienced major changes. They converted to packers and distributors of fresh fish in the German fillet production.

In the spring of 1945, there were no other fishing nations that had a larger collection of advanced equipment for frozen fish production than Norway. In addition to the freezing technology, the German plants used filleting machines and skinning machines from the Baader company in Lübeck. The use of modern technology points towards the frozen fish industry, which was established in Norway after 1945. However, the industrialization of the fisheries that was implemented by the Germans was first and foremost designed for a war economy. The huge plants did not—with a few exemptions—have any function within the normal market situation within the Norwegian fisheries in peacetime.

The fishers' organizations experienced growth and strengthened legitimacy during the occupation. Moreover, the occupation was a commercial and organizational breakthrough for the most important fishers' sales union in North Norway, the Norwegian Raw Fish Association. The state had an active role in the crisis policy in the 1920s and 1930s, but the war reinforced the state's efforts in the fisheries. The role of the state and the organized stakeholders in the fishing sector during the occupation represents a continuation from the interwar period. To a large degree, this development points forwards to the corporative fishery system found under the social democratic order in Norway after 1945.

Bibliography

Literature

- Abelshauser, Werner, Wolfgang von Hippel, Jefferey Johnson, and Raymond Stokes. 2008. *German industry and global enterprise. BASF: The history of a company*. Cambridge: Cambridge University Press.
- Administrasjonsrådet 1940 Bestemmelser av Administrasjonsrådet. Utgitt i Oslo i henhold til Administrasjonsrådets bestemmelse av 26. april 1940, Oslo: Grøndahl
- Adriani, Pieter. 1946. Samenvatting. In *Fiscale erfaringen in de bezettingstijd 1940–1945*, ed. Pieter Adriani, 386–423. Amsterdam: Veen.
- Ahlf, Robert. 1938. Neue Wege in der Hochseefischerei. *Der Vierjahresplan* 2: 142–143.
- Alkil, Niels (ed.). 1945. *Besattelsestidens Fakta*, vol. 1. Copenhagen: Schultz.
- Aly, Götz. 2005. *Hitlers Volksstaat, Raub und nationaler Sozialismus*. Frankfurt: S. Fischer Verlag.
- Amersfoort, Herman, and Piet Kamphuis. 2010. *May 1940. The battle for the Netherlands*. Leiden: Brill.
- Andenæs, Johs. 1998. *Det vanskelige oppgjøret: Rettsoppgjøret etter okkupasjonen*. Oslo: Tano Aschehoug.

- Andenæs, Johs, Magne Skodvin, and Olav Riste. 1966. *Norway and the Second World War*. Oslo: Tanum.
- Andersen, Ketil Gjølme. 2005. *Flaggskip i fremmed eie. Norsk Hydro 1905–1945*. Oslo: Pax.
- Andersen, Steen. 2005. *De gjorde Danmark større. Danske entreprenører i krise og krig 1919–1947*. Copenhagen: Lindhardt & Ringhof.
- Andersen, Ketil Gjølme, and Gunnar Yttri. 1997. *Et forsøk verdt. Forskning og utvikling i Norsk Hydro gjennom 90 år*. Oslo: Universitetsforlaget.
- Andreassen, Dag. 2009. The wartime need for fish and its consequences for the Norwegian fishing industry. In *War and society in Scandinavia 1914–1950*, ed. Henrik Lundtofte, Mona Jensen, and Flemming Just, 101–114. Odense: University Press of Southern Denmark.
- Aubert, Vilhelm. 1950. *Priskontroll og rasjonering: en retts sosiologisk forstudie*. Oslo: Skrivenmaskinstua.
- Aukrust, Odd, and Petter Bjerve. 1945. *Hva krigen kostet Norge*. Oslo: Dreyer.
- Baart, Jac. 2010. *Rotterdam Oorlogshaven*. Zutphen: Walburg Pers.
- Baartz, Roland. 1991. *Entwicklung und Strukturwandel der deutschen Hochseefischerei unter besonderer Berücksichtigung ihrer Bedeutung für Siedlung, Wirtschaft und Verkehr Cuxhavens*. Stuttgart: Steiner.
- Backe, Herbert. 1937. Verbrauchslenkung. *Der Vierjahresplan* 1: 203–204.
- Backe, Herbert. 1937. Warum wurde eine Neuregelung des Fettverbrauchs und Fettbezuges notwendig? *Der Vierjahresplan* 1: 4–8.
- Backe, Herbert. 1942. *Um die Nahrungsfreiheit Europas. Weltwirtschaft oder Großraum*. Leipzig: Goldmann.
- Bähr, Johannes. 2008. *Der Flick-Konzern im Dritten Reich*. Munich: Oldenbourg.
- Bakker, Gert den., and W. van Sorge. 1991. Het onbenut arbeidsvolume in het Interbellum. *Economisch- en sociaal-historisch jaarboek* 54: 212–240.
- Banken, Ralf. 2009. *Edelmetallmangel und Großraubbwirtschaft. Die Entwicklung des deutschen Edelmetallsektors im "Dritten Reich" 1933–1945*. Munich: Oldenbourg.
- Baranowski, Shelley. 2011. *Nazi Empire: German colonialism and imperialism from Bismarck to Hitler*. Cambridge: Cambridge University Press.
- Barendregt, Jaap. 1993. *The Dutch money purge. The monetary consequences of the German occupation and their redress after liberation 1940–1952*. Amsterdam: Thesis Publishers.
- Barnouw, David. 1993. *Correspondentie van Mr. M.M. Rost van Tonningen, Deel II, Mei 1942–Mei 1945*. Zutphen: Walburg Pers.
- Barnouw, David. 1994. *Rost van Tonningen, fout tot het bittere einde*. Zutphen: Walburg Pers.

- Baten, Jörg, and Andrea Wagner. 2003. Mangelernährung, Krankheit und Sterblichkeit im NS-Wirtschaftsaufschwung (1933–1937). *Jahrbuch für Wirtschaftsgeschichte* 1: 99–123.
- Baudhuin, Ferdinand. 1974. L'article de John Gillingham Ph.D. sur: 'La politique de production de l'industrie belge durant l'occupation nazie'. Une réplique. *Belgisch Tijdschrift voor Nieuwste Geschiedenis* 3–4: 265–267.
- Beck, Adolf. 1944. Aufbereitung des Leichtmetallschrotts. In *Werkstoff. Bericht über die Sitzung Aluminiumlegierungen am 22. und 23. November 1944 in Weimar*, 19–20. Bericht 183: Lilienthal-Gesellschaft für Luftfahrtforschung.
- Behnken, Klaus (ed.). 1980. *Deutschland-Berichte der Sopade 3 (1936)*. Salzhause: Nettelbeck.
- Behnken, Klaus (ed.). 1980. *Deutschland-Berichte der Sopade 4 (1937)*. Salzhause: Nettelbeck.
- Behnken, Klaus (ed.). 1980. *Deutschland-Berichte der Sopade 5 (1938)*. Salzhause: Nettelbeck.
- Behnken, Klaus (ed.). 1980. *Deutschland-Berichte der Sopade 6 (1939)*. Salzhause: Nettelbeck.
- Bell, Harry. 1942. Monetary problems of military occupation. *Military Affairs* 6(2): 77–88.
- Belli, Peter Josef. 2012. *Das Lautawerk der Vereinigte Aluminium-Werke AG von 1917 bis 1948. Ein Rüstungsbetrieb in regionalen, nationalen, internationalen und politischen Kontexten (zugleich ein Beitrag zur Industriegeschichte der Niederlausitz)*, Muenster: Lit-Verlag.
- Benz, Wolfgang, Johannes Houwink ten Cate, and Gerhard Otto (eds.). 1998. *Die Bürokratie der Okkupation, Strukturen der Herrschaft und Verwaltung im besetzten Europa*. Berlin: Metropol.
- Berg, Roald. 1995. *Norge på egen hånd: 1905–1920*. Oslo: Universitetsforlaget.
- Bergh, Trond, Harald Espeli, and Knut Sogner. 2004. *Brytningstider. Storselskapet Orkla 1654–2004*. Oslo: Orion Forlag.
- Bergverkenes landssammenslutning. 1957. *Bergverkenes landssammenslutning gjennom 50 år 1907–1957*. Oslo: Bergverkenes landssammenslutning.
- Bjørnson, Øyvind, and Inger Elisabeth Haavet. 1994. *Langsomt ble landet et velferdssamfunn. Trygdens historie 1894–1994*. Oslo: AdNotam Gyldendal.
- Bloch, Marc. 1967. *Land and work in mediaeval Europe: Selected papers*. London: Routledge.
- Boberach, Heinz (ed.). 1984. *Meldungen aus dem Reich. Die geheimen Lageberichte des Sicherheitsdienstes der SS*, vol. 3. Herrsching: Pawlak.
- Boelcke, Willi. 1985. *Die Kosten von Hitlers Krieg. Kriegsfinanzierung und finanzielles Kriegserbe in Deutschland 1933–1948*. Paderborn: Schöningh.

- Bohn, Robert. 2000. *Reichskommissariat Norwegen: "Nationalsozialistische Neuordnung" und Kriegswirtschaft*. Munich: Oldenbourg.
- Boldorf, Marcel. 2012. Die gelenkte Kriegswirtschaft im besetzten Frankreich (1940–1944). In *Europäische Volkswirtschaften unter deutscher Hegemonie*, ed. Christoph Buchheim and Marcel Boldorf, 109–130. Munich: Oldenbourg.
- Boldorf, Marcel. 2015. European economies under National Socialist rule. In *Economies under occupation. The hegemony of Nazi Germany and Imperial Japan in World War II*, ed. Marcel Boldorf and Tetsuji Okazaki, 7–23. London: Routledge.
- Boldorf, Marcel. 2015. The French economy under German occupation, 1940–1944. In *Economies under occupation. The hegemony of Nazi Germany and Imperial Japan in World War II*, ed. Marcel Boldorf and Tetsuji Okazaki, 99–111. London: Routledge.
- Boldorf, Marcel, and Jonas Scherner. 2015. France's occupation costs and the war in the East: The contribution to the German war economy, 1940–1944. *Journal of Contemporary History* 47(2): 291–316.
- Boog, Horst, Gerhard Krebs, and Detlef Vogel. 2006. *Germany and the Second World War: Volume VII: The strategic air war*. Oxford: Oxford University Press.
- Bray, Matt. 1994. INCO's Petsamo Venture, 1933–1945, An incident in Canadian, British, Finnish and Soviet relations. *International Journal of Canadian Studies* 9.
- Bray, Matt. 1997. Eliminating the competition: Price-fixing and market-sharing in the Nickel industry 1895–1929. In *Business and European integration since 1800*, ed. Ulf Olsson, 131–140. Göteborg: Meddelanden från Ekonomisk-historiska institutionen vid Göteborgs universitet.
- Brinkmann, Carl. 1943. Review of Helmuth Kasten 'Die Neuordnung der Währung in den besetzten Gebiete'. *Finanzarchiv* 9(1): 215–216.
- British Intelligence Objectives Subcommittee. 1945. *Recovery of aluminium alloys from aircraft scrap. BIOS final report No. 376*. London: H.M. Stationery Office.
- British Intelligence Objectives Subcommittee. 1947. *The German magnesium industry BIOS misc. Report no. 5*. London: H.M. Stationery Office.
- Brolsma, Jolke Ulko. 2006. *Havens, kranen, dokken en veren. De Gemeentelijke Handelsinrichtingen en het Havenbedrijf der Gemeente Rotterdam, 1882–2006*. Utrecht: Matrijs.
- Buchheim, Christoph. 1986. Die besetzten Länder im Dienste der deutschen Kriegswirtschaft während des Zweiten Weltkriegs. Ein Bericht der Forschungsstelle für Wehrwirtschaft. *Vierteljahrshefte für Zeitgeschichte* 34(1): 117–147.

- Buchheim, Christoph. 2005. Die vielen Rechenfehler in der Abrechnung Götz Alys mit den Deutschen unter dem NS-Regime. *Sozial. Geschichte, Zeitschrift für historische Analyse des 20. und 21. Jahrhunderts* 3: 67–76.
- Buchheim, Christoph. 2006. Unternehmen in Deutschland und NS-Regime: Versuch einer Synthese. *Historische Zeitschrift* 282: 351–390.
- Buchheim, Christoph. 2010. Der Mythos vom ‘Wohlleben.’ Der Lebensstandard der deutschen Bevölkerung im Zweiten Weltkrieg. *Vierteljahrshefte für Zeitgeschichte* 58(3): 299–328.
- Buchheim, Christoph, and Jonas Scherner. 2006. The role of private property in the Nazi economy: The case of industry. *Journal of Economic History* 66(2): 390–416.
- Budrass, Lutz. 1998. *Flugzeugindustrie und Luftrüstung in Deutschland*. Düsseldorf: Droste.
- Budrass, Lutz. 2006. Rohrbach und Dornier. Zwei Unternehmen aus dem Zeppelin-Flugzeugbau in der Weimarer Republik und im Nationalsozialismus. In *Zeppelins Flieger. Das Flugzeug im Zeppelin-Konzern und in seinen Nachfolgebetrieben*, ed. Wolfgang Meighöner, 202–235. Friedrichshafen: Zeppelin-Museum.
- Budraß, Lutz, Jonas Scherner, and Jochen Streb. 2010. Fixed-price contracts, learning and outsourcing: Explaining the continuous growth of output and labour productivity in the German aircraft industry during World War II. *Economic History Review* 63(1): 107–136.
- Bukharin, Nicolai. 1917/1972. *Imperialism and the World Economy*. London: Martin Lawrence.
- Bullock, Alan. 1993. *Hitler and Stalin. Parallel lives*. London: Fontana Edition.
- Burrin, Philippe. 1995. *La France à l'heure allemande 1940–1944*. Paris: Seuil.
- Campen, Ph.C.M. van e.a. 1949. *Landbouw en landbouwcrediet 1898–1948. Vijftig jaar geschiedenis van de Coöperatieve Centrale Boerenleenbank Eindhoven*. Eindhoven: C.C.B.
- Centraal Bureau voor de Statistiek. 1947. *Economische en sociale kroniek der oorlogsjaren 1940–1945*. Utrecht: De Haan.
- Centraal Bureau voor de Statistiek. 1954. *Jaarcijfers voor Nederland 1943–1946*. Utrecht: De Haan.
- Centraal Bureau voor de Statistiek. 2001. *Tweehonderd jaar statistiek in tijdreeksen 1800–1999*. Voorburg/Herleen: Centraal Bureau voor de Statistiek.
- Chadeau, Emmanuel. 1998. *Louis Renault*. Paris: Orban.
- Chiari, Bernhard (ed.). 2003. *Ökonomie und Expansion. Grundzüge der NS-Wirtschaftspolitik. Ausgewählte Schriften von Hans-Erich Volkmann*. Munich: Oldenbourg Verlag.

- Christensen, Ingolf. 1940. *9de april–26de september*. Oslo: Manuscript.
- Christensen, Sverre. 1997. *Statens forhold til Norsk Hydro 1945–1952*. MA-thesis, University of Oslo.
- Christensen, Claus Bundgård, Niels Bo Poulsen, and Peter Scharff Smith. 1997. *Dänische Arbeitskraft – Deutsche Befestigungsanlagen*. Blåvandshuk: Blåvandshuk Egnsmuseum.
- Cohen, Laurie. 2013. *Smolensk under the Nazis: Everyday life in occupied Russia*. Rochester: Rochester University Press.
- Colijn, Hendrik. 1940. *Op de grens van twee werelden*. Amsterdam: De Standaard.
- Combined Intelligence Objectives Sub-Committee. 1945. *Recovery of metals from scrapped airplanes CIOS final report no. XXXII-55*. London: H.M. Stationery Office.
- Combined Intelligence Objectives Sub-Committee. 1945. The working up of light metal scrap. Free translation of report and program for IG Farben by Dr. Kurt Schneider, 1940. In *Aluminium and magnesium production and fabrication at IG Farben works. CIOS final report XXXII-59*. London: H.M. Stationery Office.
- Coppé, Albert. 1940. *Problèmes d'économie charbonnière: essai d'orientation économique*. Brugge: Desclée De Brouwer.
- Coppieters, Guy. 2003. De politiek van de minste weerstand ? De Belgisch-Limburgse mijndirecties tijdens de Tweede Wereldoorlog. In *Thuisfront. Oorlog en economie in de twintigste eeuw. Veertiende jaarboek van het Nederlands Instituut voor Oorlogsdocumentatie*, ed. Madelon de Keizer, Hein Klemann, and Dirk Luyten, 232–249. Zutphen: Walburg Pers.
- Corell, Synne. 2011. The solidity of a national narrative. The German occupation in Norwegian history culture. In *Nordic narratives of the Second World War: National historiographies revisited*, ed. Henrik Stenius, Mirja Österberg, and Johan Östling. Lund: Nordic Academic Press.
- Dahl, Hans Fredrik, Joachim Lund, Hans Kirchhoff, and Lars-Erik Vaale (eds.). 2010. *Danske tilstander, norske tilstander: forskjeller og likheter under tysk okkupasjon 1940–1945*. Oslo: Forlaget Press.
- De Nederlandsche Bank. 2000. *Financiële instellingen in Nederland in de twintigste eeuw. Balansreeksen en naamlijst van handelsbanken*. Amsterdam: De Nederlandsche Bank.
- Decken, Hans v.d. 1938. *Entwicklung der Selbstversorgung Deutschlands mit landwirtschaftlichen Erzeugnissen*. Berlin: Parey.
- DeMille, John. 1947. *Strategic minerals. A summary of uses, world output, stock-piles, procurement*. New York: McGraw-Hill Book Company.

- Der Chef des Oberkommandos der Wehrmacht. 1941. *Die Wehrwirtschaft Norwegens, 15 December 1941*. Berlin: Reichsdruckerei.
- Dickert, Elena. 2013. Die Rolle der Auto Union AG bei der 'Nutzbarmachung' ausländischer Unternehmen: Auftragsverlagerungen in die besetzten Gebiete während des Zweiten Weltkrieges. *Zeitschrift für Unternehmensgeschichte* 58(1): 28–53.
- Dickert, Elena. 2014. *Die "Nutzbarmachung" des Produktionspotentials besetzter Gebiet durch Auftragsverlagerung im Zweiten Weltkrieg. Staatliche Regulierung und Verlagerungsverhalten von Maschinenbau- und Automobilunternehmen*. Unpublished PhD thesis, Norwegian University of Science and Technology, Trondheim.
- Didriksen, Jan. 1987. *Industrien under hakekorset*. Oslo: Universitetsforlaget.
- Dingli, Laurent. 2000. *Louis Renault*. Paris: Flammarion.
- Dokumentationsstelle zur NS-Sozialpolitik Hamburg (ed.). 1986. *Office of Military Government of Germany, United States O.M.G.U.S. Ermittlungen gegen die I. G. Farbenindustrie, September 1945*. Nördlingen: Greno.
- Eichholz, Dietrich. 1966. Die IG-Farben- 'Friedensplanung'. Schlüsseldokumente der faschistischen 'Neuordnung des europäischen Großraumes'. *Jahrbuch für Wirtschaftsgeschichte* 3: 271–283.
- Eichholz, Dietrich. 1986. Die Großraumwirtschaft für den großen Krieg. Zwei geheime Memoranden der Reichsstelle für Wirtschaftsausbau vom Frühjahr/ Sommer 1939. *Bulletin des Arbeitskreises "Zweiter Weltkrieg"* 1–4: 70–160.
- Ellingsen, Dag. 1993. *Krigsprofitørene og Rettsoppgjøret*. Oslo: Gyldendal.
- Eloranta, Jari, and Illka Nummela. 2007. Finnish nickel as a strategic mineral. *Scandinavian Journal of History* 32(4): 336.
- Elzer, Herbert (ed.). 2003. *Dokumente zur Deutschlandpolitik Reihe 1. 3. September 1939 bis 8. Mai 1945 Bd. 5. Europäische Beratende Kommission: 15. Dezember 1943 bis 31. August 1945, Erster Halbband*. Munich: Oldenbourg.
- Enquêtecommissie regeringsbeleid 1940–1945. 1955. *Verslag houdende de uitkomsten van het onderzoek*. 7c. 's-Gravenhage: Staatsdrukkerij- en Uitgeverijbedrijf.
- Ericson, Edward. 1999. *Feeding the German Eagle: Soviet economic aid to Nazi Germany, 1933–1941*. Westport: Praeger.
- Espeli, Harald. 2010. The German occupation and its consequences on the composition and changes of Norwegian business elites. *Jahrbuch für Wirtschaftsgeschichte* 2: 107–130.
- Espeli, Harald. 2010. Det økonomiske forholdet mellom Tyskland og Norge, 1940–1945. In *Danske tilstander, norske tilstander 1940–45*, ed. Hans Fredrik Dahl, Joachim Lund, Hans Kirchhoff, and Lars-Erik Vaale Oslo, 135–166. Oslo: Forlaget Press.

- Espeli, Harald. 2011. 'Det gavner ingenting å gjøre store vanskeligheter i små saker. Dette er ikke store saker'. Norges Bank, Administrasjonsrådet og etableringen av okkupasjonskontoen i 1940. *Historisk tidsskrift* 90(4): 559–584.
- Espeli, Harald. 2013. Economic consequences of the German occupation of Norway, 1940–1945. *Scandinavian Journal of History* 38(4): 502–524.
- Espeli, Harald. 2014. 'Cooperation on a purely matter-of-fact basis' The Norwegian central bank and its relationship to the German supervisory authority during the occupation, 1940–1945. *Scandinavian Economic History Review* 62(2): 188–212.
- Euwe, Jeroen. 2007. *De Nederlandse kunstmarkt 1940–1945*. Amsterdam: Boom.
- Finstad, Bjørn-Petter. 1993. *Fiskerinæringen i Finnmark under okkupasjonen*. MA thesis, University of Tromsø.
- Finstad, Bjørn-Petter. 1999. Freezing technology in the Norwegian fish processing industry, 1930–1960. In *Technological change in the North Atlantic fisheries*, ed. Poul Holm and David Starkey, 89–113. Esbjerg: Fiskeri- og Søfartsmuseet.
- Finstad, Bjørn-Petter. 1999. Hanna Anny from the Ukraine—a pioneer in the fishing industry of Northern Norway. In *Global coasts*, Kvinnforsk Occasional Papers, ed. Siri Gerrard and Randi Balsvik, 30–38. Norway: University of Tromsø.
- Finstad, Bjørn-Petter. 2004. The frozen fillet: The fish that changed North Norway? *International Journal of Maritime History* 16(1): 27–41.
- Finstad, Bjørn-Petter. 2004. The Norwegian fisheries during the German occupation: Change and continuity. *NETverk. Jaarboek Visserijmuseum* 15: 113–119.
- Finstad, Bjørn-Petter. 2005. *Finotro. Statseid fiskeindustri i Finnmark og Nord-Troms – fra plan til utvikling*. Unpublished PhD thesis, University of Tromsø.
- Finstad, Bjørn-Petter. 2014. Spiskammer for Det tredje riket. In *Norges fiskeri- og kysthistorie, En næring i omforming 1880–1970, Vol. III*, ed. Nils Kolle, 357–394. Bergen: Fagbokforlaget.
- Fridenson, Patrick, and Jean-Louis Robert. 1992. Les ouvriers dans la France de la Seconde Guerre mondiale: Un bilan. *Mouvement Social* 158: 142–144.
- Fridenson, Patrick. 2000. Les entreprises automobiles sous l'Occupation. In *L'occupation, l'Etat français et les entreprises*, ed. Olivier Dard, Jean-Claude Daumas, and François Marcot, 320–324. Paris: Association pour le développement de l'histoire économique.
- Frieser, Karl-Heinz. 2005. *Blitzkrieg-Legende. Der Westfeldzug 1940*, 3rd ed. Munich: Oldenbourg.

- Fritz, Martin. 2006. Swedish adaptation to German domination in the Second World War. In *Working for the New Order. European business under German Domination, 1939–1945*, ed. Joachim Lund, 129–140. Copenhagen: University Press of Southern Denmark.
- Frøland, Hans Otto. 2012. Nazi planning and the aluminum industry. In *Alan S. Milward and a century of European change*, ed. Fernando Guirao, Frances Lynch, and Sigfrido M. Ramírez Pérez, 168–188. New York: Routledge.
- Frøland, Hans Otto. 2013. Nazi Germany's pursuit of bauxite and alumina. In *Aluminum Ore. The political economy of the global bauxite industry*, ed. Robin Gendron, Mats Ingulstad, and Espen Storli, 79–106. Vancouver: University of British Columbia Press.
- Frøland, Hans Otto. 2015. Nazi Germany's financial exploitation of Norway during the occupation, 1940–1945. In *Economies under occupation. The hegemony of Nazi Germany and Imperial Japan in World War II*, ed. Marcel Boldorf and Tetsuji Okazaki, 130–147. London: Routledge.
- Frøland, Hans Otto, and Jan Thomas Kobberrød. 2009. The Norwegian contribution to Göring's Megalomania. Norway's aluminium industry during World War II. *Cahiers d'histoire de l'aluminium* 42–43: 137–153.
- Frøland, Hans Otto, and Anders Lervold. 2014. Forced labour in Norway during the German occupation: French and Soviet workers in the light metals programm. *Revue d'histoire Nordique* 17: 71–100.
- Fulda, Wilhelm, and Hans Ginsberg. 1951. *Tonerde und Aluminium. Ergebnisse und Erfahrungen aus der Betriebspraxis 1920–1950. 1. Teil: die Tonerde*. Berlin: Walter De Gruyter.
- Fure, Odd-Bjørn. 1999. Norsk okkupasjonshistorie: Konsensus, berøringsangts og tabuisering. In *I krigens kjølvann. Nye sider ved norsk krigshistorie og etterkrigstid*, ed. Stein Ugelvik Larsen. Oslo: Universitetsforlaget.
- Gillingham, John. 1974. The author's response to Prof. Fernand Baudhuin's critique of 'The Baron de Launoit: A case study in the 'politics of production' of Belgian industry during Nazi occupation. *Belgisch Tijdschrift voor Nieuwste Geschiedenis* 3–4: 268–271.
- Gillingham, John. 1977. *Belgian business in the Nazi New Order*. Ghent: Jan Dhondt Stichting.
- Giltner, Philip. 1998. *In the friendliest manner. German-Danish economic cooperation during the Nazi occupation of 1940–1945*. New York: Peter Lang.
- Giltner, Philip. 2001. The success of collaboration: Denmark's self-assessment of its economic position after five years of Nazi occupation. *Journal of Contemporary History* 36(3): 485–506.

- Göring, Hermann. 1937. Rede des Ministerpräsidenten Generaloberst Göring am 28. Oktober 1936 im Sportpalast. *Der Vierjahresplan* 1: 32.
- Goulter, Christina. 1995. *A forgotten offensive: Royal Air Force Coastal Command's anti-shipping campaign, 1940–1945*. London: Frank Cass.
- Greiner, Helmuth, Hans-Adolf Jacobsen, and Percy Ernst Schramm. 1963. *Kriegstagebuch des Oberkommandos der Wehrmacht: (Wehrmachtführungsstab)*. Frankfurt am Main: Bernard & Graefe.
- Grimnes, Ole Christian. 1999. Kollaborasjon. In *I krigens kjølvann. Nye sider ved norsk krigshistorie og etterkrigstid*, ed. Stein Ugelvik Larsen. Oslo: Universitetsforlaget.
- Grytås, Gunnar. 2013. *Motmakt og samfunnsbygger. Med torsken og Norges Råfisklag gjennom 75 år*. Trondheim: Akademika Forlag.
- Grytten, Ola Honningdal. 1992. Arbeidsledighetens omfang i Norge i mellomkrigstiden. *Historisk Tidsskrift* 71(3): 249–277.
- Hagen, Ingerid. 1996. *Norsk Hydros deltakelse i de tyske lettmetallplanene 1940–43*. MA-thesis, University of Oslo.
- Häggblöf, Gunnar. 1958. *Svensk krigshandelspolitik under andra världskriget*. Stockholm: Norstedt.
- Hallenstvedt, Abraham, and Bjørn Dynna. 1976. *Fra skårunge til høvedsmann. Med Norges Fiskarlag gjennom 50 år*. Trondheim: Norges Fiskarlag.
- Halvorsen, Terje. 1990. *Jern og metall 100 år, Bind 2, 1940–1991*. Oslo: Tiden.
- Hansen, Per H. 1995. Modgang eller fremgang? Industriens forhold under besættelsen. In *Besættelsen i perspektiv*, ed. Knud Jespersen and Thomas Pedersen, 73–103. Odense: Odense Universitetsforlag.
- Hansen, Per H. 1996. Dansk økonomi under besættelsen: Ved vi nok? *Den jyske Historiker* 73: 33–54.
- Hansen, Per H. 1997. The Danish economy during war and occupation. In *Die "Neuordnung" Europas. NS-Wirtschaftspolitik in den besetzten Gebieten*, ed. Richard Overv, Gerhard Otto, and Johannes Houwink ten Cate, 63–81. Berlin: Metropol.
- Hansen, Lulu Anne. 2010. 'Wo der Nordseefischer regiert.' Das Fischereigewerbe in Esbjerg unter der deutschen Besatzung 1940–1945. In *Mensch und Meer in der Geschichte Schleswig Holsteins und Süddänemarks*, ed. Martin Rheinheimer, 327–344. Neumünster: Wachholtz.
- Harris, Arthur. 1947. *Bomber Offensive*. London: Greenhill Books.
- Hass, Gerhard, and Wolfgang Schumann (eds.). 1972. *Anatomie der Aggression. Neue Dokumente zu den Kriegszielen des fascistischen Imperialismus im Zweiten Weltkrieg*. Berlin: VEB Deutscher Verlag der Wissenschaften.

- Hatlehol, Gunnar. 2015. "Norwegeneinsatz" 1940–45. *Organisation Todt og gradene av tvang*. Unpublished PhD thesis, Norwegian University of Science and Technology.
- Hauge, Jens Christian, and Sigurd Lorentzen. 1941. *Prisregulering og prishåndhevelse*. Oslo: Gyldendal.
- Haugen, Arne. 2005. *På ære og samvittighet. Skatteetatens historie etter 1892*. Bergen: Vigmostad & Bjørke.
- Hausmann, Heinrich. 1941. *Das Meer als Ernährungs- und Rohstoffquelle*, 2nd ed. Handel: Breslau.
- Hayes, Peter. 1987. *Industry and ideology. I.G. Farben in the Nazi Era.*. New York: Cambridge University Press.
- Hayes, Peter. 2009. Corporate freedom of action in Nazi Germany. *Bulletin of the GHI* 46: 29–42.
- Hedberg, Peter. 2003. *Handeln och betalningarna mellan Sverige och Tyskland 1934–1945: Den svensk-tyska clearingepoken ur ett kontraktsekoniskt perspektiv*. Uppsala: Acta Universitatis Upsaliensis.
- Heidbrink, Ingo (ed.). 2003. *...und heute gibt es Fisch! 100 Jahre Fischindustrie und Fischgroßhandel in Schlaglichtern 1903–2003*. Bremen: Bundesverband der deutschen Fischindustrie und des Fischgroßhandels.
- Heidbrink, Ingo. 2006. Creating a demand: The marketing activities of the German fishing industry, c. 1880–1990. In *The North Atlantic fisheries: Supply, marketing and consumption, 1560–1990*, ed. David J. Starkey and James E. Candow, 138–152. Hull: North Atlantic Fisheries History Association.
- Heidbrink, Ingo. 2012. From sail to factory freezer: Patterns of technological change. In *A history of the North Atlantic fisheries, vol. 2: From the 1850s to the early twenty-first century*, ed. David J. Starkey and Ingo Heidbrink, 58–78. Bremen: H. M. Hauschild.
- Heijden, Chris van der. 2001. *Grijs verleden. Nederland en de Tweede Wereldoorlog*. Amsterdam: Contact.
- Henriksen, Kåre. 1979. *Stafisko – statens ferskfiskkontor på kontinentet*. MA thesis, University of Bergen.
- Herbert, Ulrich. 1996. *Best. Biographische Studien über Radikalismus, Weltanschauung und Vernunft. 1903–1989. 3. Auflage*. Bonn: Dietz.
- Hersoug, Bjørn, Bjørn-Petter Finstad, and Pål Christensen. 2015. The system of Norwegian fish sales unions—An anachronism or a successful adaptation to modern fisheries? *Acta Borealia* 32(2): 190–204.
- Hilck, Erwin, and Rudolf auf dem Hövel. 1979. *Jenseits von minus null. Die Geschichte der deutschen Tiefkühlwirtschaft*. Cologne: Deutsches Tiefkühlinstitut.

- Hiltner, Peter Paul. 1939. Das Meer als Rohstoffgebiet. In *Das Fischeiweiß in Ernährung und Kleidung*, ed. Otto Mecheels, and Peter Paul Hiltner, 5–14. M.-Gladbach: Forschungsinstitut für Textilindustrie.
- Hirsch, Trygve von. 1943. Ankenemnda for den særskilte skatt til skatten på inntektsstigning. Oversikt over nemndens praksis. *Dommer, uttalelser mv. i skattesaker og skattespørsmål* 8: 441–467.
- Hirschfeld, Hans Max. 1960. *Herinneringen uit de bezettingstijd*. Amsterdam: Elsevier.
- Hirschfeld, Gerhard. 1991. *Bezetting en collaboratie. Nederland tijdens de oorlogsjaren 1940–1945*. 373. Gerhard. Haarlem: Becht.
- Hitchcock, William. 2015. Collaboration, resistance and liberation in Western Europe. In *The Cambridge history of the Second World War. Volume II: Politics and ideology*, ed. Richard Bosworth and Joseph Maiolo, 412–436. Cambridge: Cambridge University Press.
- Hitler, Adolf. 1939. *Der Führer antwortet Roosevelt: Reichstagsrede vom 28. April 1939*. Munich: NSDAP Zentralverlag.
- Hitler, Adolf, and Hugh Trevor-Roper. 1973. *Hitler's table talk: 1941–1944: His private conversations*. London: Weidenfeld and Nicolson.
- Hjeltnes, Guri. 1986. *Norge i Krig, vol. 5 Hverdagsliv*. Oslo: Aschehoug.
- Hodne, Fritz, and Ola Grytten. 1992. *Norsk økonomi, 1900–1990*. Oslo: Tano.
- Hoffmann, Walther. 1965. *Das Wachstum der deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts*. New York: Springer.
- Hogg, Robin. 1986. *Structural rigidities and policy inertia in interwar Belgium*. Brussel: Koninklijke Academie.
- Holm, Poul. 2012. World War II and the 'Great Acceleration' of North Atlantic fisheries. *Global Environment* 10: 69–72.
- Hooff, Giel van. 2014. Familie Wilton. In *Nederlandse Ondernemers 1850–1950. Rotterdam*, ed. Joop Visser, 380–389. Zutphen: Walburg Pers.
- Houwinck ten Cate, Johannes. 1999. Die rüstungswirtschaftliche Ausnutzung Westeuropas während der ersten Kriegshälfte. In *Das organisierte Chaos: "Ämterdarwinismus" und "Gesinnungsethik": Determinanten nationalsozialistischer Besatzungsherrschaft*, ed. Gerhard Otto and Johannes Houwinck ten Cate, 173–198. Berlin: Metropol.
- Houwinck ten Cate, Johannes. 1990. Generaal Winkelman, secretaris-generaal Hirschfeld en de Duitse bezettingspolitiek in mei-juni 1940. *Bijdragen en Mededelingen Betreffende de Geschiedenis der Nederlanden* 105(2): 186–230.
- Hovland, Edgar, and Anders Haaland. 2014. I verdenskrigens malstrøm. In *Norges fiskeri- og kysthistorie, En næring i omforming 1880–1970, vol. III*, ed. Nils Kalle, 191–209. Bergen: Fagbokforlaget.

- Ilchmann, Herbert. 1939. *Die Wiedererringung der deutschen Nahrungsfreiheit im Vollzug des Vierjahresplanes*. Berlin-Wilmersdorf: Werner.
- Imlay, Talbot. 2015. Résistance ou Collaboration de l'industrie automobile française pendant la Seconde Guerre mondiale. *Vingtième siècle* 125(1): 45–48.
- Imlay, Talbot, and Martin Horn. 2014. *The politics of industrial collaboration during World War II: Ford France, Vichy and Nazi Germany*. Cambridge: Cambridge University Press.
- Ingulstad, Mats. 2012. 'We want aluminum, not excuses.' Business-government relations in the American aluminium industry, 1917–1957. In *From warfare to welfare. Business-government relations in the aluminum industry*, ed. Hans Otto Frøland and Mats Ingulstad, 33–68. Oslo: Akademika.
- Jäger, Jörg Johannes. 1969. *Die wirtschaftliche Abhängigkeit des Dritten Reiches vom Ausland*. Berlin: Berlin Verlag.
- James, Harold. 1993. Innovation and conservatism in economic recovery: The alleged 'Nazi recovery' of the 1930s. In *Capitalism in crisis. International responses to the Great Depression*, ed. William Garside, 82–88. London: Pinter.
- Janssen, Albrecht. 1939. *Segen des Meeres. Ein Buch von Deutschlands Hochseefischerei*. Berlin: Drei-Masken-Verlag.
- Janssen, Gregor. 1968. *Das Ministerium Speer*. Berlin: Ullstein.
- Jensen, Sigurd. 1971. *Levevilkår under besættelsen*. Copenhagen: Gyldendal.
- Jensen, Ole B. 2005. *Besættelsestidens økonomiske og erhvervsmæssige forhold*. Odense: Syddansk universitetsforlag.
- Jensen, Ole B. 2008. Hitlers spisekammer? (Dansk) *Historisk Tidsskrift* 108(1): 66–105.
- Jensen, Christian, Tomas Kristiansen, and Karl Erik Nielsen. 2000. *Krigens købmænd*. Copenhagen: Gyldendal.
- Johansen, Hans Chr. 1985. *Dansk historisk statistik, 1814–1980*. Copenhagen: Gyldendal.
- Joly, Hervé (ed.). 2004. *Les comités d'organisation et l'économie dirigée de Vichy*. Caen: Centre de Recherche d'Histoire Quantitative.
- Joly, Hervé. 2006. The economy of occupied and Vichy France: Constraints and opportunities. In *Working for the New Order. European business under German domination 1939–1945*, ed. Joachim Lund, 93–104. Copenhagen: University Press of Southern Denmark.
- Jong, Louis de. 1969. *Het Koninkrijk der Nederlanden in de Tweede Wereldoorlog 1939–1945. Deel 2: Neutraal*. The Hague: Martinus Nijhoff.
- Jong, Louis de. 1969–1991. *Het Koninkrijk der Nederlanden in de Tweede Wereldoorlog, Part 4*. The Hague.

- Jong, Louis de. 1972. *Het Koninkrijk der Nederlanden in de Tweede Wereldoorlog 1939–1945. Deel 4: mei '40-maart '41. Eerste helft*. The Hague: Martinus Nijhoff.
- Jong, Louis de. 1995. *Het Koninkrijk der Nederlanden in de Tweede Wereldoorlog 1939–1945. Deel 7: mei '43 - juni '44. Eerste helft*. The Hague: SDU Uitgeverij.
- Jong, Herman de. 1999. *De Nederlandse industrie 1913–1965. Een vergelijkende analyse op basis van de productiestatistieken*. Amsterdam: NEHA.
- Judt, Tony. 2007. *Postwar: A history of Europe since 1945*. London: Pimlico.
- Justis- og politidepartementet. 1962. *Om landssvikoppgjøret: Innstilling fra et utvalg nedsatt for å skaffe tilveie materiale til en innberetning fra Justisdepartementet til Stortinget*. Gjøvik: Mariendals Boktrykkeri.
- Karlbom, Rolf. 1965. Sweden's iron ore exports to Germany, 1933–1944. *Scandinavian Economic History Review* XIII: 65–93.
- Karlson, Ingela. 2006. Sveriges Ekonomiska Relationer med det Ockuperade Norge. In *En (O)Moralisk Handel?– Sveriges Ekonomiska Relationer Med Nazityskland*, ed. Martin Fritz, Birgit Karlsson, Ingela Karlsson, and Sven Nordlund, 81–117. Stockholm: Forum för Levande historie.
- Keizer, Madelon de. 1984. *Appeasement en aanpassing. Het Nederlandse bedrijfsleven en de Deutsch-Niederländische Gesellschaft 1936–1942*. The Hague: Staatsuitgeverij.
- Kershaw, Ian. 2000. *Hitler 1936–45: Nemesis*. Harmondsworth: Penguin Press.
- Kershaw, Ian. 2015. *The Nazi dictatorship. Problems and perspectives of interpretation*. London: Bloomsbury.
- Keune, Hannes, and Wilhelm Zieglmayer. 1939. *Handbuch über Fische und Fischwaren für die Gemeinschaftsverpflegung*. Berlin: Verlag Das Fischnetz.
- Kirchhoff, Hans. 1979. *Augustoprøret 1943*. Copenhagen: Gyldendal.
- Kirchhoff, Hans, John T. Lauridsen, and Aage Trommer (eds.). 2002. *Gads leksikon om dansk besættelsestid 1940–1945*. Copenhagen: Gad.
- Kjeldbæk, Esben. 1997. *Sabotageorganisationen BOPA 1942–1945*. Copenhagen: Frihedsmuseets Venners Forlag.
- Kjeldstadli, Sverre. 1959. *Hjemmestyrkene. Hovedtrekkene av den militære motstanden under okkupasjonen*. Oslo: Aschehoug.
- Klein, Burton. 1959. *Germany's economic preparations for war*. Cambridge: Harvard University Press.
- Klemann, Hein. 1990. *Tussen Reich en Empire. De economische betrekkingen van Nederland met zijn belangrijkste handelspartners, Duitsland, Groot-Brittannië en België en de Nederlandse handelspolitiek, 1929-1936*. Amsterdam: NEHA.

- Klemann, Hein. 1997. De Nederlandse economie tijdens de Tweede Wereldoorlog. *Tijdschrift voor Geschiedenis* 110(1): 3–40.
- Klemann, Hein. 1999. 'Belangrijke gebeurtenissen vonden niet plaats...'. De Nederlandse industrie 1938–1948. *Bijdragen en Mededelingen Betreffende de Geschiedenis der Nederlanden* 114(4): 506–552.
- Klemann, Hein. 2000. 'Die koren onthoudt, wordt gevloekt onder het volk...'. De zwarte markt in voedingswaren 1940–1948. *Bijdragen en Mededelingen betreffende de Geschiedenis der Nederlanden* 115(1): 532–560.
- Klemann, Hein. 2002. *Nederland 1938–1948. Economie en samenleving in jaren van oorlog en bezetting*. Amsterdam: Boom.
- Klemann, Hein. 2006a. Dutch industrial companies and the German occupation, 1940–1945. *Vierteljahresheft für Sozial- und Wirtschaftsgeschichte* 93(1): 1–22.
- Klemann, Hein. 2006b. Occupation and industry. The industrial development of the Netherlands, 1940–1945. In *Working for the New Order. European business under German domination 1939–1945*, ed. Joachim Lund, 45–74. Copenhagen: University Press of Southern Denmark.
- Klemann, Hein. 2008. Did the German occupation (1940–1945) ruin Dutch industry? *Contemporary European History* 17(4): 457–481.
- Klemann, Hein, and Sergei Kudryashov. 2012. *Occupied economies. An economic history of Nazi-occupied Europe, 1939–1945*. London: Berg.
- Klemann, Hein, Marleen Arbouw, Renate Scheek, Mariëlle Scheerhoorn, and Bonny Steijgerwald. 1997. Schaarste aan grondstoffen. In *Mooie jaarcijfers. Enige onderzoeksresultaten betreffende de Nederlandse economische ontwikkeling tijdens de Tweede Wereldoorlog*, ed. Hein Klemann, 48–76. Utrecht: Vakgroep Geschiedenis der Universiteit Utrecht.
- Kollenborg, Egil. 1962. *Det Norske Nitridaktieselskap 1912–1962*. Oslo: s.n.
- Kortenhorst, L. Strijd met het recht. In *Onderdrukking en verzet. Nederland in oorlogstijd*, 2, ed. Johannes van Bolhuis, C.D.J. Brandt, H.M. van Randwijk, 219–252. Arnhem: Van Loghum Slaterus.
- Krag, Jens Otto. 1947. Byerhvervene og Krigsøkonomien. In *Danmark besat og befriet*, Økonomi og Kultur, vol. II, ed. Hartvig Frisch, 5–89. Copenhagen: Forlaget Fremad.
- Kranenburg, Bernard. 1937. *Hoofdtrekken der overheidsbemoeiing met het internationale betalingsverkeer in Nederland sinds 31 Juli 1914*. Assen: Van Gorcum.
- Kroener, Bernhard, Rolf-Dieter Müller, and Hans Umbreit (eds.). 2003. *Germany and the Second World War. Volume VIII: Organization and mobilization in the German Sphere of Power: Wartime administration, economy, and manpower resources 1942–1944/5*. Oxford: Clarendon Press.

- Krog, Helge. 1946. *6te kolonne -?: om den norske storindustriens bidrag til Nazi-Tysklands krigføring*. Radikalt forlag.
- Krosby, Peter. 1968. *Finland, Germany, and the Soviet Union, 1940–1941: The Petsamo dispute*. Madison: The University of Wisconsin Press.
- Krusch, Paul. 1936. Deutschlands Vorräte an Stahlveredlungsmitteln. *Zeitschrift für praktische Geologie* 44.
- La délégation française auprès de la Commission allemande d’armistice. 1952. *Recueil de documents publiés par le Gouvernement français, vol. 3: 24 novembre 1940–19 janvier 1941*, ed. Alfred Costes. Paris: Imprimerie Nationale.
- Lagrou, Pieter. 2000. *The legacy of Nazi occupation: Patriotic memory and national recovery in Western Europe, 1945–1965*. Cambridge: Cambridge University Press.
- Lak, Martijn. 2006. Hitler: briljant strateeg of spaak in het wiel van de Duitse oorlogvoering. In *Negende Bulletin van de Tweede Wereldoorlog*, ed. Perry Pierik, Martin Ros, and Jet van Swieten, 9–36. Soesterberg: Aspekt.
- Lak, Martijn. 2010. ‘Onze welvaart staat en valt met die van Duitschland’. Opvattingen over naoorlogs Duitsland bij de Nederlandse regering in Londen en de illegale pers tijdens de Tweede Wereldoorlog. *Tijdschrift voor Geschiedenis* 123(3): 410–413.
- Länderrat des Amerikanischen Besatzungsgebiets. 1949. *Statistisches Handbuch von Deutschland 1928–1944*. Munich: Ehrenwirth.
- Larsen, Rolf Wilman. 1987. *Ferskfiskens historie. Omsetning av norsk ferskfisk gjennom 100 år*. Ålesund: Forlaget Nordvest.
- Laub, Thomas. 2009. *After the fall: German policy in occupied France, 1940–1944*. Oxford: Oxford University Press.
- Lauridsen, John, and Joachim Lund (eds.). 2015. *Samarbejdets mand. Minister Gunnar Larsen – Dagbog 1941–1943*, vol. 1–3. Copenhagen: Historika.
- League of Nations. 1945. *Statistical yearbook of the League of Nations, vol. 17, 1942–44*. Geneva: League of Nations.
- Leeman, K. 1980–81. *Het Vlaams Nationaal Syndicaat en de Vlaamse Arbeidsorde tot 1941*. MA-thesis, Universiteit Gent.
- Lemmes, Fabian. 2008. Collaboration in wartime France. *European Review of History: Revue européenne d’histoire* 15(2): 157–177.
- Levine, Alan. 1992. *Strategic bombing of Germany*. Westport: Praeger.
- Leßmann, Peter. 1983. Ford Paris im Zugriff von Ford Köln 1943. *Zeitschrift für Unternehmensgeschichte* 38(4): 217–233.
- Lieberman, Peter. 1993. The spoils of conquest. *International Security* 18(2): 125–153.

- Lieberman, Peter. 2011. *Does conquest pay? The exploitation of occupied industrial societies*. Princeton: Princeton University Press.
- Lie, Haakon. 1942. *Nazi og Norge*. London: Norges Sjømannsforbund.
- Lie, Einar. 2006. Den kritiske bedriftshistorien. In *Demokratisk konservatisme. Festskrift til Francis Sejersted*, ed. Fredrik Engelstad, Even Lange, Helge Pharo, and Erik Rudeng. Oslo: Pax.
- Lindner, Stephan. 1991. *Das Reichskommissariat für de Behandlung feindlichen Vermögens on Zweiten Weltkrieg*. Stuttgart: Steiner.
- Loubet, Jean-Louis. 2001. *Histoire de l'automobile française*. Paris: Seuil.
- Loubet, Jean-Louis. 2009. *La Maison Peugeot*. Paris: Perrin.
- Lund, Joachim. 2001. Review of Philip Giltner: "In the friendliest manner". *German-Danish economic cooperation during the Nazi occupation of 1940–45. Scandinavian Journal of History* 26(4): 350–353.
- Lund, Joachim. 2004. Denmark and the 'European New Order', 1940–1942. *Contemporary European History* 13(3): 305–321.
- Lund, Joachim. 2005. *Hitlers spisekammer. Danmark og den europæiske nyordning 1940–1943*. Copenhagen: Gyldendal.
- Lund, Joachim. 2008. Hitlers spisekammer, den tyske fødevarekrise og de danske leverancer. (Dansk) *Historisk Tidsskrift* 108(2): 505–531.
- Lund, Joachim. 2008. Nordic destiny or European solidarity—The Scandinavian countries at a crossroads after the Second World War. In *Return to normalcy or a new beginning? Expectations and concepts for a postwar Europe around 1945*, ed. Joachim Lund and Per Øhrgaard, 93–111. Copenhagen: Copenhagen Business School Press.
- Lund, Joachim. 2010. Det økonomiske forholdet mellem Tyskland og Danmark 1940–45. In *Danske tilstander, norske tilstander 1940–45*, ed. Hans Fredrik Dahl, Joachim Lund, Hans Kirchhoff, and Lars-Erik Vaale, 169–193. Oslo: Forlaget Press.
- Lund, Joachim. 2012. Cement og politik. Gunnar Larsen som minister 1940–43, (Dansk). *Historisk Tidsskrift* 112(2): 469–511.
- Lund, Joachim. 2013. The wages of collaboration: The German food crisis 1939–1945 and the supplies from Denmark. *Scandinavian Journal of History* 38(4): 480–501.
- Lunde, Gulbrand. 1942. *Kampen for Norge, vol II, Foredrag og Artikler, 1940–1941*. Oslo: Gunnar Stenersens forlag.
- Luyten, Dirk. 1990. Het katolieke patronaat en het korporatisme in de jaren dertig en tijdens de bezetting. *Bijdragen van het Navorsings- en Studiecentrum voor de Geschiedenis van de Tweede Wereldoorlog* 13: 91–148.

- Luyten, Dirk. 1996. *Ideologisch debat en politieke strijd over het corporatisme tijdens het interbellum in België*. Brussel: Koninklijke Academie.
- Luyten, Dirk. 1997. *Ideologie en praktijk van het corporatisme tijdens de Tweede Wereldoorlog in België*. Brussel: VUBPRESS.
- Macho-Stadler, Inés, and J. David Pérez-Castrillo. 2001. *An introduction to the economics of information: Incentives and contracts*. Oxford: Oxford University Press.
- Mader, Otto. 1924. Betrachtungen über den Flugzeugbau. *Zeitschrift des Vereins Deutscher Ingenieure* 68: 1041–1042.
- Maier, Helmut. 1993. *Erwin Marx (1893–1980), Ingenieurwissenschaftler in Braunschweig, und die Forschung und Entwicklung auf dem Gebiet der elektrischen Energieübertragung auf weite Entfernungen zwischen 1918 und 1950*. Stuttgart: GNT-Verlag.
- Maier, Helmut. 2002. Ideologie, Rüstung und Ressourcen. Das Kaiser-Wilhelm-Institut für Metallforschung und die ‘Deutschen Metalle’ 1933–1945. In *Rüstungsforschung im Nationalsozialismus. Organisation, Mobilisierung und Entgrenzung der Technikwissenschaften*, ed. Helmut Maier, 357–388. Göttingen: Wallstein.
- Maier, Helmut. 2003. Flugzeugschrott und Suppentöpfe: Aluminiumrecycling in Deutschland vor und nach 1945. In *Recycling in Geschichte und Gegenwart*, ed. Roland Ladwig, 75–94. Georg-Agricola-Gesellschaft: Freiberg.
- Maier, Helmut. 2007. *Forschung als Waffe. Rüstungsforschung in der Kaiser-Wilhelm-Gesellschaft und das Kaiser-Wilhelm-Institut für Metallforschung 1900 bis 1945/48*. Göttingen: Wallstein.
- Maier, Helmut. 2009. Ideology, armaments and resources. The Kaiser-Wilhelm-Institut for Metal Research and the ‘German Metals’ 1933–1945. In *The Kaiser Wilhelm Society under national socialism*, ed. Susanne Heim, Carola Sachse, and Mark Walker, 252–283. New York: Cambridge University Press.
- Main, O.W. 1955. *The Canadian nickel industry*. Toronto: University of Toronto Press.
- Mann, Golo. 1986. *Deutsche Geschichte 1919–1945*. Frankfurt-am-Main: Fischer Tb.
- Marcot, François. 1999. La direction de Peugeot sous l’Occupation: pétainisme, réticence, opposition et résistance. *Mouvement Social* 189: 27–46.
- Marcq, René. 1946. Collaboration under enemy occupation. *The Annals of the American Academy of Political and Social Science* 247: 69–72.
- Margairaz, Michel. 1991. *L’état, les finances et l’économie. Histoire d’une conversion 1932–1952*, vol. 1. Paris: Comité pour l’histoire économique et financière de la France.

- Margairaz, Michel. 2009. Les politiques économiques sous et de Vichy. *Histoire@politique* 9: 93.
- März, Susanne. 2007. Okkupasjonstidens lange skygger. *Nytt Norsk Tidsskrift* 4: 365–376.
- März, Susanne. 2010. *Die langen Schatten der Besatzungszeit: "Vergangenheitsbewältigung" in Norwegen als Identitätsdiskurs*. Berlin: BWV Berliner Wissenschafts-Verlag.
- Mazower, Mark. 2009. *Hitler's empire. Nazi rule in occupied Europe*. London: Penguin.
- Medlicott, William. 1978. *The economic blockade, vol.I*. London: H.M. Stationery Office.
- Meihuizen, Joggli. 2003. *Noodzakelijk kwaad. De bestraffing van economische bestraffing in Nederland na de Tweede Wereldoorlog*. Amsterdam: Boom.
- Menger, Manfred, Fritz Petrick, and Wolfgang Wilhelmus (eds.). 1987. *Expansionsrichtung Nordeuropa. Dokumente zur Nordeuropapolitik des faschistischen deutschen Imperialismus 1939–1945*. Berlin: VEB Deutscher Verlag der Wissenschaften.
- Meseck, Gerhard. 1950. Seefischerei Nord- und Westeuropas während des Krieges 1940 bis 1944. In *Jahresbericht über die deutsche Fischerei 1949*, ed. Bundesministerium für Ernährung, Landwirtschaft und Forsten, 97–98. Berlin: Gebr. Mann.
- Meulenbelt, J. 1955. *De Duitse tijd*. Bruna: Utrecht.
- Mijs, Arend. 1948. *Belevenissen van de Nederlandse spaarbanken in oorlogstijd 1939–1945*. S.l: s.n.
- Milward, Alan. 1966. *Der Deutsche Kriegswirtschaft, 1939–1945*. Stuttgart: Deutsche Verlags-Anstalt.
- Milward, Alan. 1967. Could Sweden have stopped the Second World War? *Scandinavian Economic History Review* XV: 127–138.
- Milward, Alan. 1970. *The fascist new order and the French economy*. Oxford: Clarendon Press.
- Milward, Alan. 1972. *The Fascist Economy of Norway*. Oxford: Clarendon Press.
- Mogens, Victor. 1945. *Tyskerne, Quisling og Vi Andre*. Oslo: Utenriksforlaget.
- Mogensen, Gunnar. 2003. *Skattesnyderiets historie. Udviklingen i underdeklarationen i Danmark i 1900-tallet*. Odense: Rockwool Fonden og Syddansk Universitetsforlag.
- Mommsen, Hans, and Manfred Grieger. 1996. *Das Volkswagenwerk und seine Arbeiter im Dritten Reich*. Düsseldorf: ECON.
- Mosolff, Hans. 1938. *Die deutsche Fischwirtschaft im Vierjahresplan. Steigerung der deutschen Seefischversorgung und ihre Grundlagen*. Berlin: Haude & Spener.

- Mosolff, Hans. 1941. *Der Aufbau der deutschen Gefrierindustrie. Handbuch der Tiefkühlwirtschaft*. Hamburg: Keune.
- Müller, Rolf-Dieter. 1988. Die Mobilisierung der Deutschen Wirtschaft für Hitlers Kriegsführung. In *Das Deutsche Reich und der Zweite Weltkrieg 5/1: Organisation und Mobilisierung des deutschen Machtbereichs, Kriegsverwaltung, Wirtschaft und personelle Ressourcen: 1939–1941*, ed. Militärgeschichtliches Forschungsamt, 347–689. Stuttgart: Deutsche Verlags-Anstalt.
- Müller, Rolf-Dieter. 2015. Albert Speer and armaments policy in total war. In *Germany and the Second World War. Volume VIIIA. Organization and mobilization in the German sphere of power: Wartime administration, economy, and manpower resources 1942–1944/5*, ed. Bernhard Kroener, Rolf-Dieter Müller, and Hans Umbreit. Oxford: Oxford University Press.
- Murray, Williamson, and Allan Millett. 2000. *A war to be won. Fighting the Second World War*. Cambridge: Belknap Press.
- Myles, W.H., G.A. Reay, and H.E.M. Farrer. 1945. *Certain aspects on the German fishing industry (British Intelligence Objectives Sub committee. Final report no. 493, item no. 22)*. London: H. M. Stationery Office.
- Nefors, Patrick. 2000. Industriële “collaboratie”. In *België. De Galopindoctrine, de Emissiebank en de Belgische industrie in de Tweede Wereldoorlog*. Leuven: Van Halewyck.
- Nefors, Patrick. 2006. *La collaboration industrielle en Belgique, 1940–1945*. Bruxelles: Racine.
- Nielsen, Jens Petter, and Tatjana Aleksejevna Schrader. 2014. Russefiske og russehandel fram til 1815. In *Russland kommer nærmere. Norge og Russland 1814–1917*, ed. Jens Petter Nielsen, 60–76. Oslo: Pax forlag.
- Nissen, Mogens R. 2005. *Til fælles bedste. Det danske landbrug under besættelsen*. Copenhagen: Lindhardt og Ringhof.
- Nissen, Mogens R. 2008. Fødevareleverancernes betydning. (Dansk) *Historisk Tidsskrift* 108(2): 532–551.
- Nøkleby, Berit. 1992/2008. *Terboven. Hitlers mann i Norge*. Oslo: Gyldendal.
- Nomeland, Targjerd. 1973. *Striden om 12-øringen. Lønnsnedslaget i Oslo 1940 og oppgjøret om det i 1945*. MA-thesis, University of Oslo.
- Norges Bank: Norges Banks beretninger om virksomheten i hvert av årene 1940–1944. Oslo: S & J Sørensens boktrykkeri, 1945.
- Norges Bank. 1945. *Norges Bank under okkupasjonen*, Oslo: Norges Bank.
- Notevarp, Olav. 1949. Fisketilvirkning og fiskeindustri. In *Norsk fiskeri- og fangsthandbok*, ed. Jan Strøm, 39–59. Oslo: Alb. Cammermeyers forlag.
- Nygaard, Pål. 2014. *Store drømmer og harde realiteter. Veibygging og biltrafikk i Norge, 1912–1960*. Oslo: Pax.

- Occhino, Filippo, Kim Oosterlinck, and Eugene White. 2008. How much can a victor force the vanquished to pay? France under the Nazi boot! *Journal of Economic History* 68(01): 1–45.
- Ødegård, Øyvind. 1992. *Kampen om vannkraften. Tyske planer og norske reaksjoner 1940–45*. MA Thesis, University of Oslo.
- Olsen, Kristian Anker. 1955. *Norsk Hydro gjennom 50 år. Et eventyr fra realitetenes verden*. Oslo: Norsk Hydro.
- Olson, Mancur. 1962. The economics of target selection for the Combined Bomber Offensive. *Royal United Services Institution Journal* 107(628): 308–314.
- Ørvik, Nils. 1953. *Norge i brennpunktet, vol. 1: Handelskrigen 1939–40*. Oslo: Johan Grundt Tanum Forlag.
- Orwell, George. 1986. Coming up for air. In *The complete works of George Orwell, vol. 7*. London: Secker & Warburg.
- Otte, Carlo. 1942. *Das neue Norwegen im europäischen Raum*. Oslo: Deutsche Monatshefte in Norwegen.
- Ottosen, Kristian. 2004. *Nordmenn i fangenskap 1940–45, alfabetisk register*. Oslo: Universitetsforlaget.
- Overy, Richard. 1984. *Goering, the 'Iron Man'*. Boston: K.Paul.
- Overy, Richard. 1994. *War and economy in the Third Reich*. Oxford: Clarendon Press.
- Overy, Richard. 1997. The economy of the German 'New Order'. In *Die "Neuordnung" Europas. NS-Wirtschaftspolitik in den besetzten Gebieten*, ed. Richard Overy, Gerhard Otto, and Johannes Houwink ten Cate, 11–28. Berlin: Metropol.
- Overy, Richard, Gerhard Otto, and Johannes Houwink ten Cate (eds.). 1997. *Die "Neuordnung" Europas: NS-Wirtschaftspolitik in den besetzten Gebieten*. Berlin: Metropol.
- Paaske, Nanna. 1998. *Fransk Hydro? Om fransk innflytelse i Norsk Hydros etableringsfase 1902–1914*. MA-thesis, University of Oslo.
- Pater, J.C.H.de. 1972. Doel van het Duitsche civiele bestuur in Nederland. In *Studies over Nederland in oorlogstijd I*, ed. Abraham Paape, 39–47. Gravenhage: Nijhoff.
- Paulsen, Helge. 1974. Tysk økonomisk politikk i Norge. In *Krigen i Norge*, ed. Hans Fredrik Dahl, 75–89. Oslo: Pax.
- Pauw, Johannes Leonard van der. 2006. *Rotterdam in de Tweede Wereldoorlog*. Amsterdam: Boom.
- Paxton, Robert. 1973. *La France de Vichy 1940–1944*. Paris: Éditions du Seuil.

- Pega, Frank. 2010. *Tätigkeit der Deutschen Revisions- und Treuhand AG von 1925 bis 1945*. Unpublished PhD thesis, Ludwig-Maximilians-Universität.
- Pelzer-Reith, Birgit, and Reinhold Reith. 2002. Fett aus Kohle? Die Speisefettsynthese in Deutschland 1933–1945. *Technikgeschichte* 69(3): 173–205.
- Pelzer-Reith, Birgit, and Reinhold Reith. 2009. Fischkonsum und Eiweißlücke im Nationalsozialismus. *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte* 96(1): 4–26.
- Pesch, Martin. 1988. *Struktur und Funktionsweise der Kriegswirtschaft in Deutschland ab 1942—unter besonderer Berücksichtigung des organisatorischen und produktionswirtschaftlichen Wandels in der Fahrzeugindustrie*. Cologne: Müller Botermann.
- Petrick, Fritz. 1992. *Der “Leichtmetallausbau Norwegen” 1940–1945 eine Studie zur deutschen Expansions- und Okkupationspolitik in Nordeuropa*. Frankfurt am Main: Lang.
- Petrick, Fritz. 1992. *Die Okkupationspolitik des deutschen Faschismus in Dänemark und Norwegen (1940–1945) Dokumentauswahl und Einleitung von Fritz Petrick*. Europa unter dem Hakenkreuz. Die Okkupationspolitik des deutschen Faschismus (1938–1945). vol.7. Berlin-Heidelberg: Hüthig Verlagsgemeinschaft.
- Petrick, Fritz. 1998. *Ruhestörung: Studien zur Nordeuropapolitik Hitlerdeutschlands*. Berlin: Edition Organon.
- Petzina, Dieter. 1968. *Autarkiepolitik im Dritten Reich. Der nationalsozialistische Vierjahresplan*. Munich: DVA.
- Pinxten, Karel. 1939. *Het Kempisch steenkolenbekken*. Brussel: Standaard Boekhandel.
- Plumpe, Gottfried. 1990. *Die I. G. Farbenindustrie AG Wirtschaft, Technik und Politik: 1904–1945*. Berlin: Duncker & Humblot.
- Pohlmann, W. 1943. Fischgefrieranlage in Norwegen. *Zeitschrift für die gesamte Kälte-Industrie* 50: 87–89.
- Praet, Carmen Van. 2012. Erich Reitz, een koppige Einzelgänger. Historiek van een Duitse ondernemer in België tijdens de Tweede Wereldoorlog. *Revue belge d'Histoire contemporaine* 42(1): 59–102.
- Przeworski, Adam. 2008. *States and markets: A primer in political economy*. Cambridge: Cambridge University Press.
- Puchert, Berthold. 1996. Der deutsche Aussenhandel im Zweiten Weltkrieg. In *Geschichte der deutschen Kriegswirtschaft*, vol. 3, ed. Dietrich Eichholtz, 393–507. Berlin: Akademie Verlag.

- Radtke-Delacor, Arne. 2000. La place des commandes allemandes à l'industrie Française dans les stratégies de guerre nazies de 1940–1944. In *L'occupation, L'état Français et les entreprises. Actes du colloque organisé par l'université de Franche-Comté, Besançon, les 24, 25 et 26 mars 1999*, ed. Olivier Dard, Jean Claude Daumas, and François Marcot, 11–24. Paris: Association pour le développement de l'histoire économique.
- Radtke-Delacor, Arne. 2001. Produire pour le Reich. Les commandes allemandes à l'industrie française (1940–1944). *Vingtième siècle. Revue d'histoire* 70: 99–115.
- Radtke-Delacor, Arne. 2004. La position des Comités d'organisation face aux autorités d'occupation: la pomme de discorde des commandes allemandes en 1940–1941. In *Les Comités d'organisation et l'économie dirigée du régime de Vichy*, ed. Hervé Joly, 63–71. Caen: Centre de Recherche d'Histoire Quantitative.
- Rauh, Cornelia. 2009. *Schweizer Aluminium für Hitlers Krieg? Zur Geschichte der "Alusuisse" 1918–1959*. Munich: C.H. Beck.
- Reader, William Joseph. 1975. *Imperial chemical industries, A history, Vol. II. The first quarter-century 1926–1952*. Oxford: Oxford University Press.
- Reith, Reinhold. 2007. 'Hurrah die Butter ist alle!'. 'Fettlücke' und 'Eiweißlücke' im Dritten Reich. In *Erfahrung der Moderne*, ed. Michael Pammer, Herta Neiß, and Michael John, 420–426. Stuttgart: Steiner.
- Reynolds, David. 1990. 1940: Fulcrum of the twentieth century? *International Affairs* 66(2): 325–350.
- Richthofen, Wolfram von. 1929. *Der Einfluss der Flugzeugbauarten auf die Beschaffung unter besonderer Berücksichtigung militärischer Gesichtspunkte*. Secret PhD thesis, TH Berlin.
- Rieder, Maximiliane. 2003. *Deutsch-italienische Wirtschaftsbeziehungen: Kontinuitäten und Brüche 1936–1957*. Frankfurt am Main: Campus Verlag.
- Riess, Monika. 2002. *Die deutsche-französische industrielle Kollaboration während des Zweiten Weltkrieges am Beispiel der Renault-Werke (1940–1944)*. Frankfurt am Main: Lang.
- Ringdal, Nils Johan. 1987. *Mellom barken og veden. Politiet under okkupasjonen*. Oslo: Aschehoug.
- Rinkefeil, Rudolf. 1942. Das niederländische Finanzwesen. In *Die Niederlande im Umbruch der Zeiten. Alte und neue Beziehungen zum Reich. Im Auftrag der Reichskommissars für die besetzten niederländische Gebiete Reichsminister Dr. Arthur Seyss-Inquart*, ed. Max Freiherr Du Prel and Willi Janke, 281–298. Würzburg: K. Triltsch.

- Riste, Olav. 1979. "London-Regjeringa". *Norge i krigsalliansen 1940–1945, vol II: Vegen Heim, 1942–45*. Oslo: Samlaget.
- Rob, Jan. 2007. Erst die Maschinen - dann die Menschen. In *Knaben II: I berget det blå*, Knabens Venner, 28–53. Kvinlog: Knabens Venner.
- Robert, Ahlf. Die Hochseefischerei und ihre Verteilungs- und Lagerungsaufgaben. *Der Vierjahresplan* 1 (1937), 398.
- Robinson, Robb. 1996. *Trawling. The rise and fall of the British trawl fishery*. Exeter: University of Exeter Press.
- Röhr, Werner. 1996. Forschungsprobleme zur deutschen Okkupationspolitik im Spiegel der Reihe 'Europa unterm Hakenkreuz'. In *Europa unterm Hakenkreuz, vol. 8: Analysen, Quellen, Register*, 25–343. Berlin: Hühig Verlagsgemeinschaft.
- Rolf-Dieter, Müller. 1999. Albert Speer und die Rüstungspolitik im Totalen Krieg. In *Das Deutsche Reich und der Zweite Weltkrieg, vol. 5/2*, ed. Militärgeschichtliches Forschungsamt, 275–776. Stuttgart: Deutsche Verlags-Anstalt.
- Röntgen, Paul. 1956. Metallgewinnung. In *Aufgaben deutscher Forschung. Vol. III: Technik*, ed. Leo Brandt, 101, 2nd edn. Cologne: Westdeutscher Verlag.
- Rouso, Henry. 1987. *La collaboration*. Paris: M.A. Editions.
- Rübner, Hartmut. 2007. Unternehmensinteressen und Vierjahresplan. Der Reemtsma-Konzern im 'Dritten Reich'. *Sozial. Geschichte* 22(3): 13–42.
- Sanders, Paul. 1999. *German black market operation in occupied France and Belgium, 1940–1944*. Unpublished PhD thesis, University of Cambridge.
- Sandvik, Pål Thonstad. 2004. *Falconbridge Nikkelverk 1910-1929-2004: Et internasjonalt selskap i Norge*. Kristiansand: Falconbridge Nikkelverk.
- Sandvik, Pål Thonstad. 2008. The making of a subsidiary, Falconbridge Nikkelverk, 1910-1929-2004. Unpublished PhD thesis, Norwegian University of Science and Technology.
- Sandvik, Pål Thonstad. 2009. Facing oligopoly and protectionism, the fate of small producers in the inter-war nickel industry. *Scandinavian Journal of History* 34(4): 376–393.
- Sandvik, Pål Thonstad. 2012. *Multinationals, subsidiaries and national business systems: The nickel industry and Falconbridge Nikkelverk*. London: Pickering & Chatto.
- Sarazin, Jenny. 2002. War, public intervention and structural changes in the German fishing industry, 1914–1930. In *Maritime industries and public intervention. The fourth North Sea history conference, 18–20 August 1995, Stavanger, Norway*, ed. Randi Ertesvåg, David J. Starkey, and Anne Tove Austbø, 142–150. Stavanger: Maritime Museum.

- Sauvy, Alfred. 1978. *La vie économique des Français de 1939 à 1945*. Paris: Flammarion.
- Scavenius, Erik. 1948. *Forhandlingspolitikken under besættelsen*. Copenhagen: Steen Hasselbalch.
- Schanetzky, Tim. 2015. *Wirtschaft und Konsum im Dritten Reich*. Munich: C.H. Beck.
- Schatzberg, Eric. 1999. *Wings of wood, wings of metal. Culture and technical choice in American airplane materials, 1914–1945*. Princeton: Princeton University Press.
- Scherner, Jonas. 2006. Das Verhältnis zwischen NS-Regime und Industrieunternehmen—Zwang oder Kooperation? *Zeitschrift für Unternehmensgeschichte* 51(2): 166–190.
- Scherner, Jonas. 2008. The beginnings of Nazi autarky policy: The National Pulp Programme and the origin of regional staple fibre plants. *The Economic History Review* 61(4): 867–895.
- Scherner, Jonas. 2008. *Die Logik der Industriepolitik im Dritten Reich. Die Investitionen in die Autarkie- und Rüstungsindustrie und ihre staatliche Förderung*. Stuttgart: Steiner.
- Scherner, Jonas. 2010. Anreiz statt Zwang. Wirtschaftsordnung und Kriegswirtschaft im ‘Dritten Reich’. In *Unternehmen im Nationalsozialismus. Zur Historisierung einer Forschungskonjunktur*, ed. Tim Schanetzky and Norbert Frei, 140–155. Göttingen: Wallstein Verlag.
- Scherner, Jonas. 2010b. Nazi Germany’s preparation for war: Evidence from revised industrial investment series. *European Review of Economic History* 14(3): 433–468.
- Scherner, Jonas. 2012. Der deutsche Importboom während des Zweiten Weltkriegs. Neue Ergebnisse zur Struktur der Ausbeutung des besetzten Europas auf der Grundlage einer Neuschätzung der deutschen Handelsbilanz. *Historische Zeitschrift* 294: 79–113.
- Scherner, Jonas. 2012. Europas Beitrag zu Hitlers Krieg. Die Verlagerung von Industrieaufträgen der Wehrmacht in die besetzten Gebiete und ihre Bedeutung für die deutsche Rüstung im Zweiten Weltkrieg. In *Europäische Volkswirtschaften unter deutscher Hegemonie*, ed. Christoph Buchheim and Marcel Boldorf, 70–92. Munich: Oldenbourg.
- Scherner, Jonas. 2013. Armament in the depth or armament in the breadth? German investments pattern and rearmament during the Nazi period. *Economic History Review* 66(2): 497–517.
- Scherner, Jonas. 2014. Tin and the German war economy: Scrap drives, blockade running and war looting. In *The devil’s metal: A history of the global tin industry, 1850–2000*, ed. Mats Ingulstad, Andrew Perchard, and Espen Storli. New York: Routledge.

- Schermer, Jonas. 2015. Die Grenzen der Informationsbeschaffung, –transfer und –verarbeitung in der deutschen Wehr- und Kriegswirtschaftsverwaltung im Dritten Reich. *Jahrbuch für Wirtschaftsgeschichte* 56(1): 99–135.
- Schermer, Jonas. 2015. The German system of financing occupation. In *Economies under occupation. The hegemony of Nazi Germany and Imperial Japan in World War II*, ed. Marcel Boldorf and Tetsuji Okazaki, 39–54. London: Routledge.
- Schermer, Jonas. 2016. The architecture of financing German exploitation: Principles, conflicts, and results. In *Paying for Hitler's war: The consequences of Nazi hegemony for Europe*, ed. Jonas Scherner and Eugene White. Cambridge: Cambridge University Press.
- Schermer, Jonas, and Jochen Streb. 2006. Das Ende eines Mythos?: Albert Speer und das so genannte Rüstungswunder. *Vierteljahrshefte für Sozial- und Wirtschaftsgeschichte* 93(2): 172–196.
- Schermer, Jonas, and Jochen Streb. 2016. The mirage of the German armament miracle in World War II. In *An economic history of warfare and state formation*, eds. Jari Eloranta, Nikolaus Wolf, Eric Golson and Andrei Markevich. S.I.: Springer.
- Schermer, Jonas, and Eugene White (eds.). 2016. *Paying for Hitler's war: The consequences of Nazi hegemony for Europe*. Cambridge: Cambridge University Press.
- Schmiedel, Michael. 2013. “*Sous cette pluie de fer*”: Luftkrieg und Gesellschaft in Frankreich, 1940–1944. Stuttgart: Steiner.
- Schnakenbeck, Werner. 1953. *Die deutsche Seefischerei in Nordsee und Nordmeer*. Hamburg-Blankenese: Kröger.
- Semmingsen, R. 1969. Wilhelm Thagaard. *Norsk Biografisk Leksikon* XVI: 136–148.
- Shirer, William, and Ron Rosenbaum. 2011. *The rise and fall of the Third Reich: A history of Nazi Germany*. New York: Simon and Schuster.
- Skelton, Alex. 1937. Nickel. In *International control in the non ferrous metals industry*, ed. William Yandell Elliot, 109–209. New York: Macmillan.
- Skvorecky, Josef. 1984. *The engineer of human souls*. New York: A.A. Knopf.
- Sluyterman, Keetie. 2003. *Kerende kansen. Het Nederlandse bedrijfsleven in de twintigste eeuw*. Amsterdam: Boom.
- Smith, H.H. 1947. Bergverksdriften 1940–1945. *Tidsskrift for kjemi, bergvesen og metallurgi* 9: 139–153.
- Snell, Edwin, and Maurice Matloff. 1953. *Strategic planning for coalition warfare, 1941–42*. Washington, DC: Department of the Army.

- Sogner, Knut. 2001. *Plankeadel: Kiær- og Solberg-familien under den 2. industrielle revolusjon*. Oslo: Andresen og Butenschøn.
- Sogner, Knut. 2003. *Skaperkraft. Elkem gjennom 100 år 1904–2004*. Oslo: Messel.
- Soleim, Marianne Neerland. 2004. *Sovjetiske krigsfanger i Norge 1941–1945 - antall, organisering og repatriering*. Unpublished PhD thesis, University of Tromsø.
- Sørensen, Øystein. 1989. Forskningen om krigen i Norge. *Nytt Norsk Tidsskrift* 1: 40–58.
- Sørensen, Øystein. 1989. *Hitler eller Quisling? Ideologiske brytninger in Nasjonal Samling 1940–1945*. Oslo: Cappelen.
- Sparenberg, Ole. 2012. How the Germans did not appropriate fish and chips: The case of the Fischbratküche in the 1920s and 1930s. In *Travelling goods, travelling moods: Varieties of cultural appropriation (1850–1950)*, ed. Christian Huck and Stefan Bauernschmidt, 61–78. Frankfurt-on-Main: Campus.
- Sparenberg, Ole. 2012. “*Segen des Meeres*”: *Hochseefischerei und Walfang im Rahmen der nationalsozialistischen Autarkiepolitik*. Berlin: Duncker & Humblot.
- Speer, Albert. 1970. *Erindringer*. Oslo: Gyldendal.
- Speer, Albert. 1976. *Erinnerungen*. Frankfurt-am-Main: Propyläen.
- Spoerer, Mark, and Jochen Streb. 2013. *Neue deutsche Wirtschaftsgeschichte des 20. Jahrhunderts*. Munich: Oldenbourg.
- Stahmer, Max. 1943. *Fischhandel und Fischindustrie*, 3rd ed. Keune: Hamburg.
- Statistisk Sentralbyrå. 1945. *Statistisk-økonomisk utsyn over krigsårene*. Oslo: Statistisk Sentralbyrå.
- Statistisk Sentralbyrå. 1946. *NOS X. 102 Nasjonalinntekten i Norge 1935–1943*. Oslo: Statistisk sentralbyrå.
- Statistisk Sentralbyrå. 1949. *Statistiske oversikter 1948*. Oslo: Statistisk Sentralbyrå.
- Statistisk Sentralbyrå. 1954. *Statistikk over Landssvik, 1940–1945*. Oslo: Statistisk Sentralbyrå.
- Statistisk Sentralbyrå. 1966. *Langtidslinjer i Norsk Økonomi, 1865–1960*. Oslo: Statistisk Sentralbyrå.
- Steiner, André. 2003. Umrisse einer Geschichte der Verbraucherpreispolitik unter dem Nationalsozialismus der Vorkriegszeit. In *Wirtschaftsordnung, Staat und Unternehmen*, ed. Werner Abelshauser, Jan-Otmar Hesse, and Werner Plumpe, 279–303. Essen: Klartext.
- Steiner, Zara. 2011. *The triumph of the dark: European international history 1933–1939*. Oxford: Oxford University Press.

- Steinert, Hermann. 1931. Die Fanggebiete der deutschen Hochseefischerei. *Geographische Zeitschrift* 37: 30–37.
- Stocking, George, and Myron Watkins. 1947. *Cartels in action*. New York: The Twentieth Century Fund.
- Stokke, Michael. 2008. *Sovjetiske og franske sivile tvangsarbeidere i Norge 1942–1945: En sammenligning av arbeids- og leveforhold*. MA-thesis, University of Bergen.
- Stolle, Harro. 1939. *Neue Marktordnung in der Fischwirtschaft*. Hamburg: Hanseatische Verlagsanstalt.
- Storeide, Anette. 2014. *Norske Krigsprofitorer. Nazi-Tysklands villige medhjelpere*. Oslo: Gyldendal.
- Storli, Espen. 2010. *Out of Norway falls aluminium. The Norwegian aluminium industry in the international economy, 1908–1940*. Unpublished Phd thesis, Norwegian University of Science and Technology.
- Stortinget. 1947. *Innstillingen fra Undersøkelseskommisjonen av 1945 Bilag Bind I*. Oslo: Stortinget.
- Strand, Inge. 1993. Næringsliv og økonomisk utvikling i Nordland 1940–60. In *Banken, folket og fylket. Nordlandsbanken og Nordlands næringsliv gjennom 100 år 1893–199*, ed. Svein Fygle, Svein Lundestad, and Inge Strand, 202–228. Bodø: Nordlandsbanken.
- Stuckey, John. 1983. *Vertical integration and joint ventures in the aluminum industry*. Cambridge: Harvard University Press.
- Sudrow, Anne. 1998. Das 'deutsche Rohstoffwunder' und die Schuhindustrie. Schuhproduktion unter den Bedingungen der nationalsozialistischen Autarkiepolitik. *Blätter für Technikgeschichte* 60: 76–78.
- Svendsen, Arnljot. 1973. *Union 1873–1973: En norsk treforedlingsbedrifts liv og eksistenskamp*. Oslo: Aschehoug.
- Teuteberg, Hans-Jürgen. 1979. Der Verzehr von Nahrungsmitteln in Deutschland pro Kopf und Jahr seit Beginn der Industrialisierung (1850–1975). Versuch einer quantitativen Langzeitanalyse. *Archiv für Sozialgeschichte* 19: 347–349, 358.
- Teuteberg, Hans Jürgen. 1991. Zur Geschichte der Kühlkost und des Tiefgefrierens. *Zeitschrift für Unternehmensgeschichte* 36(3): 139–155.
- Thomle, Jens Edvard. 1925. *Skattelov for landet av 18 august 1911 med tilleggslover. 5. utgave*. Oslo: J.M. Stenersen.
- Thomle, Jens Edvard. 1944. *Skattelov for landet av 18 august 1911 med tilleggslover. Samlet tillegg av januar 1944 til skattelov for landet*. Oslo: Stenersen.
- Thomle, Jens Edvard, Karl Bugge, and Bjørn Skreiberg. 1957. *Skattelov for landet av 18. august 1911 med tilleggslover. 13. Kommentartutgave*. Oslo: Sem & Stenersen.

- Thoms, Ulrike. 2011. The innovative power of war: The army, food sciences and the food industry in Germany in the twentieth century. In *Food and war in twentieth century Europe*, ed. Ina Zweiniger-Bargielowska, Alain Drouard, and Rachel Duffett, 247–261. Farnham: Ashgate.
- Thon, Eivind. 1951. *Krigsforsikringen for varelagre - Gjensidig- (varelagertrygden): opprettelse og virksomhet i årene 1940–1949*. Oslo: Krigsforsikringen for varelagre.
- Thue, Lars. 1992. Den politiske kraften. Fredrik Vogt og historien om norsk krafteksport. In *Fredrik Vogt og norsk vannkraftutbygging*, ed. Knut Endresen, 123–181. Oslo: Universitetsforlaget.
- Tønnesson, Øyvind. 1997. *Fra selvstendighetslinje til forpliktende internasjonal kartellsamarbeid. Norsk Hydros posisjon I verdens nitrogenindustri*. MA-thesis, University of Oslo.
- Tooze, Adam. 2005. No room for miracles: German industrial output in World War II reassessed. *Geschichte und Gesellschaft* 31(1): 439–464.
- Tooze, Adam. 2006. *The Wages of Destruction. The making & breaking of the Nazi economy*. London: Penguin.
- Topp, Niels-Henrik. 1987. *Udviklingen i de finanspolitiske ideer i Danmark 1930–1945*. Copenhagen: Jurist- og økonomforbundet forlag.
- Trevor-Roper, Hugh (ed.). 2007. *Hitler's table talk, 1941–44: His private conversations*. New York: Enigma Books.
- Trip, Leonardus Jacobus Anthonius. 1946. *De Duitsche bezetting van Nederland en de financieele ontwikkeling van het land gedurende de jaren der bezetting*. Den Haag: Nijhoff.
- Tuveng, Morten. 1946. *Arbeidsløshet og beskjeftigelse i Norge før og under krigen*. Bergen: Christian Michelsens Institutt.
- Ulshöfer, Otfried. 1958. *Einflußnahme auf Wirtschaftsunternehmungen in den besetzten nord-, west- und südosteuropäische Ländern während des Zweiten Weltkrieges insbesondere der Erwerb von Beteiligungen (Verflechtung)*. Tübingen: Institut für Besatzungsfragen.
- Umbreit, Hans. 1968. *Der Militärbefehlshaber in Frankreich 1940–1944*. Boppard: Boldt.
- Umbreit, Hans. 1988. Auf dem Weg zur Kontinentalherrschaft. In *Das Deutsche Reich und der Zweite Weltkrieg, vol. 5: Organisation und Mobilisierung des deutschen Machtbereichs, part 1: Kriegsverwaltung, Wirtschaft und personelle Ressourcen*, ed. Bernhard Kroener, Rolf-Dieter Müller, and Hans Umbreit. Stuttgart: Deutsche Verlags-Anstalt.
- Umbreit, Hans. 1990. Die Verlockung der französischen Ressourcen: Pläne und Methoden zur Ausbeutung Frankreichs für die kriegsbedingten Bedürfnisse und die langfristigen Ziele des Reichs. In *La France et l'Allemagne en guerre*.

- Septembre 1939–novembre 1942*, ed. Claude Carlier and Stefan Martens, 435–448. Paris: IHAP.
- Umbreit, Hans. 2000. Les politiques économiques allemandes en France. In *L'occupation, l'Etat français et les entreprises*, ed. Olivier Dard, Jean-Claude Daumas, and François Marcot, 25–28. Paris: Association pour le développement de l'histoire économique.
- Umbreit, Hans. 2015. German rule in the occupied territories 1942–1945. In *Germany and the Second World War. Volume VIIA. Organization and mobilization in the German sphere of power: Wartime administration, economy, and manpower resources 1942–1944/5*, ed. Bernhard Kroener, Rolf-Dieter Müller, and Hans Umbreit. Oxford: Oxford University Press.
- Undersøkelsseskommisjonen av 1945. 1946. *Rapport over norske myndigheters disposisjoner før og etter 9. april 1940*. Oslo: Stortinget.
- United States Strategic Bombing Survey. 1945. *The effects of strategic bombing on the German war economy*. Washington, Overall Economic Effects Division.
- United States Strategic Bombing Survey. 1947. *Light metal industry of Germany. Part I: Aluminium. Second edition*. Washington: Aircraft Division.
- United States Strategic Bombing Survey. 1976. *The effects of strategic bombing on the German war economy. Overall economic effects division, October 31, 1945, vol. 1*. New York: Garland.
- Valen, Terje. 1974. *De tjente på krigen. Hjemmefronten og kapitalen*. Oslo: Oktober.
- Väth, Anton. 1944. Die Leichtmetalle im 6. Kriegsjahr. In *Werkstoff. Bericht über die Sitzung Aluminiumlegierungen am 22. und 23. November 1944 in Weimar*, 4–16. Lilienthal-Gesellschaft für Luftfahrtforschung, Bericht 183.
- Vidvei, Leiv. 1952. Eit oversyn over statsskattelegginga av inntekt til personlege skattytarar frå budsjettåret 1939/40 (inntektsåret 1938) til budsjettåret 1951/52 (inntektsåret 1950). *Statistiske meldinger* 6: 27–53.
- Vidvei, Leiv. 1954. Skatt til staten av personleg middel. Eit oversyn over statskattelikninga av middel til personlege skattytarar frå skatteåret 1939/40 til skatteåret 1953/54. *Statistiske meldinger* 2: 6–33.
- Vogt, Johan, and Sverre Hartmann. 1958. *Akten über die deutsche Finanzpolitik in Norwegen 1940–1945*. Oslo: Universitetsforlaget.
- Volkman, Hans-Erich. 1984. Landwirtschaft und Ernährung in Hitlers Europa 1939–45. *Militärgeschichtliche Mitteilungen* 35: 9–74.
- Vries, Joh de. 1994. *Geschiedenis van de Nederlandsche Bank. Deel V, De Nederlandsche Bank van 1914 tot 1948. Trips tijdperk 1931–1948 onderbroken door de Tweede Wereldoorlog*. Amsterdam: NIBE.

- Webster, Charles, and Noble Frankland. 1961. *The strategic air offensive against Germany, 1939–1945, pt 4*. London: H.M. Stationary Office.
- Wee, Herman van der, and Monique Verbreyt. 2009. *A small nation in the turmoil of the Second World War. Money, finance and occupation (Belgium, its enemies, its friends, 1939–1945)*. Leuven: Leuven University Press.
- Westlie, Bjørn. 2015. *Fangene som forsvant. NSB og slavearbeiderne på Nordlandsbanen*. Oslo: Spartacus.
- Wicken, Olav. 1983. Industrial change in Norway during the Second World War. Electrification and electrical engineering. *Scandinavian Journal of History* 8: 119–150.
- Wilde, Bart De. 1997. *Witte boorden blauwe kielen. Patroons er arbeiders in de Belgische textielnijverheid in de 19^e en 20^e eeuw*. Gent: AMSAB-Profortex.
- Winkel, Harald. 1977. Die Ausbeutung des besetzten Frankreichs. In *Kriegswirtschaft und Rüstung 1939–1945*, ed. Friederich Forstmeier and Hans-Erich Volkmann, 333–374. Düsseldorf: Droste.
- Wouters, Nico. 2006. *De Führerstaat. Overheid en collaboratie in België (1940–1944)*. Tiel: Laanno.
- Wubs, Ben. 2003. Unilevers oorlogsvoorbereidingen. In *Thuisfront. Oorlog en economie in de twintigste eeuw*, ed. Dirk Luyten and Hein Klemann, 34–50. Zutphen: Walburg Pers.
- Wubs, Ben. 2006. *Unilever between Reich and Empire 1939–1945. International business and national war interest*. Unpublished PhD thesis, University of Rotterdam.
- Wubs, Ben. 2008. *International business and national war interests. Unilever between Reich and Empire*. London: Routledge.
- Zaloga, Steven. 2008. *Panther vs Sherman. The Battle of the Bulge 1944*. Oxford: Osprey Publishing.
- Zanden, Jan Luiten van. 1997. *Een klein land in de 20e eeuw. Economische geschiedenis van Nederland 1914–1995*. Utrecht: Het Spectrum.
- Zieglmayer, Wilhelm. 1936. *Rohstoff-Fragen der deutschen Volksernährung. Eine Darstellung der ernährungswirtschaftlichen und ernährungswissenschaftlichen Aufgaben unserer Zeit*. Dresden: Steinkopff.
- Zieglmayer, Wilhelm. 1941. *Rohstoff-Fragen der deutschen Volksernährung. Eine Darstellung der ernährungswirtschaftlichen und ernährungswissenschaftlichen Aufgaben unserer Zeit*, 4th ed. Dresden: Steinkopff.
- Zielinski, Bernd. 1995. *Staatskollaboration: Vichy und der Arbeitskräfteeinsatz im Dritten Reich*. Münster: Westfälisches Dampfboot.

Archives

Rikarkivet/Norwegian National Archives (RA), Oslo

RAFA-2188, Organisation Todt, Einsatzgruppe Wiking.

RAFA-2174, Reichskommissariat.

RAFA-2191, A/S Nordag.

RAFA-2200, Document Section.

S-1372, Fiskeridepartementet.

S-1597, Direktoratet for fiendtlig eiendom.

S-1331, Næringsdepartementet, Planavdelingen, 3. Plankontor.

S-2218, Handelsdepartementet, Direktoratet for eksport og importregulering,
Dir. Bjerkes arkiv.

S-2345, Forsyningsdepartementet, Nemnda for industri og omsetning.

S-4153, Direktoratet for industriforsyning, Sekretariatet.

S-2799, Næringsdepartementet, Ministerens kontor.

Landsvikarkivet /National Treason Archives (L-SAK), Riksarkivet, Oslo

B-sak 3061, Karolius Otte.

L-sak 1098, Alf Whist.

L-sak 16099, Norsk Hydro.

L-sak 4226, Norsk Aluminium Company (NACO).

L-sak 3139, Theodor S. Sverre.

Privatarkiv/Private Archives (PA), Riksarkivet, Oslo

PA-0892, Lous & Bergh.

PA-0738, Eivind Stenersen Blehr.

PA-0951, Hans Claussen Korff.

PA-0134, Eystein Berg.

PA-0423, Sverre Steen.

Norges Hjemmefront Museum/Norwegian Resistance Museum (NHM) Oslo

NHM-338, Ole Borge.

Falconbridge Archive, Kristiansand

Driftsrapporter, 1940–1947.
Sverre Steen's Diary, 1940–1945.

Norsk Hydro Arkiv og Bibliotek/Hydro Company Archives (HA), Notodden

X09.9e.1.1, Underlagsmateriale til forskningshistorien.
03.40d.31.

Stiftelsen för Ekonomisk Historisk Forskning inom Bank och Företagande/The Foundation for Economic History Research within Banking and Enterprise, Stockholm

Norsk Hydro.

Studie- en Documentatiecentrum Oorlog en Hedendaagse Maatschappij/Centre for Historical Research and Documentation on War and Contemporary Society (CEGESOMA), Brussels

AA 577, Verzameling microfilms: German Records Microfilmed at Alexandria (GRMA).
AA 628, Papieren De Launoit.
AA 704, Papieren René Goris.

AA 1087, Papieren Zero.

AA 1314, Overtuigingsstukken auditoraat-generaal (OSAG).

AA 1418, Documenten Jans.

AA 1624, Papieren C. Gutt.

**Documentatie- en Onderzoekscentrum voor Religie,
Cultuur en Samenleving/Documentation and Research
Centre for Religion, Culture and Society (KADOC),
Leuven**

Archief VKW-Antwerpen.

Papieren Victor Leemans.

Papieren Gaston Craen.

**Algemeen Rijksarchief/ National Archives of Belgium
(ARAB) Brussels**

Administratie van het Mijnwezen. Derde Reeks.

Archief Commissariaat voor Prijzen en Lonen.

Hoofdgroep Ambachtswezen.

Ministerie van Economische Zaken. Bedrijfsorganisatie.

Papieren Van Isacker.

Textielcentrale.

Algemeen Rijksarchief, Depot Cuvelier (ARA), Brussels

Archief Société Générale, Vierde Storting. Subdivided in three parts:

– Archives Max Nokin.

– Défense de la Société Générale.

– Archives Galopin.

Algemeen Rijksarchief te Hasselt, Hasselt

Archieven Fedechar.

Centrum voor Bedrijfsgeschiedenis/Center for Business history, Universiteit Antwerpen, Antwerp

Papieren René Goris.

Archieven Federatie van Ondernemingen van de non-ferrometalen/Federation of Non-ferrous metals enterprises Archives, Brussels

Association des lamineurs et tréfileurs de métaux non-ferreux. Union professionnelle.

Archives de l'Etat à Liège/State archives, Liège

S.A. Angleur-Athus.

Justitiepaleis Brussel/Palace of Justice, Brussels

Dossier Reeder/Von Falkenhausen

Osobyj Archiv/Special Archive, Moscow

1458, Reichswirtschaftsministerium, Berlin.

Bundesarchiv/Federal Archives (BArch), Berlin

R 2, Reichsfinanzministerium.

R 3, Reichsministerium für Rüstung und Kriegsproduktion.

R 11, Reichswirtschaftskammer.

R 121, Industriebeteiligungsgesellschaft.

R 901, Auswärtiges Amt.

R 2501, Deutsche Reichsbank.

R 3101, Reichswirtschaftsministerium.

R 3010, Reichsarbeitsgericht.

R 3102, Statistisches Reichsamt.

R 3103, Reichswirtschaftsministerium: Personalakten.

R 3112, Reichsamt für Wirtschaftsausbau.
R 8135, Deutschen Revisions- und Treuhand AG.

Bundesarchiv-Militärarchiv/Federal Military Archives (Barch-MA), Freiburg

RL 3, Generalluftzeugmeister im RLM.
RW 19, OKW/Wehrwirtschafts- und Rüstungsamt.
RW 35, Militärbefehlshaber in Frankreich.
RW 24, Rüstungsdienststellen in Frankreich.
RW 27, Rüstungsdienststellen in Dänemark.

Hessisches Wirtschaftsarchiv/Hessian Economic Archive (HWA), Darmstadt

HWA 119, Bestand Metallgesellschaft

BASF Archiv/BASF Archives, Ludwigshafen

Rechtsabteilung.

Deutsches Museum, Archive, Munich

Junkers Archiv.

Archiv der Mercedes-Benz AG (MBA), Stuttgart

Bestand Kissel

Historisches Archiv Krupp/Krupp Historical Archives, Essen

WA 142/1683.
WA 142/2901.

WA 69/983.
WA 40/B.

Sächsische Staatsarchiv/Saxony State Archives (SäSC), Chemnitz

Auto-Union

Instituut voor oorlogs-, holocaust en genocidestudies/ Institute for War, Holocaust and Genocide Studies (NIOD), Amsterdam

47, Devisenreferat 40–44.
087, Beauftragte für die Niederländische Bank.
093, Zentralauftragsstelle.
212a, Hirschfeld, H.M.
216 Sub-inspectie Invoerrechten en Accijnzen Terneuzen.
249-0066A, Dossier – Auftragsverlagerung.
Niod Doc I, 702: dr. Hans Max Hirschfeld.
Centraal Bureau voor de Statistiek, *Geheime Notities*.

Nationaal Archief/National Archives of the Netherlands, The Hague

Archief Ministerie van Financiën, Archief NCI.
Handel en Nijverheid.

Stichting Het Nederlandsch Economisch-Historisch Archief/ Dutch Economic-Historical Archive Foundation (NEHA), Amsterdam

Annual reports collection.

Public Records Office (PRO), Kew

AIR, Air Ministry.

ADM, Admiralty.

CAB, Cabinet Office.

FO, Foreign Office.

National Archives and Records Administration (NARA), Washington D.C.

NARA T77, Records of Headquarters, German Armed Forces High Command
(Oberkommando der Wehrmacht/OKW)

Mudd Library, Princeton

Harry Dexter White Papers.

Library of Congress, Washington D.C.

Carl Spaatz Papers

Franklin Delano Roosevelt Library, Hyde Park

Franklin Delano Roosevelt Papers, Private Secretary File.

Archives Nationales/National Archives (ANP), Paris

AJ 37/4.

F 12 Commerce et Industrie.

F 37 Délégation générale aux relations économiques franco-allemandes,
1927–1943.

AJ 40 La France et la Belgique sous l'occupation allemande.

AJ 41 Organismes issus de l'armistice de 1940.

Z/6NL Cour de Justice du Département de la Seine.

3W Haute Cour de Justice.
19830589/17 Commerce et Industrie.

Bibliothèque de documentation internationale contemporaine, Nanterre

Les usines Ford à Poissy travaillent pour l'Allemagne, 1942.

Société d'histoire de groupe Renault/Renault Group Historical Society, Boulougne-Billarcourt

Archives SHUR.
Louis Renault.

Newspapers, Periodicals and Yearbooks

DAF-Rohstoff-Dienst.
Deutsche Fischerei-Rundschau.
Die Deutsche Fischwirtschaft.
Die Fischwirtschaft.
Dommer, uttalelser mv. i skattesaker og skattespørsmål
Economisch-Statistische Berichten.
Economische Berichten.
Fische und Fischwaren.
Foreign Relations of the United States.
Fritt Folk.
Hansa. Deutsche Schifffahrtszeitschrift.
Hansard.
Jaarverslag van de Nederlandsche Bank.
Jahrbücher für Nationalökonomie und Statistik.
Journal Officiel.
L'Echo de la Bourse.
Minerals Yearbook.
Mitteilungen des Deutschen Seefischerei-Vereins.
Monatshefte für Fischerei.
Neue Zürcher Zeitung.

Neuer Vorwärts.
 Nieuw Nederland. Maandblad voor economie, staatkunde en cultuur.
 Norges Bergverksdrift.
 Norges Handel.
 Norsk Lovtidend.
 Norsk retstidende
 Pasinomie.
 Pristidende
 Riksadvokatens meldingsblad
 Trustkontrollen
 Van Oss' Effectenboeken.
 Verordnungsblatt für die besetzten norwegische Gebiete
 Verordnungsblatt des Militärbefehlshabers in Belgien und Nordfrankreich für
 die besetzten Gebiete Belgien und Nord Frankreichs vom Militärbefehlshabers.
 Völkischer Beobachter.
 Völkischer Beobachter (Norddeutsche Ausgabe).
 Zeitschrift für die gesamte Kälte-Industrie.

Online Sources

Trial of German Major War Criminals. Monday, 21st January, 1946. <http://www.nizkor.org/hweb/imt/tgmwc/tgmwc-05/tgmwc-05-39-09.shtml>
 Ola Honningdal Grytten. The Economic History of Norway. *EH.net*, <https://eh.net/encyclopedia/the-economic-history-of-norway>
 US Military Tribunal: *The IG Farben Trial 14th August 1947-29th July 1948*, pp. 20–21 http://www.worldcourts.com/ildc/eng/decisions/1948.07.29_United_States_v_Krauch.pdf
 Joh. de Vries. Trip, Leonardus Jacobus Anthonius (1876–1947). In *Biografisch Woordenboek van Nederland*.
 URL: <http://resources.huygens.knaw.nl/bwn1880-2000/lemmata/bwn3/trip>

Interviews

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