2014

Prairie Forge

James J. Kimble

★ ★

PRAIRIE FORGE

The Extraordinary Story of the Nebraska Scrap Metal Drive of World War II

★ ★

JAMES J. KIMBLE

UNIVERSITY OF NEBRASKA PRESS
LINCOLN AND LONDON

Manufactured in the United States of America

Publication of this volume was assisted by a
grant from the Friends of the University of
Nebraska Press.

Library of Congress
Cataloging-in-Publication Data
Kimble, James J., 1966–
Prairie forge: the extraordinary story
of the Nebraska scrap metal drive of
World War II / James J. Kimble.
pages cm
Includes bibliographical references and index.
ISBN 978-0-8032-4878-6 (pbk.: alk. paper)—
ISBN 978-0-8032-5416-9 (epub)—
ISBN 978-0-8032-5417-6 (mobi) —
ISBN 978-0-8032-5415-2 (pdf).
1. Salvage (Waste, etc.)—United States—
History—20th century. 2. World War,
1939–1945—Nebraska. 3. World War,
1939–1945—Economic aspects—United
States. 4. Scrap metals—Recycling—
Nebraska—History—20th century. 5. Salvage
(Waste, etc.)—Nebraska—History—20th
century. 6. Nebraska—History—20th century.
I. Title. II. Title: Extraordinary story of the
Nebraska scrap metal drive of World War II.
HD9975.U52 K57 2014
940.53'1—dc23
2013044119

Set in Ehrhardt by Lindsey Auten.
Designed by N. Putens.

For my parents, Lowell and Diane Kimble

Contents

Illustrations

Preface

There was no way that I could have known what was in store for me nearly ten years ago when I opened an ordinary-looking folder in the advertising archives at Duke University. The label affixed to the folder simply described its contents as involving a scrap metal drive of some sort. Since I was looking for material on World War II advertising, I almost skipped it altogether. I recall thinking: *What do I care about scrap metal*? Had I embraced that fleeting thought, I would have missed a flurry of consequences in the subsequent years, all of them good.

Inside that folder, it turned out, was a document that would alter much of my research agenda. It eventually led to a journal article in *Great Plains Quarterly*, a feature story in *Nebraska Life* magazine, a documentary movie (co-produced with my colleague, Tom Rondinella), and now to this book. The critical document at the heart of these productions was a booklet that had been produced by the *Omaha World-Herald* in 1942 (and as far as I have been able to tell, Duke's copy is the only remaining one in existence). I recognized the newspaper's name immediately, as I'd grown up reading it, especially on fall Sundays when the sports section was filled with exhaustive analysis of and commentary on the Cornhusker football team's latest exploits. But what did the *World-Herald* have to do with scrap metal in World War II? I soon found out. The booklet drew me in, and I have hardly stopped ever since to look back at the decisive moment that started it all.

The scrappers, too, rarely looked back at the decisive moment that shaped their efforts. Most of them would not even have known where to look. New Englanders competing for bragging rights with their neighbors in the great national scrap metal drive in the fall of 1942, for example, could not have been expected to know that they were following an ambitious plan that had been drawn up in Nebraska. For their part, many Cornhuskers would have known that when they were feverishly collecting radiators, fenders, kitchen utensils, and tractor parts on behalf of their local county's scrap team, it had something to do with the *World-Herald*. Far fewer, however, would have known the identity of a certain Henry Doorly, let alone his role in devising the plan. Even many Omaha residents would not have understood that the genesis of their gigantic scrap mountain lay in the awkward moment when Margaret Hitchcock Doorly challenged her husband to stop grousing about the scrap disaster and do something about it. It was a private exchange, to be sure, but it was also decisive, and there can be little doubt that its echoes resounded across the vast home front and even into the world's various battlefronts.

My aim in this book is to examine what led up to that decisive moment and how the plan that emerged from it energized a state and then shocked a nation at war. The articles and the documentary mentioned earlier presented certain aspects of the story, but only a book can provide the rich historical context underlying such a momentous series of events. Only a book, moreover, can foster a narrative history that accurately leads interested readers back to its original sources: the primary accounts of the participants and witnesses who lived through these events back in 1942. Finally, a book is the best sort of venue for exploring the rhetorical and persuasive underpinnings of a massive, localized movement. After all, finding and hauling scrap metal was no walk in the park. Doorly and those leaders who helped him transform Nebraska into a veritable steel forge on the prairie had to figure out how to convince civilians not only that scrap metal was important but that every single person should pitch in. How they did so forms a strong undercurrent in this account.

It is worth mentioning that my interest in the scrap drive is also personal. As a Nebraskan by birth, this story drew me in from the moment

I understood its significance. Here was an inspiring tale that involved my own grandparents and their neighbors and friends, all doing their bit to change the course of the greatest war in history. Throughout the course of their efforts, the unadorned, down-to-earth, selfless stereotypes of life in the heartland constantly rang true. Even so, the state's scrap planners seemed to know that the surest route to success was to appeal to its residents' considerable pride, and so it is little wonder that I often felt a sense of pride as well, even if only secondhand and several decades later. To be sure, what came to be known as the Nebraska Plan was not without its flaws, and an important part of this story involves the shortcomings of the effort. But the most basic themes in my treatment frankly involve admiration and wonder. What would the nation have done, I keep asking myself, without these stalwart scrappers and their timely delivery of much-needed metal for the steel factories in the latter half of 1942? To borrow Governor Dwight Griswold's favorite metaphor for the scrap drive, one could say that their feat was akin to a last-minute, game-winning drive engineered by the state's beloved Huskers.

The world has changed a lot since those times, and for that reason some of the language choices in this recounting of the scrap story and its scrappers require explanation. Most critically, perhaps, the undesirable terms *Jap* and *Indian* appear only within direct quotations or proper names, with the understanding that standards of acceptability for such terms have changed dramatically since the war years — and for good reason. Similarly, the formal convention of the 1940s was for public accounts to refer to married women by their husband's full names (they simply added *Mrs.* in front). Except in direct quotations, I have generally adopted the more modern convention of using the given names of women who appear in the narrative. In the cases where I was not able to find given names, I have retained the original version.

A few other matters of language are important to point out. First, writers in the 1940s variably described scrap metal in terms of pounds, tons, or gross tons. Where possible, I have converted measurements to tons (i.e., 2,000 pounds) for consistency. The major exception in the book is for per capita averages (as in "50 pounds per person in the county").

On a similar note, the book uses the terms *scrap* and *scrap metal* (and, less often, *scrap iron* or *scrap steel*) synonymously, as was the common practice on the home front. I have tried to make it clear when I am referring to *scrap* in the more general sense, which would include other sorts of salvage activities, such as fats, paper, and so on.

Digging up the various pieces of the scrap drive's story took me to numerous archives over the last ten years and encouraged me to study reel after reel of microfilm newspaper. The occasional drudgery of that kind of work was balanced by the many people who pitched in to help along the way; not unlike the scrappers, they were willing to contribute and thus made this book possible. Among them, I would like to acknowledge Tina Potuto Kimble, who persevered through my research trips and writing binges; Tom Rondinella, who encouraged this book even as we shot a documentary; Karen B. Gevirtz, Anthony C. Sciglitano, and Greg Tobin, my writing partners; and Meghan Winchell, Gary R. Rosenberg, and Cherie Kimble, who all read portions of the manuscript. Special thanks are due to the folks at the *Omaha World-Herald*, who were beyond helpful in providing permissions (and who have proven to be justifiably proud of their institutional legacy).

Many, many others helped out in important ways, of course, including Mike, Christy, Emily, Ryan, and Kate Altman; Ron Altman; Chris Amundson; Maureen Kennedy Barney; Danielle and Aaron Blake; Laura Bonella; David, Hsiuchen, Ryan, and Ian Chan; Melba and Eugene Glock; Vauri Henre; Jim Hewitt; Todd Holm and Jennifer Baader Holm; Rodney Jewell; Cameron, Cherie, Kellie, Lindsey, Paul, Shelby, Troy and Tyler Kimble; Paul Libassi; Terrence J. Lindell; Bill Nicholas; Mary and Jack Ostergard; Kelli Pennington; Christopher Petruzzi; Jo Potuto; Susan Reisinger; Merle Rix; Lois Schaffer; Michael A. Soupios; Judy and Jim Wigton; and my colleagues in the Department of Communication and the Arts at Seton Hall University. I also acknowledge the financial and moral support of shu, which provided a sabbatical leave during which much of the draft manuscript emerged.

Folks at numerous archives and institutes were also tremendously helpful, and I thank Kent Kiser and Tom Crane at the Institute of Scrap

Recycling Industries; Cindy Drake, Linda Hein, and Andrea Faling at the Nebraska State Historical Society; Lynn Eaton at Duke University's Hartman Center for Sales, Advertising & Marketing History; Lucas R. Clawson, Linda P. Gross, Roger Horowitz, Carol Ressler Lockman, Max Moeller, and Jon M. Williams at the Hagley Museum and Library; and Libby Krecek (and her colleague, Gary Rosenberg, also mentioned above) at the Douglas County Historical Society. The staff members at the University of Nebraska Press were also uniformly helpful and enthusiastic, especially Ann Baker, Bridget Barry, Martyn Beeny, Sabrina Ehmke Sergeant, and Rosemary Vestal. Special thanks are due to Elaine Durham Otto, whose copy editing skills worked wonders. All of these folks did their best to help me craft a compelling and accurate narrative; any inaccuracies that might remain are my own responsibility.

Finally, I dedicate this book to my parents, Lowell and Diane Kimble, who helped with several local research questions, read portions of the manuscript, helped identify scrap items in old photographs, and were always encouraging along the way. Ironically, perhaps, it turns out that they just happen to have known a certain Bill Nicholas, whose seemingly mischievous 1942 escapade involving a windmill near the small prairie city of Norfolk raises the curtain on the extraordinary story of the Nebraska scrap metal drive.

PRAIRIE FORGE

Introduction

Home Front, Battlefront

What have wars, thousands of miles away, to do with this peaceful, eternal business of living on the soil, by the soil, for the soil?
—A. G. Macdonell, *A Visit to America (1935)*

Bill Nicholas was on a quest. The high school senior's adventure had started on what seemed to be a typical youngster's prank. Still too young to fight the Germans, Italians, or Japanese, he and his school chums had chosen to spend a sunny day in the summer of 1942 driving around the rural countryside near Norfolk, Nebraska. The drive took a dramatic turn when the group spied a lonely windmill near a ramshackle barn. The idea hit them instantly: working together, they could climb the old metal structure and take it apart, piece by piece. After grabbing what tools they could find in their borrowed truck, they began to climb the rickety windmill. The dismantling was just getting started when Nicholas saw a farmer approaching in a hurry. "This windmill," he shouted, "waters my crops, so you boys better leave it alone and *get out of sight!*"[1]

The daring young Nebraskans were clearly in a tight spot, but their problems paled in comparison to the quandary facing the United States that hot summer. Seven months after the attack on Pearl Harbor, the country seemed to be facing ruin. Although the U.S. Navy had scored a surprise victory in June against a sizeable Japanese battle force at Midway Island,

the remaining war news was generally uncertain or dire. GIs continued to train and mobilize for war, most of their battles still in the unknown future. German U-boats were sinking U.S. ships at an alarming rate. Japanese soldiers had already given the U.S. military one of the worst defeats in its history at Bataan. And everywhere there were rumors of Axis spies, agents, and saboteurs waiting for the right moment to wreak havoc on the home front. It was early in the war, wrote one correspondent, but already "the home team [was] trailing by two touchdowns."[2]

Perhaps the most dismaying news for the U.S. war effort in the spring and early summer of 1942 was that domestic steel mills were slowing production and, in many cases, halting operations altogether. The steel industry was a fundamental part of the nation's rapid attempt to construct war planes, battleships, tanks, and other armaments. Yet the vital process was lagging because the mills increasingly lacked an essential ingredient in steel processing: scrap metal. Ample amounts of scrap, as many observers pointed out, were available across the country in back lots, alleys, farmyards, abandoned factories, and attics. However, the more the government hectored citizens to find and turn in all of that valuable scrap metal, the less effective the appeals seemed to be. Not even the approximately 13,000 local and regional scrap committees across the country had had much success in persuading the home front to gather used metal for the war effort. The American Industries Salvage Committee confirmed that the production of steel in 1942 would likely end up 5 million tons below the industry's capacity, effectively eliminating the equivalent of 10,000 tanks and 1,300 cargo ships from the nation's arsenal. "We can never regain this lost time," lamented the committee, encouraging every citizen to gather scrap as quickly as possible in order to prevent more letdowns in war production.[3]

The unreliable supply of scrap metal in the country's industrial system presented a grave problem for the nation's armed forces, which needed the steel of modern war in mass quantities. Privately, officials in the Roosevelt administration worried that many steel mills had only enough scrap on hand to last a few weeks—a situation with the potential for disastrous effects on the war effort. Of course, announcements meant for public

consumption tended to avoid such ominous undertones while still communicating the government's sense of urgency. Lessing Rosenwald, head of the Conservation Division of the administration's War Production Board (WPB), told reporters that "any diminution" in the flow of scrap to factories "is an immediate threat to war production." WPB chairman Donald M. Nelson offered a more dramatic view, advising the home front that without a significant increase in the domestic supply of scrap material, "our boys may not get all the fighting weapons they need in time."[4]

WPB's ominous warnings had a special meaning for Nicholas and his high school friends as they fled the solitary windmill and the wrath of the farmer. As it turned out, this rowdy group of Nebraskans saw themselves not as pranksters but as soldiers. The windmill, in their eyes, had been not a rusty farming implement but a bonanza of scrap metal. Had they been successful in dismantling the metal structure, the group would have sent its various pieces on a multistage journey to be melted into munitions for the nation's GIs and sailors. Still too young to fight, in other words, these enterprising friends were far from the irresponsible youth they appeared to be. Instead, they thought of themselves as a squadron of scrap commandos.

The Nicholas windmill squadron was just one small part of an unconventional statewide army. For three weeks, residents young and old found themselves involved in a complex, all-encompassing contest that historian William L. O'Neill has called "the great Nebraska scrap drive of 1942."[5] The fierce competition that July and August pitted county against county, business against business, service club against service club, and, in schools across the state, class against class. Each civilian in the contest was responding faithfully to a widespread call for volunteers to enlist in grueling scrap metal duty. In this case, however, the call came not from Washington DC but from nearby Omaha, and the commander who captured the people's attention was not President Roosevelt but 61-year-old Henry Doorly, a naturalized immigrant who had risen to become publisher of Omaha's *World-Herald*, the state's largest newspaper.

Doorly's creative idea for a scrap contest seemed to have captured the imagination of the entire state that summer. The primary front of the

competition—the race to see which of Nebraska's ninety-three counties could gather the most scrap per capita—inspired Cornhuskers of every stripe to sign up. They were successful beyond the organizers' greatest hopes. In the three weeks of competition, these scrappers found, hauled, and turned in over 67,000 tons of scrap material. No old tractor was safe, and no courthouse cannon was sacred. Nearly anything that might contain metal was subject to seizure. Scrap piles in practically every neighborhood and town square grew at a remarkable pace, offering visible evidence of community patriotism. Published county scrap standings riveted judges and contestants alike. Scrap leaders and even Governor Dwight Griswold himself encouraged Nebraskans to see their competition as a sports contest, with the state university's dauntless football team serving as an inspirational model. By the end of the affair, the *World-Herald*'s staffers wrote with some understatement that "the entire campaign had gotten out of hand." Indeed, editorialized the newspaper, the nation was watching Nebraskans in amazement, as "the latent patriotism of the people" came "pouring out in an irresistible flood."[6]

Before long, the Roosevelt administration realized that Doorly's competitive template was urgently needed for the entire home front. The resulting "nationwide plan," reported *Life* magazine, "is based on the Nebraska plan and will be launched through thousands of local newspapers" in a three-week blitz beginning in late September 1942. That phrase—*the Nebraska Plan*—soon became an indelible part of the national conversation. The country's newspapers immediately embraced Doorly's competitive model for scrap metal collection, devoting over 250,000 columns of display advertising and editorial appeals (some 31,250 full pages in all) to encourage citizens to compete against their neighboring schools, communities, and states. Edgar Bergen (and his ventriloquist dummy, Charlie McCarthy) joined James Cagney and Deanna Durbin in promoting the effort. Gallup polls revealed that an astonishing 94 percent of all Americans were familiar with the drive. All forty-eight states competed vigorously for bragging rights in the massive scrap metal contest, producing what *Newsweek* magazine called a "dizzy three weeks of stunts, gags, and cheesecake art." By the time the competition was over, the nation's

various scrap commandos, scrap scouts, and scrap armies had gathered over *5 million tons* of scrap material to be used in making ships, planes, tanks, and munitions for the Allies. This improbable outcome, said the American Newspaper Publishers Association, was without a doubt "the nation's No. 1 success story" to that point in the conflict; after all, it had enabled "the furnaces where Victory is being forged to glow again with the white heat of peak production." But the "granddaddy of the national campaign," the Association hastened to add, was "the Omaha *World-Herald* drive."[7] The Nebraska Plan, it seemed evident, had significantly affected the war experience, if not the war itself.

Despite the historical significance of Henry Doorly's scrap campaign, its story has largely been forgotten. Historians have not found the scrap metal campaign as vivid as, say, Pearl Harbor or the D-Day invasions or the atomic bombs that ended the war. There is no scrap drive museum, and there has been no commemorative stamp to celebrate the drive's accomplishments. The occasional references to World War II and scrap in our cultural memory tend to conflate the scrap metal efforts with other salvage drives from the war era, such as campaigns to collect rags, to save kitchen fats, or to recycle paper. Amazingly, even the *World-Herald*'s own centennial history volume mentions Doorly's drive as an afterthought, despite the fact that the newspaper's scrap metal campaign won the 1943 Pulitzer Prize for public service.[8]

Still, one should not take the relative silence of historians and others to mean that the scrap metal campaign was without significance in relation to other events during the war. D-Day was a compelling historical moment, but if Allied soldiers had not taken with them the metal-based engines of warfare, they would have failed in their famous task. Hiroshima was certainly a crucial point in the conflict, but without the *Enola Gay* and its bomb, the mission would have been impossible. The Allies won the war, in other words, on the back of the vast system of American munitions production, itself a superhuman feat which would not have been possible without a well-supplied steel industry. And absent an ample supply of scrap metal in 1942, that industry would have found it difficult to provide the overwhelming striking power that the struggling Allied war

machine needed so desperately. For this reason, as I have argued elsewhere, the Nebraska Plan was "a feat that could, with only some hyperbole, be described as the horseshoe nail without which the war would have been lost."[9] In spite of the scrappers' relative historical obscurity, then, their vital part in the war is a story well worth telling.

This book tells that story. It not only commemorates the Nebraska Plan and the sacrifices of those who made it work, but also contends that the plan was a resounding success on two levels. First, the scrap drive motivated significant numbers of civilians to address one of the war's most critical shortages at a pivotal point in the war. Before Doorly's campaign, the collection of scrap metal in Nebraska was at an embarrassing low. The state salvage director reminded the publisher that Nebraskans had already gathered 15 pounds of scrap metal per person earlier in the year. Finding more, he added in confidence, was unlikely.[10] During the three-week summer campaign, to the contrary, the state's citizens turned in nearly *104 pounds* of scrap material per person.

The national drive a few months later produced a similar result, albeit on a wider scale. There was no doubt that the Roosevelt administration's pleas for scrap following Pearl Harbor had failed to attract sustained interest. Paul C. Cabot, who served as the deputy director of WPB's Conservation Division, agreed with this assessment, complaining that while the country had recruited some 125,000 volunteer scrappers, they were working without adequate "stimulation and leadership."[11] In the wake of the national competition, in contrast, millions of volunteer scrappers had toiled to locate and gather those 5 million tons of scrap material, knowing that their efforts were enabling the steel industry to avoid further slowdowns and the country's armed forces to take the fight to the enemy. Doorly's plan, in this sense, had influenced countless citizens across the nation to take action by serving their country as scrap volunteers.

Second, and just as vital, this book contends that the Nebraska Plan was successful because it brought the war home to civilians, enabling them to participate directly in the battle as something akin to combatants. Students, retirees, housewives, blue-collar laborers, and even children felt

themselves becoming integral parts of the war, distant but vital military cogs whose devotion to exhaustive scrap collection proved to be a catalyst in how Americans viewed themselves on the home front. As *Life* magazine admitted, involvement in the scrap drive "was a lot more thrilling than a movie or a night club." The Nebraska Plan, it concluded, "was the U.S. really going to war."[12]

Most of these ordinary civilians had no real relationship with the military. True, some would ultimately enlist. Young Bill Nicholas, for example, signed up for the Marines after graduation, eventually seeing action at Iwo Jima. Moreover, almost everyone in the country had a relative or close friend in the armed forces. Yet the legions of children who canvassed neighborhoods, going door to door with their scrap-filled Radio Flyer wagons, were engaged in a very different activity than Marines involved in hand-to-hand combat. Housewives who scoured the kitchen and the attic for unused metal scraps were a far cry from GIs searching for a deadly sniper. And bankers who organized trips into the rural countryside to scout for abandoned caches of scrap material were not actually engaged in daring thrusts into Axis-held territory. Indeed, the American mainland was thousands of miles from the nearest battlefront; the closest most civilians would get to seeing and hearing the ongoing war was the generally censored depictions of battle found in the nation's periodicals, newsreels, radio reports, and movies.

However, through the persuasive magic of Doorly's Nebraska Plan, every civilian on the home front was able to become a *de facto* soldier. Newspaper and radio ads used vivid appeals to turn rusting farm equipment into airplane wings and old toasters into rifle parts. World War I and Civil War artillery guns on display in parks and at memorials became new munitions in the fight against the Axis. Even aluminum gum wrappers, collected by millions of children across the country, joined the parade of repurposed scrap entering the nation's arms factories. Is it any wonder, then, that the dauntless civilians who scouted, secured, and transported this scrap could come to see themselves as soldiers of one sort or another? After all, as one scrap advertisement told readers, "YOU can help win this war just as surely as our boys on the world-wide fronts are doing it."[13]

In fact, the 1942 scrap campaign highlights an important aspect of the civilian mentality during World War II, one that has largely been lost in the nation's cultural memory. George H. Roeder Jr. uses the phrase "home front analogy" to describe this mentality, which involved the widespread portrayal of civilians and civilian activities as thoroughly military in aim and appearance. Newspapers, movie newsreels, cartoons, and numerous other sources, writes Roeder, provided "reassuring visual comparisons of military and home front activities" that consistently "used images of civilians in military dress and poses to suggest that service station attendants, bus drivers, secretaries, and housewives had a role in the fight." William L. Bird Jr. and Harry R. Rubenstein suggest that posters were another critical source of this comparison, since they addressed "every citizen as a combatant in a war of production" in order "to sell the idea that the factory and the home were also arenas of war" and that "every citizen [was] a soldier."[14] Although few civilians took these visual comparisons to be literally true, the relentless use of such imagery in wartime media doubtless enabled many on the home front to imagine themselves as playing a militarized role in the battle.

The home front analogy eventually appeared in countless campaigns and publicity efforts. Each campaign offered ways to militarize civilians and their homes so that they could enlist, at least metaphorically, as soldiers in what was not so much a home*land* as a home *front*. Men and women who worked in munitions factories were, for example, "soldiers of production." Millions of housewives joined the Women in National Service, or WINS, a quasi-military organization with official uniforms and simulated army ranks. The nation's casual gardeners found themselves part of the "land army" as they fired at the Axis with potatoes and beans from their Victory Garden posts. And the U.S. Treasury's gigantic war bond machine used the image of Daniel Chester French's *Minute Man* sculpture to evoke the symbolic transformation of citizens into militia.[15] By the latter half of the war, in other words, numerous local, regional, and national campaigns were portraying those at home as the functional equivalent of a battlefront soldier.

The *World-Herald*'s statewide scrap metal drive in July and August 1942 was one of the earliest and one of the most influential of these

quasi-military campaigns. Despite the temporary explosion of patriotism following Pearl Harbor, the first six months of the war in the United States had been marked by a confused public and declining morale. War bond sales gradually became anemic. Illegal hoarding of scarce goods was not uncommon. And, incredibly, pollsters found that nearly one-third of Americans confessed that they did not understand why their nation was at war. Officials felt compelled to condemn the "public lethargy" and "indifference." "Never in our history," suggested the *New York Times*, "has the outlook been so grim and so dark."[16]

Doorly's Nebraska Plan thus entered the public's consciousness at a most opportune time. The initial contest in Nebraska became an excellent means of energizing a state population that had "been sitting idly on the sidelines" of the war effort. With the campaign's nationwide expansion in the fall of 1942, Americans from coast to coast also found themselves involved in that war effort in a most dramatic manner. As the *World-Herald* commented in the midst of the national drive, these "eager Americans" offered "a thrilling display . . . of what a people could do when unified for a single purpose."[17] Although Doorly's scrap raiders were far from the actual fighting, the militarized heartland forge that they helped construct demonstrated rather convincingly just how close home front and battlefront could become.

On both of these levels, then, the Nebraska Plan fostered remarkable successes. This is not to say that the effort had no imperfections. The *World-Herald*'s team, for example, would probably admit that it could have used much more time to plan and organize the summer campaign. After the drive started, some of the state's citizens proved reluctant to take part—at least until their friends or neighbors prodded them into participation. There were even times when Doorly's ambitious plan appeared to have faltered. Such shortcomings were probably inevitable. Nebraskans were already leading busy lives when the scrap campaign came along. Working, harvesting, baling, housekeeping, and the other tasks of daily life could become overwhelming amid the labor shortages of wartime. Moreover, many citizens in the western portion of the state were already donating significant time and resources to the famous North

Platte Canteen.[18] To expect that these citizens would forget everything else in their day to engage in the hard labor of gathering scrap metal would have been quite a bit to ask.

The fact that the campaign somehow found a way to succeed in spite of its shortcomings makes its dramatic story all the more remarkable and suggests that it deserves a more central place in our cultural memories of World War II. Indeed, for those who experienced it, the 1942 quest for scrap metal—what one observer called "the greatest treasure hunt in history"—arguably had all the drama of the Battle of the Bulge and all the historical necessity of the battle for Iwo Jima. Like those battles, the search for scrap metal was dirty, sweaty, and even dangerous.[19] Unlike those battles, however, the story of the scrappers has received little postwar attention. Perhaps these patriotic citizens would have wanted it that way, as their work was directed not at personal glory but at community competition and patriotism. Nonetheless, some seventy years after their labors, it is high time that later generations acknowledge and appreciate their accomplishments.

Fortunately, many aspects of the 1942 scrap metal story survive in primary accounts from the war era. The *World-Herald*'s firsthand coverage of the drive, in particular, offers invaluable perspective on the effort. Local newspapers in Nebraska also wrote about the statewide campaign, while stories on the nationwide drive were recounted by major magazines and newspapers. Original documents, preserved in archives, offer an additional means of understanding the Nebraska Plan, its strategy, and its national impact. Finally, the recollections of dozens of scrappers—preserved at the Douglas County Historical Society in Omaha—provide a vibrant, firsthand resource on the scrap metal effort and its historical significance.

The chapters that follow draw on these resources to recount the story of the scrappers and their intriguing wartime quest. Chapter 1 examines the chronic scrap metal deficit on the home front prior to the summer of 1942, explaining its potentially dangerous impact on the war effort. Chapter 2 reveals Henry Doorly's growing concern about the scrap shortage and how his wife prompted him to develop an innovative plan to address it. In chapter 3 I show how the city of Omaha responded to

Doorly's plan, while in chapter 4 I examine the organizational efforts of scrappers in greater Nebraska. Chapter 5 details the drive's remarkable success across Nebraska in August 1942, which reverberated all the way to the White House. Chapter 6 shifts to explore the national drive, how it relied on Doorly's initial blueprint, and how its success, in a surprisingly literal sense, salvaged the war effort. Finally, the epilogue revisits the impacts of the Nebraska Plan. It returns, in particular, to the plan's role in providing much-needed scrap metal to the war effort, as well as its ability to symbolically unite those on the home front—individuals like Bill Nicholas and his windmill-climbing friends—with those on the battlefront.

1

The Scrap Deficit, or How Not to Win a War

In a long war the nation that will have the last ton of scrap steel will win.
—*American Metal Market*, undated clipping

Emory E. Smith knew enough about scrap metal and war production to be extremely worried about the unstable international situation. It was early in 1939, and the former commissioner of the War Industries Board was becoming increasingly alarmed as Nazi Germany rattled its sabers in Europe even as Japan continued its brutal conquest of China. The United States was avowedly neutral at the time, although President Franklin D. Roosevelt had already condemned what he termed "international lawlessness" on the part of some European nations, and public opinion could hardly be said to favor the Japanese. But as Smith and other industrialists well knew, vital aspects of U.S. trade policy explicitly favored Japan's war ambitions. In his view, the key concern was the exportation of scrap metal. Since 1934, the United States had eagerly sold 12 million tons of scrap abroad—7.5 million of them to Japan alone. Smith believed that this policy was not only enabling the Japanese imperial war machine but also destabilizing Europe. As he told reporters, "Without America's scrap iron . . . there would have been no Japanese-China war and no bellicosian European situation."[1]

Yet the most dramatic part of Smith's concern involved the fate of the United States itself in any future war. The way he saw it, the nation's generous scrap metal exports were arming potential enemies and preemptively disarming the U.S. military. Fewer stores of scrap, he argued, automatically meant fewer available munitions should the United States ever become involved in another war. The potential consequences were dire. America's "chances in any possible new world outbreak," he told the *New York Times*, "were being virtually sabotaged by wholesale export of scrap iron." Even if it wanted to, Smith continued, the nation "could not enter into or maintain a major war for the lack of a sufficient supply of scrap iron."[2]

Smith's concern about the high rate of American scrap exports in the midst of an unstable world situation was probably not surprising to those who knew him. After all, he believed that the world war had ended in 1918 primarily because Germany and its allies had abruptly run out of scrap metal with which to manufacture munitions.[3] However, most of his overwhelmingly isolationist fellow citizens of the late 1930s were unlikely to have understood his warning. To the average American at the time, the word *steel* would likely have brought to mind images of industrial might, vast mill complexes, and even the legacy of the late Andrew Carnegie. The word *scrap*, in contrast, would likely have brought to mind only images of junk yards, rusting heaps, and the local junk peddler. For most people, in other words, Smith's warning would have made little sense because to them there was no apparent connection between scrap and steel, let alone scrap and war.

In many respects, though, Smith's concern that U.S. scrap exports were contributing to a dangerous international environment was on the mark. The process of making steel was no secret on the eve of World War II. Although manufacturers could, in theory, craft new steel solely from veins of iron ore mined directly from the earth, most countries had opted to build a less expensive infrastructure that used substantial portions of melted scrap metal to mix in with new iron ore. This industrial setup made scrap steel a highly sought after commodity as nation after nation

began to arm itself in the face of increasing world tensions. Thus in 1939 the United States found itself at the center of a series of converging factors: a neutral country with few restrictions on the export of scrap, a number of steel-hungry nations arming for battle, and high-demand prices making scrap profitable to sell to the highest bidder.[4] The situation would be fine, perhaps, if the United States could somehow manage to stay out of any upcoming war. But Smith and a number of others were very concerned about that worst-case scenario.

Three years later, the United States did find itself at war, and the concern about domestic scrap metal supplies was only growing more acute. On January 6, 1942, President Roosevelt used his State of the Union address to announce that he had ordered the production of 60,000 planes, 45,000 tanks, 20,000 antiaircraft guns, and 6 million tons of shipping—a breathtaking production goal for 1942 that would immediately stress domestic steel mills. Yet just two days later, the president received an urgent personal letter from U.S. Representative Michael Kirwan. The Ohio Democrat related to FDR that during a recent tour of his district, he had found that "in Youngstown alone, nine open-hearth furnaces, which manufacture 2,200 tons of steel each day, have been closed down and are not operating due to the lack of scrap." Kirwan's implication was enormous. "Without steel and 100% steel production," he wrote, "we cannot complete and keep up with the huge war program which you have outlined and deem so necessary to win."[5]

Kirwan's letter was not made public, but it touched a nerve within the administration. A week later, Roosevelt established the War Production Board (WPB), which was to be the government's newest authority on the prioritization and allocation of every resource and material needed for war production. Donald M. Nelson, formerly an executive vice president at Sears Roebuck, headed up the new agency knowing full well that steel production would be one of his primary concerns. As it turned out, much of his attention, especially at first, focused on the even more fundamental need for scrap metal. To appreciate Nelson's struggles with the persistent scrap deficit, it is worthwhile to detail the relationship among scrap, steel, and munitions, then to examine the steel bottleneck leading up to Pearl

Harbor. The troubles with steel before the United States entered the war led directly to Nelson's scrap battle in early 1942, ultimately putting the all-out production of munitions on an uncertain footing. The worrisome scenario was, in fact, the very sort of situation that Smith had warned about some three years earlier.

Of Scrap Peddlers, Steelmakers, and Donald Duck

If Smith had found it overly difficult to explain to his fellow citizens just why seemingly useless scrap metal was so important to a war effort, perhaps it was because he never thought to ask an animated duck to help. It was Daffy Duck, after all, who sang to American theater audiences from atop his gigantic scrap pile that "we're in to win, so let's begin—to do the job with junk!" By then, however, it was August 1943 and the message from Warner Brothers was a bit behind the times; nearly everyone on the home front had already internalized by that point just how vital their scrap metal was to the military.[6]

The *real* expert on scrap and steel, in any case, turned out to be *Donald* Duck. Not until 1965 did Donald reveal, in the 29-minute informational film *Steel and America*, that he knew all about the process of making steel. At one point in the film Donald even appears as a medieval iron worker, figuring out how to transform iron ore into a useful substance. Curiously, Donald himself implies that some of the essential facts of steelmaking are boring, since he quickly starts to fall asleep as the narrator drones on about smelting. Still, because the process of steel manufacturing retained its most basic elements between 1939 and 1965, Donald's adventures as a steelmaker provide a useful starting point for understanding the prewar relationship of scrap to steel—and thence to war munitions.[7]

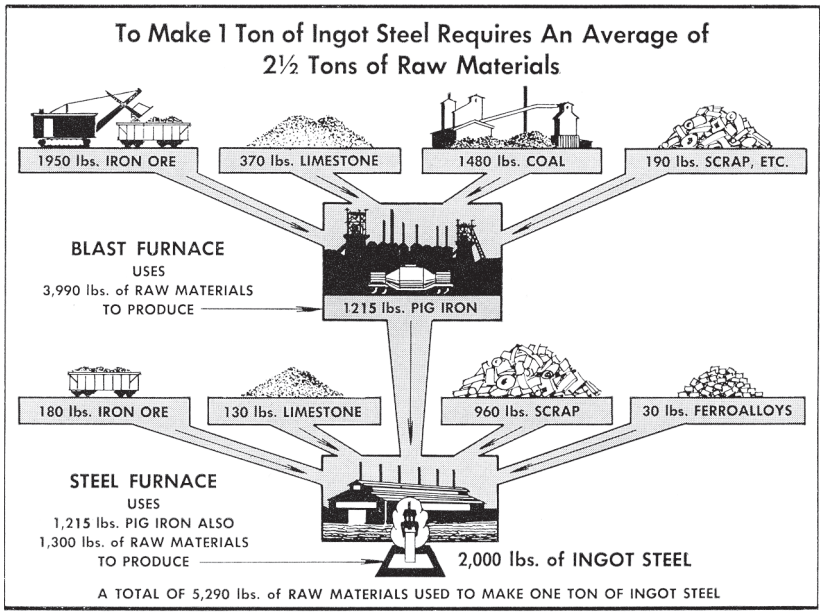
One of Donald's first discoveries was that iron ore had some amazing properties. Once dug up or mined from the earth, it could be put together with charcoal and limestone in a rudimentary blast furnace, heated for the occasion with a huge bellows by a furiously laboring Donald. After the charcoal became hot enough to begin the smelting process, the limestone would soak up the iron ore's impurities. The molten iron would then discharge from the furnace into a series of forms, where it would

harden into ingot shapes. Since the forms were typically arranged in a pattern resembling feeding piglets, this initial product came to be known as pig iron.[8]

While pig iron itself was too brittle to have many uses (an experimenting Donald shatters some against a tree), it could be refined in further stages to produce steel. In North America, ironmasters were refining pig iron into recognizable steel as early as 1655, and an actual steel furnace was in operation in Massachusetts by 1750. These steelmaking ventures, as one might expect, were imperfect. Early steel typically had any number of impurities, it was difficult to make and was thus expensive, and once its final products were no longer useful (due, for instance, to rust, overuse, or age), they were cast aside onto scrap piles—hence the original use of the word to mean *worthless* or *discarded*. Ongoing innovations, such as the replacement of charcoal with coke and the 1855 invention of the mass-producing Bessemer converter, gradually solved some of these issues. As a result steelmaking sped up considerably, with one of its more notable contributions being the dramatic expansion of the U.S. railroad system.[9]

However, not until the introduction of the open-hearth furnace in the 1860s was it possible to address the growing problem of those useless piles of scrap metal. Like the earlier Bessemer process, open-hearth furnaces could make steel from pig iron. But because this new kind of furnace operated at temperatures upwards of 3,000 degrees Fahrenheit, it could also produce steel by melting material taken from the unsightly heaps of scrap iron. This innovation was important in a number of ways. First, steelmakers found that it was easier to work with scrap metal because all of its impurities had already been removed when it was first made into steel. In addition, scrap piles were generally less expensive to purchase than iron ore and required significantly less labor to transport. Finally, from an ecological standpoint, the increasing use of recycled scrap to make steel preserved significant amounts of iron ore and limestone.[10]

Over time, the industry settled on a relatively even balance between pig iron and scrap as the ideal ratio with which to charge open-hearth furnaces (see fig. 1). By 1908, the economy of the new process allowed



1. In modern steelmaking, raw materials are processed in a blast furnace to produce pig iron, and then the iron is processed with more raw materials in an open-hearth furnace. Image courtesy of the Hagley Museum and Library, reprinted with permission from the American Iron and Steel Institute.

it to outstrip Bessemer facilities altogether. The open-hearth system soon overtook the growing U.S. steel industry in such a way that by the 1930s about 90 percent of the nation's steel emerged from open-hearth furnaces, with the remainder accounted for by Bessemer converters and specialized electric furnaces. Other countries, patterning their systems after the immense U.S. industry, generally opted to rely on open-hearth operations as well. Scrap metal thus became a coveted international commodity. It was particularly valuable to nations, such as Japan, that had little high-quality iron ore available to them.[11]

A vast, billion dollar industry eventually developed around the collection, processing, and shipment of scrap metal. Mills were themselves a major source of scrap, since excess material always remained after trimming, shearing, and shaping steel into its final form. This so-called *home*

scrap accounted for about half of the scrap melted at most facilities. The remainder of a mill's supply was known as *purchased scrap*, some of which was obtained in bulk from other industries, such as railroad corporations. However, a substantial proportion of purchased scrap typically originated from the labor of some 150,000 junk peddlers, who solicited the country's households, farms, and businesses for scrap throwaways. This local scrap—ranging from discarded boilers to old golf clubs—made its way to scrap yards, which had the expert labor to sort it into any of seventy-five categories, as well as the equipment to break down larger pieces and to crush the lightest materials into compact bales for shipment to steel mills. As one might imagine, the availability of this purchased scrap could be rather unpredictable. One of the most important considerations, for example, was that nonindustrial scrap was much harder to obtain during the winter. Hence steel mills learned to stockpile scrap during the summer so that they would have sufficient stores to avoid shutdowns over the colder months.[12]

The scrap metal industry was a vital element in what the Institute of Scrap Iron and Steel described as a kind of modern-day "alchemy," a recurring process that gave steel its own series of life cycles. To illustrate this concept, the institute asked readers to imagine the adventures of a specific batch of steel, starting with its thirty years of service as a rail on the transcontinental railroad. Once the original track was taken up, a scrap dealer purchased the old rail, breaking it down into smaller segments and sending it to a steel mill, where it emerged as ship plates. After sailing the world as a tramp freighter, the batch of steel ended up rusting on a beach. It was then hauled to a scrap yard to be sorted, processed and transported again, whereupon another steel mill finally turned it into "the sheet from which the fender of your automobile was stamped."[13] The point, presumably, was clear: in a predominantly open-hearth system, steel and scrap are but mirror images of each other, meaning that the humble junk peddler and the scrap yard operator were indispensable players in the steelmaking process.

The institute's alchemic illustration was hypothetical, of course. But its rendering of the many life cycles of steel was indeed realistic. Scrap

that was salvaged from scuttled German warships following World War I, for example, was eventually shipped to a Scottish steel mill, where it was melted down and refashioned into steel plates for the hulls of British warships. Those ships eventually would become part of the Allied war effort against the Axis. It was an ironic twist, since "the steel which the Germans fabricated for the fleet that was to give the Kaiser world domination literally rose to smite the next generation of Germans."[14] Here, in other words, was a dramatic, real-world instance in which scrap, steel, and war munitions had intersected.

Yet as Donald Duck was well aware, that kind of intersection was not at all unusual in the human experience. Indeed, every time medieval Donald produced a new kind of iron or steel, his first impulse was to cast a sword, which he immediately swung at nearby objects (often to comic effect). In a sense, Donald was merely following in the footsteps of countless would-be warriors. Even the prophet Joel advised the faithful to "beat your plowshares into swords and your pruning hooks into spears."[15] It was advice that untold millions of belligerents heeded over the centuries as they transformed scrap iron and steel into the weapons of war.

To be sure, by the twentieth century the admonition to beat plowshares into swords was no small matter. In an era of total industrial warfare, the violent purposes to which modern steel could be directed were tremendous. Aside from the obvious uses of steel in constructing warships, tanks, and other tracked vehicles, as well as airplane parts and guns of all sorts, the steel industry in a nation at war would be asked to expedite materials such as "armor-piercing shot steel, fragmentation bomb steel, or machine gun spring steel." By the 1930s, the products of the steel industry had become, in essence, "the sinews of war." As Winston Churchill himself bluntly put it, "Modern war is waged with steel."[16]

But the enormous amount of steel needed for munitions of various sorts in an era of total war was only one of numerous other wartime steel needs. "Before weapons can be made," wrote the American Iron and Steel Institute, "steel must build the machinery to make them, and the plants to house the machinery. . . . It must build shipyards and welding machines," and only then can it "build the ships themselves." In fact, even increasing

national steel-building capacity required steel. The institute estimated that for every 10 million tons that war planners wanted to add to their maximum steel-producing capacity, at least 3 million tons of actual steel would be required in the construction of turbines, furnaces, blowers, and additional heavy equipment.[17] For this reason, nations planning for war required comprehensive industrial organization to ensure that scrap stores and steel products were consistently in the right place, at the right time, and with an adequate supply.

These were the sorts of logistical details that were unknown or that made little sense to the average U.S. civilian in 1939. Yet the interrelationship between steel, scrap, and war munitions, as Donald Duck himself had demonstrated, was by now an indelible aspect of world affairs. Still, even if the extent of Americans' knowledge of scrap metal at the time went little further than their local junk peddler, it was possible that the stunning 1940 German conquest of much of Western Europe on the back of a highly mechanized army offered them some enlightenment. By this point, Adolf Hitler had decreed death to hoarders of scrap metal, a clear indication that the Reich well understood the lesson that scrap was paramount in the prosecution of the war.[18] The question, for observers like Emory E. Smith, was whether or not that lesson would be ignored by the Roosevelt administration.

The Steel Bottleneck, 1940–1941

It was hard to upstage President Roosevelt, but on May 10, 1940, Hitler managed to do so. The president was scheduled to address more than 2,500 of the most eminent scientists from North and South America that evening. It was the eighth meeting of the Pan American Scientific Congress, and the president would be joining Secretary of State Cordell Hull and Dr. Albert Einstein in welcoming the scientists to the capital. Earlier in the day, however, Germany had suddenly undertaken a massive invasion of Belgium, France, Luxembourg, and the Netherlands, reigniting the European war that had been smoldering over the winter. Not surprisingly, Roosevelt's concern about the invasion was manifest in his address to the scientists, particularly in an accusatory passage which

suggested that the world's aggressors would not rest until their domination extended to "every human being and every mile of the earth's surface."[19]

The president would only grow more concerned as the unsettling events of the spring and summer of 1940 unfolded. By June 25, Germany and its ally, Italy, occupied or controlled almost all of Western Europe. While more than 200,000 British troops had managed to escape the onslaught, their hasty and improvised retreat from the beaches at Dunkirk was a sign of how powerful the invaders had become. In mid-August, the Battle of Britain was under way, and in September, Japanese forces took advantage of France's utter disarray by invading French Indochina. When Italy, Germany, and Japan formally signed the Tripartite Pact on September 27, it was clear that the new Axis nations were sending a message to the United States. As Japan's prime minister, Fumimaro Konoe, told reporters a few days later, "If the United States . . . regards our pact as a provocative action directed against it, and if it constantly adopts a confrontational attitude, then the three countries will fight resolutely."[20]

In fact, Roosevelt could not risk appearing overly confrontational that summer. In November the president would face a reelection test, this time for an unprecedented third term. The worry in the White House was that forceful official reactions to Japan, Italy, and Germany might come across to voters as sheer belligerence, precisely when the majority of Americans wanted the nation to stay out of war. Indeed, anti-interventionist movements such as the Keep America Out of War Committee and the America First Committee became quite vocal in the fall, with the latter organization eventually attracting some 800,000 members in 450 local chapters to its cause.[21] In such an environment, Roosevelt could not afford to magnify the view of some Americans that he was anxious to go to war.

One significant action that the White House felt it *could* risk was to embargo scrap metal. On September 26—the day before Japan, Germany, and Italy signed their pact—Roosevelt used his authority under the Export Control Act to order an end to all scrap exports, with exceptions to be granted for the Western Hemisphere and for Great Britain. Japan was the most obvious target of this decision, since it had previously been the most significant buyer of American scrap. Paul V. McNutt, the head of

the Federal Security Agency, justified the move by explaining that "during the last six years, Americans have sold to Japan eight and one-half million tons of scrap iron," enabling it to build "almost 500,000 tons of warships." Somewhat presciently, McNutt argued that this was "a very ugly picture" that could result in "powerful men-of-war steaming into Manila Harbor, into Guam, and the Hawaiian Islands." These enemy ships, he clarified, would be "flying a foreign flag," but they would be "made from American junk."[22] While Roosevelt's decision was largely overlooked due to the continuing debate over the September 16 Selective Service Act, McNutt's comments made it clear that the White House was carefully considering its prospects if the nation were to be drawn into war.

At the same time, the administration was scrambling to assess its scrap and steel resources within the context of a potential war footing. A number of internal reports in the fall of 1940, emerging from the National Defense Advisory Commission, the War Department, and the National Resources Planning Board, attempted to predict if the steel industry would be able to handle a dramatic upswing in munitions and simultaneously keep up with civilian steel requirements. However, the reports offered contradicting forecasts, in part because it proved to be extremely difficult to anticipate future demand in such a turbulent global environment. Making matters more complex, increasing civilian incomes were rapidly driving up domestic levels of steel consumption, leading the industry to raise its operating rate from 72 percent of capacity in May to 97.1 percent in January 1941.[23]

Roosevelt, now safely beyond the presidential election, provided a glimpse into the administration's steel deliberations early in 1941 by asking Gano Dunn, a veteran engineer and special consultant to the Office of Price Management (OPM), to conduct an impartial forecast of steel needs up through 1942. Dunn submitted his report to the president on February 22, concluding that if the industry's furnaces were able to run at a reliable rate, the nation would enjoy a surplus of over 10 million finished tons of steel in 1941 and would have an additional surplus of 2 million tons in 1942. The president was delighted at the findings and quickly shared them with reporters. "Beaming cheer," wrote *Time*, the

president exulted "that the Dunn report showed ample facilities for all domestic defense and civilian needs." More important, perhaps, Roosevelt "added that no priorities need be established at present for steel."[24]

Unfortunately, the Dunn report faced immediate criticism. The War Department, for example, felt that the report significantly underestimated military requirements in the case of an all-out war. "Unless remedial steps are taken," the military responded in its own study, "requirements will pass production about September 30, 1941, and . . . steel consumption will have to be rationed or limited beginning that month." To make matters worse, Roosevelt signed into law the lend-lease program on March 11, suddenly increasing munitions exports to Great Britain. This move increased the strain on the steel industry, which would have to build most of those armaments. At the same time, it also resulted in a significant net loss of future scrap supplies, since those lend-lease exports would generally not be returning to the United States for another part of their life cycle. The implications for the accuracy of Dunn's optimistic forecast were evident.[25]

As a result of these developments, Roosevelt asked Dunn to revise his report. In late May, the revision was complete, and it was indeed much less optimistic. Increased estimates of lend-lease, civilian, and military steel requirements, noted the new report, now meant that the steel industry would likely fall some 1.4 million tons short of demand in 1941, and the following year the shortfall would grow to approximately 6.4 million tons. Dunn summarized that "a decision must be made whether to curtail the civilian consumption contributing to these deficits, or to expand the capacity of the industry to meet them." In other words, commented the *Wall Street Journal*, "mandatory steel priorities or rationing may be invoked shortly."[26]

In fact, voluntary industrial priorities for military needs had been in place since March, but since there was no legal force to back them up, they were often bypassed in favor of orders for civilian products. With demand for steel rising at every turn, the military thus found many of its projects foundering in a steadily developing bottleneck of steel. In May, for example, Major General Hap Arnold of the Army Air Corps complained to OPM of 200 separate incidents in which the unmet need

for steel had hampered aircraft production. In July, Rear Admiral Howard L. Vickery of the Maritime Commission wrote to Harry Hopkins in the White House about numerous steel supply issues, warning that "I must have steel to produce ships." That same month, however, Roosevelt established a new Supply, Priorities, and Allocations Board, which would have the ability to assign preferential treatment to critical military orders for steel and other essential needs, as well as the statutory authority to enforce them. At the same time, OPM was working with producers of steel-heavy civilian goods, such as farm equipment and automobiles, to set quotas limiting production starting in August. On both fronts, the administration hoped to get ahead of the looming steel shortage before it could occur.[27]

But there was another way to address the potential shortfall in steel, and that was to build more furnaces and mills in order to raise the industry's overall capacity. Turning out even greater amounts of steel, the logic went, could presumably avert a materials crisis if the nation were to go to war. Soon after Dunn's revised report, the president asked OPM to consult with steel industry representatives to determine the feasibility of increasing the nation's annual steel capacity from 86 million tons to 96 million tons. OPM responded favorably, and organizational work began for a number of steel expansion programs. Yet planners soon came up against the very same steel limit that they were trying to address. Ironically, since creating new steel factories requires existing steel for the construction process itself, any rapid expansion in capacity would risk undesirable cuts in other areas of demand. The expansion, in other words, would have to proceed slowly.[28]

Meanwhile, the booming steel mills—now operating at near-full capacity—were becoming victims of their own success. The ever-faster production of steel in the first half of 1941 had begun to outstrip available supplies of raw materials, endangering the rate of output. By September, scrap was emerging as the most significant industry concern. The nation's open-hearth mills were now maintaining their accelerated operations by consuming available scrap stores at rates that were 40 percent higher than the previous year. As a result, the dwindling supply of scrap metal began

to have significant impacts on the industry, with the threat of shutdowns becoming more and more realistic. Kansas City's Sheffield Steel Company, for instance, informed customers that it would be closing down on September 18 "due to the lack of scrap," a situation that the White House found was suddenly facing "many more steel mills . . . throughout the country." Across the industry, there was a 45 percent drop in available scrap metal stocks by the end of the year, a situation which meant that steelmakers "began to experience extreme difficulty in meeting even a substantial fraction of their commitments." As *Business Week* estimated, the growing shortage of scrap meant a shortfall of up to 8 million tons of finished steel. While this was somewhat under 10 percent of the nation's capacity, it was a shortfall that no nation arming for war could afford. Even worse, with winter approaching, the industry's scrap levels were unlikely to grow any time soon.[29]

As if to punctuate what was becoming a bona fide scrap crisis, Japan suddenly attacked the U.S. fleet at Pearl Harbor on the morning of Sunday, December 7. Amidst the loss of life, the outrage, and the subsequent declaration of war, it was easy to overlook the fact that the Japanese assault had been thoroughly grounded in the relationship between scrap, steel, and war. Since one-third of Japan's steel products were directly tied to previous U.S. scrap exports, here was a traumatic affirmation of Emory E. Smith's warning.[30] After all, the exported scrap had armed Japan even as it made it harder for the United States to arm itself—a situation that the steel mills could now fully appreciate. But here, at Pearl Harbor, that same scrap had gone one step further, returning in the form of enemy ships, planes, and bombs to further weaken the U.S. military's ability to wage war. The headlines of the day were understandably focused on the carnage of the attack as well as the shift to all-out war. Yet within the Roosevelt administration, another important lesson was not lost: if the nation were to continue as the fabled Arsenal of Democracy—not to mention to fight in its own right—it would need to hope that the soon-to-be-assembled WPB and its hard-charging chairman would be able to pick up the pieces of the perilous scrap mess.

The Scrap Battle of Early 1942

The initial meeting of the War Production Board took place on January 20, 1942. Calling the attendees to order was the president's new point person on domestic resources and priorities. Donald M. Nelson was a tall, gregarious Missourian whose habitual pipe smoking could not hide a formidable personality. He was a chemical engineer by training, a speciality that had gradually helped make him an expert on manufacturing and industrial relations. When the president had plucked Nelson from upper management at Sears Roebuck two years earlier, few in Washington had ever heard of him. Yet anyone in the administration who pegged him as a civilian intellectual soon found out that he was "as tough as a Marine pleading for more Japs to consume." At that first WPB meeting, the tenacious chairman carefully observed the board's discussions about fats and oils, automobile production, and the rationing of household commodities. When it came time to focus the members' attention on the problem of scrap metal, however, Nelson himself led the discussion.[31]

The chairman was pessimistic. He told the board that national pig iron production and scrap supplies were uncertain enough that total steel output for 1942 could range anywhere from 86 million tons (which might be just enough for the year's estimated demand) to 79 million tons (which would fall significantly short of needs in the new war economy). Based on this uncertainty, he declared that there was a "serious shortage existing in this material." Not surprisingly, Nelson's pessimistic outlook soon found its way into media reports. Citing an internal government memorandum, the *Washington Post* warned readers that "unless scrap collection were stimulated, the 1942 production of steel—so urgently needed for munitions—would be smaller" than the year before. The looming scrap shortage, added the *New York Times*, was hard to dismiss, "especially when one of the largest armament programs in history is in the making."[32]

Yet both Nelson and the media were well aware that there were plentiful caches of scrap located throughout the country. As Representative Kirwan had written to FDR back on January 8, "There is no necessity for open-hearth furnaces being non-productive because of a scrap shortage, as there

are millions of tons of it lying around in yards, attics, and basements." The problem, of course, was obtaining all that scrap metal. Kirwan was convinced that civilians "would be more than willing to pile what they have to their curbstones for collection if the proper appeal was made by their President and through the Governor of each state." Apparently Nelson was on to the same idea, as in that first WPB meeting he persuaded his board to authorize "a vigorous nation-wide campaign . . . for the collection of scrap iron and steel from every possible source."[33]

Nelson directed WPB staffers to focus on several critical areas. The organization had already inherited a "Salvage for Victory" campaign, which was a low-key effort inaugurated by the now-defunct OPM in its last days. However, while that program highlighted the importance of scrap metal to the war effort, its emphasis was more on salvage of every type, so other initiatives were in order. Perhaps the most publicized new focus was on so-called automobile graveyards. Before the war, an average of 2.5 million junked vehicles had been processed every year for return to the steel industry as scrap metal, but Nelson was now intent on pressuring the auto scrapping industry to increase that number to 4 million in 1942. WPB also elected to put significant energy into the establishment of a nationwide scrap hierarchy, with thousands of volunteer salvage committees from across the country signing up to lead neighborhoods and regions in the search for scrap metal for the war effort. Moreover, the agency enlisted the help of influential public leaders who did their bit to try to bring the issue of scrap to the public's attention. As U.S. Representative Charles I. Faddis of Pennsylvania remarked in a radio address over the Columbia network on March 24, for example, "There are today furnaces that are not operating because of a lack of scrap, and it is essential that more be obtained. We need the scrap NOW."[34]

WPB's efforts, however, quickly ran into a series of obstacles. The most obvious problem was that the structure of the massive committee system made it difficult for local volunteers to communicate news of scrap finds to anyone with the authority to collect the junk and haul it away. Many workers became frustrated with the overly bureaucratic system, and it soon became commonplace for neighborhood committees to exist

primarily on paper. At the same time, WPB officials learned that many citizens had wholly negative memories of a two-week aluminum salvage campaign that had taken place the previous summer. That drive had been promoted with urgent fanfare by the Office of Civilian Defense, only to result in apparently useless heaps of pots and pans that had remained in place for months. Now WPB was asking Americans to participate in what must have seemed to be a similar effort, but it was doing a poor job of explaining why the task this time was so much more important.[35]

By late February steel economists were pointing out that despite "the greatest demand in history," the appeal to Americans to gather and turn in scrap metal was falling flat. Indeed, with reduced civilian production already in place in some industries, not to mention the possibility of future rationing programs, many individuals and businesses were choosing to keep in use older equipment that would ordinarily have made its way to a scrap yard, for fear that no replacements would be available. Moreover, the scrap industry itself was beginning to face a labor shortage, with numerous scrap peddlers and yard workers joining the armed forces or, in some cases, shifting to better-paid munitions factory jobs. With a few exceptions, the resulting efforts to collect and process scrap were typically underwhelming at best. In April most steelmakers found themselves operating with only two weeks' supply of scrap metal on hand, and reports continued to surface that sporadic open-hearth furnaces were suspending operations. Within the Republic Steel Corporation alone, scrap stores were so meager during the first half of 1942 that the company's production fell behind by 173,000 tons—enough steel to construct three Iowa-class battleships.[36]

As one might expect, tempers soon began to flare over WPB's apparent failure to persuade the public to turn in scrap metal for the war effort, particularly after an April poll indicated that two-thirds of Americans had never even been approached by a scrap volunteer. At a May 5 committee hearing on Capitol Hill, Oklahoma senator Joshua B. Lee actually accused WPB's scrap officials of "discouraging State-wide campaigns to collect scrap metal." He wondered aloud if the bureau had "put any steam behind these State-wide scrap programs." When WPB's Paul C. Cabot

replied, "All we can," Lee's retort was pointed: "Then you haven't much steam." The resounding criticism of the scrap effort was still ongoing in late June, when trade union president Philip Murray told the press that "the government's failure to gather scrap was 'almost criminal.'"[37]

WPB defended its efforts vigorously, pointing out in early June that mill shutdowns were becoming less common. In fact, an effort dating from early in the spring to run the country's blast furnaces at an all-out pace in order to produce record amounts of pig iron (which open-hearth furnaces could process into steel, though not as efficiently as with the normal percentages of scrap) was by now helping steelmakers to regain some of their lost ground. Unfortunately, the industry would not be able to maintain the rapid pace indefinitely, since iron ore could not be transported to blast furnaces over the frozen Great Lakes in the winter months. Moreover, while the government and industry were doing everything possible to increase overall steel capacity, additional blast furnaces (and the resulting long-term growth in pig iron stocks) now seemed unlikely to go online until the spring of 1943. Increasingly the steel bottleneck seemed to be headed for a crisis. As the Office of Emergency Management's George S. Pettee confirmed in July, "The steel shortage is real." Even worse, he noted, "the entire war program is in a straitjacket fixed by steel capacity."[38]

Widespread concerns thus began to emerge regarding the potential for a major steel slowdown during the coming winter and into 1943. With both iron ore and scrap supplies expected to slow to a seasonal trickle, the industry seemed likely to face its biggest challenge yet. "The specter of severe shortages next Winter," as the *New York Times* called it, had definitely captured the government's attention. As military and lend-lease demands continued to spiral, WPB predicted that the industry would need a stockpile of 10 million tons of scrap metal to make it through to the spring. Even the president was growing alarmed about the deficit, noting in a letter to U.S. Representative John J. Cochran that "we anticipate that the scrap shortage may become more acute during the winter of 1942–1943."[39]

It was increasingly clear that failing to find additional sources of scrap metal would have undesirable consequences. Even as WPB official Harold

J. Ruttenberg warned a House of Representatives committee that "steel operations may well drop to as low as 80 percent of capacity this coming winter unless the failure to accumulate adequate scrap iron and steel stock piles at the various steel mills is converted into a success," Nelson himself was pointing to the hazards of such a shortfall for the armed forces. As the WPB chief suggested, the looming steel crisis was threatening "to delay both the Navy and Maritime shipbuilding programs," not to mention other "vital construction programs" involved in arming the military.[40] In a nation girding itself for an offensive war on numerous fronts, such worries were troublesome indeed.

The situation must have seemed even more dire given the miserable progress of the war effort to that point. The government implied that production problems were to blame for the recent disasters at Bataan and Corregidor, arguing that the defenders "needed planes—more planes—and the planes did not come. We didn't have them to send." There was, to be sure, some obvious hyperbole in such statements, since arms alone could not win a battle, let alone a war. Moreover, a plentiful supply of scrap would not by itself be a magical solution to production worries. But there was no doubt that many people on the home front viewed the scrap deficit as a key variable in the continuing course of the war. After all, contended the Office of Price Administration's Donald H. Wallace, in this "war of metals . . . our boys can't fight with their hands."[41]

In many respects, then, the summer and fall of 1942 were turning out to be a critical crossroads in the scrap battle. The administration was now reflecting a great deal of pressure to go on the military offensive later in the year, meaning that the production of munitions was even more important than before. At the same time, the president's overall production goals for 1943 had already been set at rates significantly higher than those of 1942. The stress on the nation's steelmakers had never been more intense. *Collier's* observed, with some understatement, that "the steel industry has a tough job on its hands to make the steel" that will, in turn, "make the guns and tanks and ships" so necessary to take the fight to the enemy. "Millions and millions of tons," the magazine added, "must roar out of the furnaces every month."[42]

If the industry were to withstand this stress through the upcoming winter, it would need to avoid bottlenecks, ensure continued cooperation between labor and management, and have adequate stores of scrap metal on hand. Unfortunately, given WPB's overly bureaucratic approach to its public outreach, there was every reason to believe that the scrap impasse would continue—with sporadic slowdowns and shutdowns a continuing thorn in the side of the war effort. It was a situation that steel experts like Emory E. Smith could easily understand. But the question was how to reach out to the American public in such a way that they, too, could understand the vital nature of scrap metal in the war effort. Ironically, in order to accomplish that seemingly impossible goal, Donald Nelson would soon find himself turning to a most unexpected resource, one that was located not in Washington DC but in Omaha, Nebraska.