UNIVERSITY OF CALIFORNIA SAN DIEGO

Frontier Above the Clouds:
A Trans-Pacific History of Mountain Engineering in South Korea

A Dissertation submitted in partial satisfaction of the requirements
for the degree Doctor of Philosophy

in

History

by

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2024

The Dissertation of Jaeyoung Ha is approved, and it is acceptable in quality and form for publication on microfilm and electronically.

University of California San Diego

2024

DEDICATION

To my hometowns, Onjeong and Hupo

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LIST OF ABBREVIATIONS

CCC	Civilian Conservation Corps
CEB	Combined Economic Board
D&Z	Day and Zimmerman
DHCC	Dai Han Coal Company
DMPA	Defense Material Procurement Administration
DOI	U.S. Department of the Interior
DOS	U.S. Department of State
ECA	Economic Cooperation Administration
FOA	Foreign Operation Administration
GGK	Government-General of Korea
IUCN	International Union for Conservation of Nature and Natural Resources
KNPS	National Park Service of South Korea
KTMC	Korea Tungsten Mining Company
NFL	South Korean National Forestry Laboratory
NFM	Non-Ferrous Metals
NRM	National Rehabilitation Movement
OEC	Office of the Economic Coordinator
PATA	Pacific Asia Travel Association
PPP	Priority Production Policy
ROK	Republic of Korea
ROKMIA	South Korean Ministry of the Interior
SCAP	Supreme Commander of the Allied Powers

SES	Soil Erosion Service
TVA	Tennessee Valley Authority
UNCAC	UN Civil Assistance Command
USGS	United States Geological Survey
USNFS	National Forest Service
VFA	Village Forestry Associations

A NOTE ON ROMANIZATION OF KOREAN

There are two major romanization systems for Korean: McCune-Reischauer (MCR), the system invented by two Americans in 1937, and Revised Romanization of Korean (*sae romaja pyogi beop*, RRK), introduced by the South Korean government in 2000 to replace MCR. As of 2024, neither system is dominant, as the use of a romanization system varies by country, industry, and academic discipline. For the convenience of writing and the growing use of RRK worldwide, particularly on maps, I romanized proper names, including place names in Korea, official titles or organizations, titles of publications, among others, in RRK (e.g. Busan), except for personal names.

The case for personal names is more complicated due to the lack of a unified rule for romanizing personal names in South Korea today and the history of forced name changes in Korea. In South Korea, individuals tend to romanize their names in their unique styles, not following either of RRK or MCR (myself included). For surnames, many people stick to archaically Romanized versions (e.g., Kim for Gim or Park for Bak), often to comply with other family members or to pay respect to their parents who inherited the surnames. For first names, some South Koreans, including myself, changed the romanization of their first names in order to present them more comfortably to non-Korean speakers. The process of changing one's romanized name usually takes a long time due to official paperwork, which often includes a court review. In addition, the romanization of Korean names by non-Korean scholars against the individual rule of romanization can be seen as an offence, given the history of forced name change in Korea. Under colonial rule, many Koreans were forced to change their names to Japanese ones as part of the Japanese Empire's assimilation policy. In the 1950s, some South

Koreans were also given English names and asked to use them instead of their Korean names for the convenience of American supervisors.

As a historian, I believe that respecting individual choices in romanization could be a starting point for a historian who aims to respect the agency of historical actors. Also, considering the painful history in which Koreans were forced to change their names against their will, historians in Western Hemisphere should be aware of their positionality when romanizing Korean names for their work. In this regard, when I cited the secondary sources by Korean scholars, I used romanized names they registered with RISS, the official website of the South Korean government that keeps all publication records. If I encountered a romanized name of a Korean in a primary source written by an English speaker, I used it instead of RRK or MCR, as these names would likely be the romanized name chosen by that person. If there was no record of a romanized name, I first romanized surnames using the most commonly romanized surnames in South Korea. Notable examples are listed below:

강 (Gang) = Kang

고 (Go) = Ko

구 (Gu) = Ku

권 (Gwon) = Kwon

금 (Geum) = Keum

김 (Gim)= Kim

문 (Mun) = Moon

박 (Bak) = Park

변 (Byeon) = Byun

엄 (Eom) = Um

오 (O) = Oh

우 (Wu) = Woo

유 (Yu) = Yoo

윤 (Yun) = Yoon

이 (I) = Lee

임 (Im) = Lim

조 (Jo) = Cho

주 (Ju) = Joo

Next, I romanized their first names as per RRK, in order to comply with the romanization rule in my dissertation. I intentionally did not include a space or dash (-) between the first and second syllables of first names, because it often caused confusion to non-Korean-speaking readers, who might think the second syllable is a middle name in the Western Hemisphere. All Korean, Japanese, and Chinese names were ordered surname first, then first name, as per the traditional way in these three countries, unless otherwise specified by individuals differently (e.g. Syngman Rhee).

I hope that my romanization rule will not be interpreted as an offence or disrespect to those who continue to use MCR for its better phonetic representation (especially for voiced/unvoiced consonants) than RRK or for other reasons.

ACKNOWLEDGEMENTS

One of the lessons that I learned during the pandemic was that I would not be any closer to extraordinary historians like Immanuel Wallerstein, whose visionary power predicted a pandemic in the 1990s. As such, I cannot say a word about whether this dissertation will be published as a monograph or as separate articles. If it does not come out as a monograph, the main reason is my inability to complete this dissertation as a monograph. However, it occurs to me that the failure to publish this dissertation could happen from the fact that I would be situated in an academic environment different from the United States, as I will pursue my commitment in South Korean society. Most scholars in South Korea (and some other East Asian countries) are required to demonstrate their academic competitiveness by publishing articles, not monographs. Given the circumstances in South Korean academia, I may not have a chance to express my gratitude in a monograph, regardless of my intention and capability. So I would like to spare more pages than what is expected for an acknowledgement page in a dissertation, in order to include all possible names to whom I am indebted during the journey in two graduate schools for eleven years.

First, I would like to acknowledge that this dissertation would not have been possible without the guidance of my advisor, Todd Henry. He was the one of the few people who saw my potential when I applied for his program. Throughout the seven years in San Diego, he had never complained about the amount of care and time he devoted to me, which was far more than for a native English speaking student or a much better prepared international student. Every time I asked for writing assistance or recommendation letter, Todd returned my papers, proposals, journal submissions, and this dissertation manuscript with meticulous comments and feedback. I am so indebted to his advisership as such, but also through numerous enlightening conversations

I had with him, which always surprised me for his knowledge and insight into Korean society and culture. Despite so many drawbacks of this dissertation, if one could find a bright side from it, it was definitely based on Todd's advising, which tremendously improved my English and writing skills and changed the way in which I approached history, particularly on *space*. Before I embarked on multi-year archival research in the United States and South Korea, Todd also recommended me multiple archives to visit, including unknown local newspaper archives, and introduced me so many people whom happily talked to and helped me at Todd's request. Todd was also a counselor for me when I was struggling or had personal issues. When I was adjusting to a new academic and living environment in my first year, when I was designing my research project in second and third years but lacked research skills and knowledge for funding, when my wife Jihye's visa status and work permit were threatened by Donald Trump's immigration advisor, Stephen Miller's anti-immigration scheme to neutralize USCIS, Todd helped me overcome them. In the second half of the graduate program, when Jihye started her professional career in the U.S., Todd helped us adjust some residency restrictions imposed on me. It was a great blessing for me to have Todd as my academic advisor.

This dissertation also owes a great deal to my wonderful dissertation committee members at UCSD and UC Irvine—Mark Hendrickson, Jin-kyung Lee, Simeon Man, Wendy Matsumura, and David Fedman. As one of only few mining experts in the history discipline, Mark Hendrickson provided me with valuable sources in the U.S. mining historiography with passion and advised on archival research in the United States. Having Jin-kyung Lee on my committee and receiving a direct advice from the author of *Service Economy* was one of the few fortunes that a historian of Korea could enjoy in the graduate program at UCSD. Personally, she has been a tireless supporter of my research since I first met her in 2017, regularly checking in on my

research progress. Simeon and Wendy were other two people who helped me overcome the initial struggles I had in my early days in San Diego. Simeon's graduate-undergraduate seminar in my first year completely changed my perspective on the U.S.-ROK relations and eventually led me to take his trans-Pacific U.S. studies as my minor field. If one finds that my dissertation has a potential to be a useful piece of work in the trans-Pacific U.S. empire history, it is entirely due to Simeon's guidance and advice. I also took Wendy's modern Japanese history as my minor field, and it was one of the best decisions I made in San Diego. As a historian of labor and gender in modern Japan and marginalized Okinawan Islanders, discussion with her in my early days at UCSD inspired me to write an unwritten history of the working-class communities in the making of South Korea's anticommunist state. I also would like to note the Wendy's relentless care and strong supports for UCSD's graduate students, including me, were strong motivation for us to continue their study. Lastly, I acknowledge that my first meeting with David Fedman in 2018 completely changed my central focus of history from Foucauldian discipline to energy regime and ecology. I also deeply appreciate his precious comments for my dissertation and advice on how to position myself and my dissertation in academia.

Before my academic odyssey in the United States, there was an earlier period in Seoul when my immature self was reconstructed as one for a historian of modern Korea. First and foremost, when I decided to enroll in his master's program, Professor Park Chan-seung, my then-graduate advisor, guided me to study the rich but understudied local history of Korean rural society. When I was in South Korea for doctoral research, Professor Park also spared his precious time and advised me to explore post-Korean War village organizations, committee minutes, and regional archives. It was during one of these meetings that he emphasized the importance of the fuel transition in the post-Korean War period, which was in hindsight, a

surprisingly accurate insight from a scholar who did not specialize in energy and environmental history. My dissertation research was, perhaps, a movement to follow in the footsteps of his giant, but now I just hope that my dissertation does not defame his name in Korean historiography. During my master's training, Prof. Kang Jin-A was another scholar who brought me to the field of economic history. From her graduate seminars and precious moments I could chat with her, along with Prof. Son Cheol-bae, I could be equipped with long-term, macroeconomic perspectives that formulated my dissertation research. I also appreciate Prof. Hyun-sik Kim for his teaching of Foucauldian and postcolonial theories, and Prof. Seok-kyu Lee for his teaching of premodern Korean historiography. Prof. Suhyun Moon happily welcomed me whenever I visited her office, and introduced me to German and British historians, some of whom I keep working with. Lastly, Prof. Seung Il Lee recognized the potential of my dissertation and invited me to his several seminars to share my work with colleagues at Hanyang University. I also thank Prof. Shin Seonggon and Prof. Yun Haedong for their advice during my master's program.

Four historians from the National Institute of Korean History (*guksa pyeonchan wiwonhoe*), Hwang Byeongju, Lee Sangrok, Lee Dongheon, and Daehoon Jeong were my *seonbae* who invited me to join their field research in the suburban Gyeonggi Province in 2016 and gave me an opportunity to interview with locals for the first time. Without a doubt, this experience allowed me to conduct multiple interviews during the field research for my dissertation. In particular, working with Hwang Byeongju was the most exciting and unforgettable experience. During the research, I learned a great deal from his shrewdness in researching, interviewing, and writing, but most importantly, the role of a historian in the society: "To do history is to stimulate the way in which we see the past and the present." The

mantra he repeatedly told me about why we should study history was, in retrospect, the philosophy that I wanted to embed in my dissertation research for a long time. Another *seonbae*, Park Dongchan, was never shy about sharing his knowledge of modern Korean history with me, along with some invaluable suggestions. One of them was to study the history of Taebaek Highlands, the place that he saw as a microcosm of South Korean modern history, in a casual conversation in 2017. That was the very moment when I first connected the history of modern Korea with my personal narrative as someone who grew up near these remote highlands. Jihye Yang was another *seonbae* to whom I owe a great deal of academic intellectualism, as she helped me navigate the historiography of colonial Korea and recent historiography of inter-Asian studies. During my master's program at Hanyang and even after that, I also could take advantage of the scholarship and friendship of Lee Myeongjong, Kim Minseok, Kim Honghee, Lee Gitae, Im Injae, Son Gyunik, Song Eui, Jeong Sangjun, Kim Hyemi, Jeong Yunhee, Baek Seon-lye, Yoon Juhan, Wonkeun Lee, Hunsang Cho, Jung Jong-won, Han SangHyeob, Lee Seunga, Park Sangwook, Seo Seokha, Kim Jeongran, Go Hanbin, Bae Jinseon, Jeong Haerin, Jeong Giju, Kim Seonwoo, Kim Hangyeol, Kim Ran, Yemok Jeon, Suyeon Lee, and Jeong Seoyul.

At UCSD, I also appreciate the help of Micah Muscolino and Jeremy Prestholdt who advised me on my future and wrote a letter of recommendation. During the graduate seminar and even in a daily conservation, I was also fortunate enough to receive advice, feedback, and insights from the colleagues in UCSD's vibrant graduate community, including Eunice Lee, Thomas Chan, Inga Kim Diederich, Weiyue Kan, Hyesong Lim, Ho-Chiu Leung, Benjamin Kletzer, Samantha Q. de Vera, Felicitas Hartung, Robert Nixon, Calvin Jordan, Abner Sotenos, Catherine Potmesil, Emma Jablonski, Michael McGalliard, Kiki Zhao, and Tony Hyunduck Cho. In particular, I would like to note that I could not have endured the hardships I encountered

during the graduate program at UCSD without the advice and support of Young Oh Jung, my colleague and best friend in San Diego. In the post-COVID era, I have also been able to benefit from the community (re)building efforts of my graduate colleagues, including Niall Chithelen, Guilherme Sena de Assuncao, John Gove, Nico Pacetti, and Scott Lancaster, among many others. I also would like to express my special gratitude to all graduate colleagues in the History Department who have organized and participated in the rally for a raise and better living standards for graduate students over the past few years. Their solidarity and service to the union and other student organizations have been the economic foundation that moved forward the research of precarious graduate scholars like me. I also like to note that this project was made possible by the help from the department's administrative staff who were eager to help me—Sally Hargate, Jordan Wetherell, and Teresa Chiu, among others. Last but not least, I also would like to note my thanks to many invisible workers of the UCSD campus. In particular, I am grateful to the janitor guy in charge of my department building (and other adjacent buildings too), who used to carefully knock on my office door at 1AM, so as not to disrupt my research. Few brief moments of conversation with him made me realize how their invisible labor sustains the hegemony of U.S. universities, and by extension, American Empire in the world.

Throughout my graduate studies, I received financial support from benevolent institutions that recognized the potential of my dissertation proposal. The Fulbright (South) Korea's fellowship was decisive in securing admission to the UCSD's history program and resolved financial difficulties when I settled in one of the costly cities to live in the United States. In 2020, the Association for Asian Studies Northeast Asia Council Korean Studies's grant allowed me to find an accommodation and initiate my archival research in pandemic Seoul. In 2022, funding from D. Kim Foundation for History of Science and Technology in East Asia, Economic History

Association, International Institute of UCSD, UCSD School of Arts and Humanities, and UCSD Transnational Korean Studies Program's fund allowed me to spend several months navigating archives in Washington D.C., New York City, Boston, the Bay Area, and Greater Salt Lake City. Lastly, Seoul National University Kyujanggak Institute of Korean Studies supported the final round of my research at Seoul National Univresity, Korea University, Yonsei University, Kyunghee University, National Library of (South) Korea, National Archives of (South) Korea, Kangwon Ilbo Inc., among others, along with the archival staff of these institutions. UCSD History Department's summer funding in 2023 helped me add some rare resources I found at Kyoto University, along with the assistance of its librarians.

During my archival research, I received numerous helps that I could not list in this small section. At the U.S. National Archives at College Park, I became one of the thousands of lost scholars at the archive who were rescued by experienced archivist Tad Lewis. At Kyujanggak, I was also able to receive assistance from the program director, Sang Hwan Seong, and the coordinators Heekyung Keum and Yeon Dajeong. During my research in South Korea, I was able to see the shortcomings of my dissertation through invited workshops, conferences, and intellectual conversation with scholars, including Joon Young Jung, Go Taewoo, John DiMoia, You Jae Lee, Ji-won Lee, Choongil Han, Qingming Huang, Sungoh Yoon, Lee Hyunjin, Kwak Gyeongsang, Hong Yeonggi, Jaok Kwon-Hein, Chuyoung Won, Lee Bonggyu, Sunmin Kim, Park Chulhyun, Go Euntae, Donghyun Woo, Hyeongjin Oh, and Jongsik Lee. Among them, Jaehwan Hyun particularly shared his take on my research topics as a historian of science and environment. During AAS 2023, Sanghyun Kim introduced me to the new territory of environmental history, and his advice was decisive for me to more fully adopt environmental and ecological perspectives in my dissertation project. I also appreciate my wonderful panelists,

Robert Winstanley-Chesters, Su Lim Kim, and Max Altenhofen at EAEH 2023 conference and Iwashima Fumi and William Sack at HSS 2023 Annual Meeting, where I received grateful comments from Deborah Fitzgerald and Fa-ti Fan. After I returned to the United States, Sung Eun Kim served me as model colleagues who embraced academism and professionalism. I also appreciate Namhee Lee's generous invitation to a conference at UCLA in 2024, where I received so much encouragement and feedback from her, along with other invitees, including Heo Eun, Sixiang Wang, Albert Park, Claudius Kim, Yee Rem Kim, and Lee Jeonghyun, among others.

My research would not have been enriched to this extent without the willingness of the former employees of KTMC and locals in Sangdong, Okbang, Sabuk, and Gurye to help me, by sharing their experience (and teaching me about the industry, mining, and chemical process, etc.) during the interview. I would like to note special thanks for interviewees, including Woo Duseong, Kim Bokgon, Kim Dongsun, Kim Gibok and his wife, Lee Daesaeng, Lee Hyeonggu, Kwon Ohyeon, and other local people who refused to reveal their names during the interview. Among all these interviews, a six-hour interview with Park Jinman was especially enlightening, as he gladly shared his experience of being a miner at KTMC. I also appreciate Hong Dongpyo, Park Gyuhwan, Park Hyeongi, Kim Hyeongwoo, and Kim Jonghun for allowing me to take photographs of invaluable materials that testify to the forgotten history of mountain engineering.

My family in San Diego and South Korea have been the source of the energy that has kept me going through this not-so-easy journey. My parents have been the supporters of the this long and winding path that I chose, full of instability and unpredictability, with never-failing care and trust in me. In addition, the home education of my parents—both of whom graduated from college in the 1980s—and my grandmother, who was one of the 0.1% of contemporary colonial Korean girls who received education at a high school in Dalian, exposed me to more advanced

vocabulary than perhaps anyone else in the countryside and provincial towns where I grew up, which many pedagogists view critical in early education. The education of my grandmother was particularly important in my formative years, because in many middle- and low-class South Korean households where both parents work, a child's early education depends on the intellectual level of the grandparents who parent grandchildren on behalf of their sons and daughters. Indeed, it is no exaggeration to say that 99.99 percent of my intellect and academic strength that I might have demonstrated in this dissertation, came from what Pierre Bourdieu calls cultural capital, which was predestined to be inherited before I came into this world. Plus, the optimism of my grandmother and parents, the prestige of the generations who witnessed a relentless economic growth, was another force that encouraged me to continue my graduate education.

Lastly, my beloved spouse, Jihye (different person from my *seonbae*, Jihye Yang) has been a soul-partner of my journey from Seoul to San Diego. Her mental strength, motivation, and intellect (as suggested in her name *Jihye*—wisdom) were what sustained me, particularly during trying times when my brittle mentality could have broken down—several humiliating moments I had to endure as a graduate worker during the master's program, setbacks during the pandemic, and recent painful experience of what I can't help but call *yeonjwaje* in the job market. I was also extremely fortunate to be able to rely on her expertise as a professional interpreter, as she became my breadwinner during the final stages of my research. I am grateful for all of this, but also feel sorry that I have given her an unstable and mobile life for being a partner of a graduate scholar. I hope that this dissertation can be a small consolation to her for the sacrifice she made.

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PUBLICATIONS

(Forthcoming) "Preservation as a Force of Development: Local, National, and Cold War Dynamics in the Making of South Korea's First National Park," *Korea Journal* 64, no. 3 (2024).

[Korean] "Alcohol Industry during the Wartime Industrialization, 1937-1945: Brewery, Production, and the Structural Vulnerability of the Colonial Economy of Korea," *Yeoksa Munje Yeongu* 35 (2016): 425-66.

[Korean] "In-between Entrepreneur and Patriarch: The Life of Park Kijong and his Railroad Company," *Inmun Gwahak Yeongu* 23 (2016): 95-119.

[Korean] "From Mudflat to Farmland: The History of Reclamation in Port Binjeong," "The History of Modernization in Binjeong Port," and "The History of the Clans and Families of Yodang Town," in *Nongchon Sahoe eui Geundaehwa wa Nongchon Maeul eui Byeonhwa* [The Modern Experience of Korean Rural Towns], eds. Hawaseong Sisa Pyonchan Wiwonhoe (Hwaseong: Hawaseong Sisa Pyonchan Wiwonhoe, 2018).

[Co-Authored] *History of the Independence Movement in Shinji Island* (Seoul: Hanyang University Press, 2014).

FIELD OF STUDY

Major Field: Modern Korean History
Professor Todd Andrew Henry

Minor Field: Modern Japanese History
Professor Wendy Matsumura

Minor Field: Trans-Pacific U.S. History
Professor Simeon Man

ABSTRACT OF THE DISSERTATION

Frontier Above the Clouds:
A Trans-Pacific History of Mountain Engineering in South Korea

by

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Doctor of Philosophy in History

University of California San Diego, 2024

Professor Todd Andrew Henry, Chair

This dissertation explores the mountain engineering projects in South Korea from 1948 to 1972, focusing on how the state and grassroots efforts reshaped South Korean highlands into the national resource interior and natural reserves. The study situates South Korea's mountain management within the broader context of U.S. postwar strategies in East Asia, highlighting the interplay between American imperial interests and South Korean state-building efforts. By examining key projects in tungsten mining, coal extraction, forestry, and national park development, this dissertation illuminates the multifaceted objectives and outcomes of these

endeavors, ranging from energy transition and industrialization to environmental conservation and national development. In doing so, this dissertation argues that the Cold War (and hot wars) and authoritarian (and populist) developmentalism transformed South Korean highlands from an organic commons of mountain communities into the nation's reserve of energy, soil, water, and labor.

This dissertation contextualizes South Korea's mountain engineering within the global history of American efforts to engineer nature as part of anti-communist state-building and containment of subversive uplands. In this context, this dissertation illuminates post-World War II U.S. decolonization (and neocolonial) mission and containment policy, but also prewar U.S mining colonialism and environmental engineering of its western frontier as a background. In so doing, this dissertation highlights how American and South Korean engineers, economic planners, and highland society viewed the resource-rich mountains as pivotal space for South Korea's economic recovery and anti-communist state-building, emulating how the U.S. engineered its highlands as its resource interior. To illuminate this, each chapter of this dissertation envisions various development, preservation, and labor mobilization projects, and how they facilitated South Korea's anti-communist state-building. By suggesting how such projects contributed to the industrialization of South Korea and high carbon emissions today, this dissertation points to the Cold War and anti-communist origins of carbon-consuming energy regime of South Korea today.

This dissertation illuminates three actors as the main agents of the mountain engineering projects: American engineers, South Korean state agencies, and local communities. Each group brought distinct priorities and visions, leading to complex negotiations and collaborations over

the ways in which how highland's resources and nature should be exploited and preserved. Each chapter of this dissertation, in this context, analyzed how local grassroots initiatives, national development plans, and international geopolitical strategies converged in the building of South Korea's highland frontier. By illuminating three actors of South Korean and the United States, this dissertation highlights the trans-Pacific nature of the South Korean mountains engineering, positing its mountains as a dynamic site where global, national, and local forces intersected.

Finally, the dissertation addresses the broader implications of South Korea's mountain engineering for understanding post-Korean War development in South Korea, and by extension, non-communist part of Asia-Pacific regions in (post) Cold War period. This dissertation challenges the conventional focus on the lowland-centered development in South Korean historiography, by showing how environmental crises, labor mobilization, and energy development in the highlands shaped the trajectory of the state-building and statecraft in South Korea, and even beyond the Korean Peninsula. By integrating environmental history with political and economic analyses, the study offers a nuanced account of how the highlands were transformed from marginalized hinterlands of South Korea and other Asian highlands into the nation's internal frontier.

Chapter 1

Introduction:

Engineering South Korean Mountains

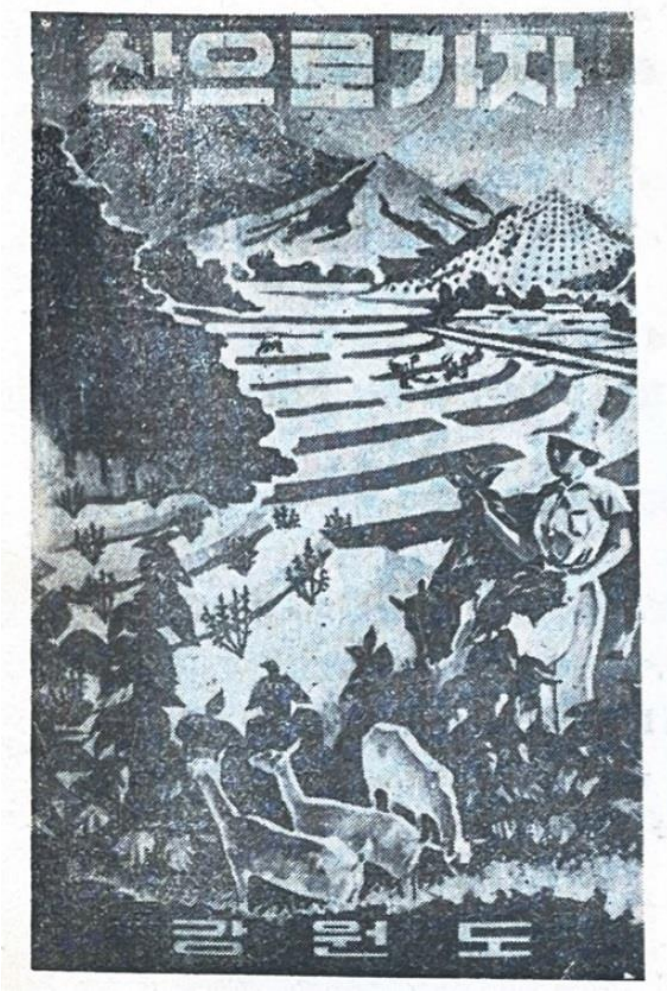

Figure 1.1. San euro Gaja [Let's go to the mountains]. Gangwondo, *Gangwon Saneop: Hyeonhwang gwa Geu Euimi* [Industries in Gangwon Province: Today and its meaning] (Chuncheon: Gangwondo, 1966), 21.

Let's take a look at the iconography of the poster above. At the top, the poster's simple slogan, "Let's go to the mountains," grabs the audience's attention. As readers look down at the landscape in the center, they see a group of farmers working on a terraced farm, a small hamlet, and three large mountain peaks behind them. In contrast to the dense forests that cover the two

mountains on the left, the mountain on the right is dotted with seedlings that appear to have been planted in the recent past, presumably as part of the nationwide reforestation project that had planted hundreds of millions of trees. From the posture of the two hardworking farmers, the reader can imagine that the reforestation and terracing was done by these two farmers and their fellow villagers in the hamlet. On the slope in the lower left corner, readers can take a closer look at the terraced planting site. Given the intensive reforestation education and campaign in South Korea in the 1960s, many contemporary readers would have recognized that these young seedlings were one of three species that the South Korean and U.S. governments encouraged to be planted: Robinia (*Robina pseudoacacia*), *Pinus rigida*, and Manchurian Alder (*Alnus hirsuta*).

Closest to the reader in terms of perspective are three deer and a woman standing next to a cow at the bottom. The gaze of the three deer—one grazing in the meadow and two gazing at the world that belongs to humans—strongly suggests that they were not domesticated. These wild deer would have reminded contemporary readers of endangered musk deer recently found on the meadow of Mt. Jiri, or of "nature conservation (*jayeon bojon*)," a buzzword popularized by reports of other endangered species in the mountains. The bushes through which the deer looks at the world of men symbolize an artificial boundary set up to protect nature from civilization, such as a nature reserve or national park. A few steps away, a woman looks curiously at a branch she is holding in her hand. The cow behind her suggests that this woman is an agricultural researcher or perhaps a rancher. Her costume, on the other hand, is somewhat similar to how geologists have been stereotypically portrayed in the popular media. In any case, this figure, whose appearance suggests an educated status and a progressive lifestyle, is a person who embraces the slogan of this poster, "Let's go to the mountains."

In his famous painting, *American Progress*, American painter John Gast chose a white female figure to symbolize "manifest destiny." Gast's female figure effectively projected onto the American West an imagined geography of the "frontier" that resided in the minds of many white Americans: the land of opportunity. Holding a power line and a book in each hand, this female figure encourages educated Americans who possessed knowledge and technology to go out into the "Wild West" and tame it. Similar to Gast's painting, the poster above chose a female figure to encourage South Korea's educated class to "go to the mountains" and help a divided nation open its new frontier with their knowledge, technology, and labor. For the young but marginalized class, such as educated women, South Korea's mountainous interior was the place to realize their vision of modernity with the support of the South Korean nation-state and the American Empire, which were engineering the environment of the former's highlands.

Figure 1.2. John Gast, *American Progress*, 1872. Oil on Canvas.

"Let's go to the mountains" reflects various forms of human intervention and environmental engineering efforts in the South Korean highlands, which I collectively call "mountain management" or "mountain engineering" under development regimes of South Korea (1948-79). Historically, the rugged terrain of South Korea's mountains was a natural barrier that protected them from outside forces, making them a "shatter zone," the term coined by James Scott to refer to the "anarchist" aspect of Southeast Asian highland history.[1] Even until the end of colonial rule in 1945, the state's knowledge of and authority over South Korea's vast highlands, which covers 70 percent of the peninsula, was very limited. However, in the midst of Hot Wars in East Asia and anti-communist state-building, the American empire and the South Korean developmentalist regime launched several engineering projects aimed at turning the remote mountains into a resource frontier of this postcolonial nation-state.[2] For industrialization and an energy transition, the rich anthracite and rare metal reserves of Taebaek Highland were transformed into hundreds of mines and company towns. To preserve the fertile topsoil and prevent droughts and floods downstream, hundreds of thousands of workers dammed headwater streams, terraced slopes, and planted nearly a billion trees, creating an artificial ecosystem to improve lowland agriculture. The mountains also became what I call "food colony" to save South Koreans from overpopulation and starvation, as farmers and settlers reclaimed the wilderness as terraced farms, orchards, dairies, and collective farms. American and South Korean agencies also built a transportation infrastructure that dramatically increased connectivity between lowland industrial and urban centers and highland mines, hamlets, and forests, enabling

[1] James Scott defines "shatter zone" as a periphery that was composed as much of refugees as of peoples who had never been state subjects." He also describes that "shatter zone" is characterized by "creation of [*sic*] regions of bewildering ethnic and linguistic complexity." James Scott, *The Art of Not Being Governed: An Anarchist History of Upland Southeast Asia* (New Haven, Conn.; London: Yale University Press, 2011), 7.

[2] For instance, challenging "the dominant image of the cold war as a single, encompassing geopolitical order," Kwon states that "the global cold war consists of a multitude of … locally specific historical realities and variant human experiences." Heon-ik Kwon, *The Other Cold War* (New York: Columbia University Press, 2010), 6.

a massive stream of energy flowing from highland mines and dams to lowland cities. These environmental transformations of mountains areas were accompanied by demographic changes, including the emergence of the working class in highland towns. Since the Korean War (1950-53), state and empire have mobilized hundreds of thousands of workers in the mountains, including conscripts and civilian detainees. In the peculiar geology and geography of South Korea's mountains—one rich in minerals, but poor in farmland—mine workers, deprived of food and shelter, evolved into a nascent working class around company towns—one of the first of their kinds in Korean history.

This dissertation reveals an untold history of South Korea when the management of mountains was the centerpiece of transnational statecraft, one part of U.S. trans-Pacific and anti-communist state-building across East Asia. In this study, I frame that mountain engineering converted highlands of South Korea into the nation-state's resource interior for energy transition, agricultural colony, and nature reserve. After the Korean War, U.S. Army engineers were the first group to recognize the value of the untapped resources of the South Korean highlands (i.e., tungsten and coal) in preparation for possible Hot Wars in East Asia. During the post-Korean War reconstruction under Syngman Rhee regime (1948-60), American economic planners and engineers saw the potential of the South Korean highlands as a resource heartland of a war-torn nation that could provide South Korea with energy sources, particularly anthracite coal, which eventually drove the energy transition to fossil fuels in households and industry. Even as extensive energy extraction was taking place, a massive reforestation campaign was underway on the other side of the highlands to prevent the loss of fertile topsoil. In the 1960s, when the U.S. government reduced its financial and technological aid, the Park Chung Hee regime (1961-79) smoothly took over the mountain engineering programs. With know-how transferred by

American engineers, technocrats aimed to build a national frontier for food and energy self-sufficiency in the mountains, engaging with the aspirations of local societies to develop mountains as mining complexes, plantations, and even a national park. In this way, the South Korean highlands were positioned as the nation's treasure trove of resources and energy, but also as a source of water and rich soil to be preserved for the nation's prosperity.

While the opening of the resource frontier was one factor, my dissertation argues that the post-Korean War energy and environmental crisis caused by colonialism, the Cold War between the United States and USSR, and Hot Wars in East Asia was another driver of the mountain engineering and frontier movement. After national division in 1948, South Koreans suddenly found that the energy supply chain that had previously connected them to coal mines in Manchuria and the Japanese archipelago were broken; as a result, firewood became the only available source of energy. While the overcutting of firewood devastated South Korea's mountains, the Korean War dealt another severe blow to the ecology of the mountains. As Lisa Brady points out, artillery fire and aerial bombardment devastated forests and their ecosystems that had already been cut down by the military and civilians in search of firewood and building materials.[3] The deforested mountains posed a significant threat to the subsistence agriculture of the lowlands, as mountains could no longer control floods and droughts. Faced with environmental and energy crises unprecedented in Korean history, American engineers and economic planners urgently called for an energy transition using energy sources in mountains to prevent an environmental collapse of South Korea—one of many important American outposts in East Asia. In this sense, all engineering and conservation projects—coal mining, building

[3] On the deforestation during and after the Korean War, see Lisa Brady, "Sowing War, Reaping Peace: United Nations Resource Development Programs in the Republic of Korea, 1950–1953," *The Journal of Asian Studies* 77, No. 2 (2018): 351-363.

transportation infrastructure, channeling hydro and thermal energy to the lowlands, the anti-swidden campaign, and reforestation with fast-growing trees—were linked by a single goal: to save South Korea and maintain U.S. hegemony in East Asia.

In Korean-language historiography, the highlands—which account for more than 70 percent of the country's total area—have received only limited attention because of its assumed peripherality of the nation. This "appendage perspective" is even true in historiography of the post-1945 period, even though the resources and labor of the highlands contributed greatly to South Korea's economic growth and its transition to carbon-intensive heavy industry. Currently, there is also no specific research on the Korean highlands in North American academia. In South Korean academia, there have been several works sporadically published by provincial governments in the highlands as county histories (*gunji*) and province histories (*doji*).[4] Recently, there is also a growing number of studies on mining, dam construction, and forestry in the post-1945 period, mainly written by historians of science and technology or labor and environmental historians.[5] Despite these pioneering works, they rarely consider the highlands as a space distinct

[4] For most recent publications of these works, see Samcheok Sisa Pyeonchan Wiwonhoe, *Samcheok Sisa* (Samcheok Taebaek Siji Pyeonchan Wiwonhoe, *Taebaek Siji* (Taebaek: Taebaek Si, 1998); Gangwondo sa Pyeonchan Wiwonhoe, *Gangwon Dosa* (Chuncheon: Gangwon Dosa Pyeonchan Wiwonhoe, 2010); Gwandong Daehakgyo Yeongdong Munhwa Yeonguso, *Jeongseon Gunji* (Jeongseon: Jeongseongun, 2003).

[5] The most vibrant scholarship on highlands came out from labor historiography of South Korea that explored an origin of combatant unionism in South Korea from labor activism in Taebaek Highland. The notable works include but not limited to: Jeon Myeonghyeok, eds. *Tangwangchon eui Sam gwa Aehwan: Sabuk Gohan Yeoksa Yeongu* (Seoul: Seonin, 2001); Lee Changeon, "Illeobeorin Jinsil: 1980nyeon Sabuk Nodongja Tujaeng," *Gieok gwa Jeonmang* 2 (2003): 188-206; Nahm Choon-Ho, 1960 nyeondae – 70 nyeondae Tangwangsaneop eui Ijung Gujo wa Nodongja Sangtae, *Jiyeong Sahoe Yeongu* 13, no. 3 (2005): 1-33; Im Chaeseong, Gunpagyeondan eui Daehan Seoktan Gongsa Jiwon gwa Seoktan Saneop eui Buheung (1954. 12~57.8), *Dongbang Hakji* 139 (2007): 241-286; Tak Gyeongmyeong, *80 nyeon 4 wol eui Sabuk* (Chuncheon: Gangwonilbosa, 2007); Kim A-ram, "1960-70nyeon dae Seoktan Saneop Jeongchaek gwa Dongwon Tanjwa (Coal Industry and Dongwon Mining Co. in the 1960-70)," *Yeoksa Munje Yeongu* 23, no. 2 (2019): 11-49; Kim Serim, "Sabuk Sageon Ihu eui Sabuk: 'Bokji' raneun Oepi reul Sseun Ilsang jeok Gamsi, [Sabuk in Post-uprising Period: Daily Surveillance masqueraded by 'Welfare']" *Yeoksa Munje Yeongu* 23, no. 2 (2019): 177-222; Jang Mi-hyeon, "Sabuk Sageon eui Yeoseong deul: Sarajin Eoksen Yeoja deulgwa Malhaneun Yeoseongdeul [Women in Sabuk Incident: Disappeared Women and Speaking Women]," *Yeoksa Munje Yeongu* 23, no. 2 (2019): 51-94; Jang Yonggyeong, 1980nyeon 4wol eui Sabuk, Gwangbudeul eui Pokryeok gwa Pokryeok abeui Gwangbudeul, *Yeoksa Munje Yeongu* 23, no. 2 (2019): 95-131; Moon Min-ki, "Tangwang Sago reul Tonghae Salpyeobon Sabuk Sageon eui Baegyeong [Accident cases as a background of the Sabuk Uprising]," *Yeoksa Munje Yeongu* 23, no. 2 (2019): 51-94; Yeoksa Munje Yeonguso, *(1980 nyeon Sabuk)*

from the lowlands, which provided a unique geographical condition where these mega-engineering projects could take place. As a result, mountains in Korean historiography have remained a subject of the subgenre that Korean historians call "provincial history" (*jibangsa*).[6] The paucity of highland studies in Korean historiography and the lack of attention to highland spaces suggest that Korean historiography has been written within the nationalist geographical epistemology that views the peninsula as a homogeneous space that belongs to an imagined uniform of national ethnicity.

I claim that nationalist historiography's premise of a hierarchical relationship between the lowland political center and the provincial periphery poses three problems. First, as regards nationalist historiography, it downplays the agency of non-lowland and provinces outside of the capital (Seoul) areas.[7] If history is the study of the past events, societies, and culture, it has been

Hangjaeng gwa Ilsang eui Sahoesa (Seoul: Seonin, 2021). In the meantime, there are some notable works on Mt. Jiri, another highland that this dissertation illuminates: Choi Hwasu, *Jirisan 365il: Jirisan Saram, Jirisan Maeul, Jirisan Sangil, Jirisan Yeoksa* (Seoul: Dana, 1990); Kwon Gyeongan and Jeong Changseon, *Keunsan area Saramdeul* (Gwangju: Hyangjisa, 2000). Also, there is a growing interest in the swidden clearance policy under Park regime and lives of evicted farmers. For more, see Min Jeong Shin, "Yeongu Nonmun: Hanguk Jeongbu eui Hwajeon Jeongni Saeop Jeongae Gwajeong gwa Hwajeonmin eui Siltae," *Gyeongjesa Hakhoe* 50 (2011): 69-103; Shin Dongil, "Boho eseo Baeje ro: Bakjeongheui Jeongbu Shigi Gyeonggyein euroseoeui Hwajeonmin Pyosang gwa Hwajeon Jeongni Saeop," *Daegu Sahakhoe* 152 (2023): 101-36; Choe Byeong Taek and Heo Dong Suk, "1960nyeondae Hwajeonmin Iju Jeongchaek eui Naeyong," *Cheongnam Sahakhoe* 38 (2023): 53-92. For dam construction, see Seohyun Park, "Damming the Nation: How Engineers Transformed Rivers into Water Tanks for Modern South Korea," PhD diss., Virginia Tech, 2022.

[6] As historian Ha Na Lee points out, it should be also noted that the origins of "provincial historiography" is found from a group of historians who stood up against the colossal narrative of nationalist historiography in South Korea in the late 1990s. However, as Lee notes, there have been some criticism to the use of the term, "provincial history" as it implicates the otherized presences of locals made in asymmetric relations of state-province and center-periphery. Ha Na Lee, "1990 nyeondae ihu Hanguk Sahak gye eui Bangbeopron jeok Mosaek: Jaengjeom, Jwapyo, Ganeungseong e daehan Bipyeongjeok Geompto" *Sidae wa Cheolhak* 22, no. 2 (2011): 291-347.

[7] For instance, Akhil Gupta and James Ferguson's seminal essay, "Beyond 'Culture,'" raises a similar criticism that the "assumed isomorphism of space, place, and culture" could not properly "account for cultural differences *within* a locality." Akhil Gupta and James Ferguson, "Beyond 'Culture': Space, Identity, and the Politics of Difference," *Cultural Anthropology* 7, no. 1 (1992): 6-23. Arjun Appadurai's book raised similar criticism on the homogeneity of the space of nation-states, writing "The nation-state conducts throughout its territories the bizarrely contradictory project of creating a flat, contiguous, and homogeneous space of nationness and simultaneously a set of places and spaces (prisons, barracks, airports, radio stations, secretariats, parks, marching grounds, processional routes) calculated to create the internal distinctions and divisions necessary for state ceremony, surveillance, discipline, and mobilization." Arjun Appadurai, *Modernity at Large: Cultural Dimensions of Globalization* (Minneapolis, MN: University of Minnesota Press, 1996), 189.

inevitable that the lowland, the political center of the nation, has received the most attention from historians. However, in contrast to growing scholarship on highlands in Asia, the noticeable paucity of Korean historiography reflects an obsession with lowland population centers more than other area studies, and by extension, an ignorance about the imagined homogeneity that many Korean nationalist historians have taken for granted.[8] This epistemological premise is problematic in that it misdirects Korean historiography into a history eclipsed by political events based on urban centers, which blinds historians to the material *structure* under the surface, the underlying socioeconomic and ecological foundations of history, shaped by invisible interactions between the center and the periphery.[9] Moreover, the hierarchical relations between the center and the periphery embedded in nationalist historiography may exacerbate the pervasive defeatism in non-Seoul provinces today, which may date back to the first recorded systematic discrimination on conquered provinces by the Unified Kingdom of Silla (668-935).[10]

Second, nationalist geography obstructs efforts to see the spatial connection between the Korean highlands and other highlands in Asia and the Pacific, which, I posit, share many geographical, geological, and environmental conditions, perhaps even more so than the lowlands

7. In this regard, Jin-Tae Hwang's critical work on the making of state-nature in the imagined national space of both North and South Korea is noteworthy, as one of the few examples in which the nationalist geography could be deconstructed, if not in the same way as in this dissertation. Jin-Tae Hwang, "A Study of State–Nature Relations in a Developmental State: the Water Resource Policy of the Park Jung-Hee Regime, 1961–79," *Environment and Planning A* 47 (2015): 1926-1943.

[8] For a recent scholarship that envisions Asian highlands as a space that shares common historical experience stemmed from unique geography, see e.g. Jelle, J. P. Wouters, eds. *Routledge Handbook of Highland Asia* (Abingdon, UK; New York, NY: Routledge, 2023).

[9] To the relationship between the event and structure, Fernand Braudel writes: "The event is, or is taken to be, unique; the everyday happening is repeated, and the more often it is repeated the more likely it is to become a generality or rather a structure. It pervades society at all levels, and characterises (*sic*) ways of being and behaving which are perpetuated through endless ages." Fernand Braudel, *Civilization and Capitalism, 15th-18th Century, Volume I: The Structure of Everyday Life: The Limits of the Possible* (Berkeley, CA: University of California Press, 1992), 29.

[10] The defeatism of the non-Seoul provinces was so pervasive in South Korea and even in Japan that there is a popularized neology "*jibang somyeol* (J: *chiiki shōmetsu*), which literally means the "death of the provinces," to refer to the depopulation of local society resulting from non-Seoul defeatism.

within the same homogeneous ethnic sphere. In nationalist geography, the ethnicity of the people is the most important marker for distinguishing one space from another. Within this ethnic space, however, there are heterogeneous subcultures derived from unique geographical features—plains, forests, swamps, lakes, coasts, islands, isthmuses, bays, tidal flats, and mountains—which are typically lumped into one space/culture in nationalist geography, thus depriving them of their cultural distinctiveness. In this epistemology, it is extremely difficult to connect the common historical trajectories of Asian highlands—"shatter zones" in premodern times and resource frontiers in modern times—that transcend the ethnic boundaries of nation-states. By undercutting nationalist geography, my dissertation aims to situate South Korea's mountain engineering within the broader historiography of Asian highlands and, by extension, to illuminate the transnationality of global mountain engineering projects.

Finally, the underrepresentation of mountains in nationalist geography culminates in less focus on the consequences of South Korea's energy regime change and subsequent environmental problems caused by carbon emissions from highland coal, a topic that has received little attention in modern historiography. In most of previous scholarship, historians studying South Korea's state-building and industrialization have been preoccupied with the following two questions: when did South Korea "take off" and who/what was the main driver of it?[11] My dissertation argues that these questions generally limit the definition of industrialization

[11] In North American academia, heretofore works on South Korea's state-building and industrialization have built on an empirical scholarship exploring the origins of the strong state and state-led industrialization from Park Chung Hee regime's strong grip on the foreign aid, thereby controlling domestic banks and big businesses. For more, see Jung-en Woo, *Race to the Swift: State and Finance in Korean Industrialization* (New York: Columbia University Press, 1991); Kim Hyung-A, *Korea's Development under Park Chung Hee: Rapid Industrialization, 1961-79* (London: Routledge Curzon, 2004); Eun Mee Kim, *Big Business, Strong State: Collusion and Conflict in South Korean Development, 1960-1990* (Albany, NY: SUNY Press, 1997). In the meantime, Gregg Brazinsky's work sheds light on the American aid in education, military, and economy in the making of developmental regime under Park Chung Hee. Gregg Brazinsky, *Nation Building in South Korea: Koreans, Americans and the Making of a Democracy* (Chapel Hill, NC: University of North Carolina Press, 2007).

to quantitative economic growth as measured by GDP, missing a critical analysis of the varied and uneven consequences of industrialization, particularly the emergence of a carbon-intensive economy in South Korea's case. Even if South Korea achieved a Rostovian "take-off" in the mid-twentieth century, I argue that there is no historical inevitability that a "take-off" should involve heavy reliance on high-carbon-emitting and high-water-consuming industries, such as cement, steel, petrochemicals, and semiconductor manufacturing, as South Korea does today. In fact, prerequisites for these industries are coal mining and oil-importing economy and construction of multiple mega-dams to supply cheap energy and water. Simply put, energy and resource development in the highlands was the precondition and driver that steered the trajectory of South Korea's industrial development toward the world's ninth-largest carbon emitting economy. In light of this observation, the spatial framework of my dissertation divides South Korea's space into the energy- and resource-rich highlands and the consumption centers of the lowlands. In doing so, I emphasize that South Korea's industrial structure has evolved into one based on cheap energy and cheap labor provided by the exploitation of highland resources.[12] Consequently, I hope that the spatial framework of my dissertation can provoke a new discussion on the origins of carbon-intensive heavy industries in South Korea and their environmental consequences.

I conceptualize mountain engineering projects as a *movement* motivated by distinct initiatives and visions formulated by three actors in their unique historical contexts: first, the U.S. initiative to control what Megan Black calls "global interior" in the highlands around the Pacific Rim; second, aspirations of elite South Koreans to integrate remote mountains into the

[12] A recent article on the *Financial Times* also analyzed that South Korea's growing model was based on cheap energy and labor, both of which had been undermined as represented in low fertility rate and "outdated energy sector." Christian Davies, "Is South Korea's economic miracle over?" *Financial Times,* April 24, 2024.

rest of the nation-state as a resource frontier; third, a bottom-up, grassroots yearning for better living standards by regaining rights over highland commons. First, the experience of American engineers and economists in their own mountainous interior played a crucial role in the genesis of South Korea's mountain management. I argue that U.S. assistance to South Korea after the Korean War produced momentum in which the American view of wilderness—the space in which humans should intervene, exploit, and develop (or conserve)—permeated the statecraft of postcolonial South Korea. Specifically, my study traces the origins of mountain management to American approaches in the western frontier and the Tennessee Valley in the early twentieth century. As Megan Black notes, in the early nineteenth century, the American concept of the frontier—an untamed space separated from civilized space—led to the creation of the Department of the Interior (DOI), the overarching body of federal agencies responsible for managing the frontier.[13] Since their establishment, these government agencies managed water and soil, tree planting and wildlife ecosystem, bridges and mines, and preservation of natural reserves. The management and engineering of the environment eventually converted the Rocky and Appalachian Mountains into a resourceful interior of minerals, energy, water, and soil for the expanding American empire. When South Korea became a sovereign state under U.S. tutelage in 1948, the American government sent this group of experts to South Korea to implement a similar plan, out of concern that a local environmental crisis could topple the nascent regime of Syngman Rhee and undermine the U.S. containment policy. In this context, the present dissertation argues that the inception of South Korean mountain management was an overseas

[13] For the history of DOI and how DOI's engineers made their inroads into foreign mines outside of the United States, see Megan Black, *The Global Interior: Mineral Frontiers and American Power* (Cambridge, MA, Harvard University Press, 2018).

extension of the U.S. frontier, and a battleground to prevent South Korea's fragile regime from collapsing.

During the 1950s, the American blueprint for mountain management was widely accepted by South Korea's elite bureaucrats, engineers, and intellectuals, as it offered a space in which South Korea's nationalist aspiration for their own frontier around underdeveloped highlands could be implemented. South Korea's compliance with the American blueprint, I argue, stemmed from South Korea's need for America's advanced technology and experience in highland engineering, which gave the United States, in Gramscian terms, "predominance by consent" in South Korea.[14] Indeed, at the end of the Asia-Pacific War (1937-45), the United States was the only country with an unparalleled technological edge in highland engineering, acquired from its frontier management, the Tennessee Valley Authority (TVA), and field engineering during the war.[15] When U.S. military and economic planners arrived in South Korea in 1945, their cutting-edge technology and knowledge gave the Americans what Antonio Gramsci calls "intellectual leadership" over South Koreans, who had been deprived of such knowledge under colonial rule.[16] The American initiative to transform the mountains also provided South Koreans, both elites and non-elites, with a sphere of activity in which each could

[14] I refer to Joseph Femia's interpretation of "predominance by consent" represented in Gramsci's scattered accounts. Joseph Femia, "Hegemony and Consciousness in the Thought of Antonio Gramsci," *Political Studies* 23, no. 1 (1975): 31.

[15] In contrast to my focus on how American hegemony was insidiously consented by South Koreans, Christopher Snedden's work theorizes hegemony as, in part, what could be obtained by the politics of display that symbolizes modernization that the other nation aspired to emulate. According to him, hegemony is first established by the domestic elite-class of a nation-state and expands toward the other nation-states. Snedden argues that American dam building technology accumulated during the U.S. Western frontier development and TVA were means "to advance America's hegemonic aims…by the expression of American geopolitical power…as an agent of development and modernization." Christopher Sneddon, *Concrete Revolution: Large Dams, Cold War Geopolitics, and the US Bureau of Reclamation* (Chicago, IL: University of Chicago Press, 2015), 13.

[16] According to Femia, Gramsci conceptualizes that "intellectual and moral leadership" performed by "the institutions of civil society, the ensemble of educational, religious and associational institutions" is one of the two pillars that constitutes the "supremacy of a social group," along with the "domination…realized through the coercive organs of the state." Femia, "Hegemony and Consciousness," 30.

project their aspirations, whether nationalist or for local development.[17] This was in stark contrast to the Japanese colonialism in Korea, which left the Korean highlands (particularly southern highlands) underdeveloped due to the lack of technology and an archaic energy regime. With this colonial experience and contrasting postcolonial demonstration of American techno-leadership, South Koreans inevitably acknowledged American hegemony by recognizing the power of U.S. planning and engineering techniques. Therefore, the engineering of mountains was one of the ways in which American imperialism could show its superiority over South Koreans and make them accept the U.S. tutelage more smoothly than the more oppressive and vulgar rule of Japanese imperialism.[18]

For South Korean technocrats, acquiring skills in mountain engineering—for example, surveying, planning, and construction—was essential to extracting highlands resources and by extension, achieving energy self-sufficiency and improved living standards. For the two authoritarian regimes of Syngman Rhee and Park Chung Hee (1961-79), achieving these two goals justified accusations of their political legitimacy by securing populist support. In addition, by building infrastructure over the mountains, the South Korean state could acquire power to fully control and manage the rugged terrain of the highlands, which it sought to integrate as part of *gukto*—a buzzword during the Park Chung Hee regime that connotes a concept similar to the

[17] My idea of inclusive hegemony of the United States overlaps with historian Heo Eun's conceptualization of South Korea as what he calls "frontier state," where the U.S. government aimed to embrace the nationalist aspiration of South Koreans as part of their hegemony building over South Korea. Heo Eun, *Miguk eui Hegemoni wa Hanguk Minjok Jueui: Naengjeon Sidae (1945-1965) Munhwajeok Gyenggye eui Guchuk gwa Gyunyeol eui Dongban* (Seoul: Korea University Press, 2008), 16-17.

[18] That being said, Takashi Fujitani challenges the "common sense" of viewing prewar and wartime American society as "liberal, democratic, egalitarian, and a country with few colonial possessions" in contrast to what scholars call "vulgar" imperialism of Japanese Empire, by illuminating insidious racisms prevailing in both empires during the war. I agree with Fujitani's view, but still believe that post-WWII U.S. "decolonization" could acquire more popular supports than Japanese (un)vulgar racism that discriminated those who were able to be assimilated and those who were not. Takashi Fujitani, *Race for Empire: Koreans as Japanese and Japanese as Americans during World War II* (Berkeley: University of California Press, 2011), 6-8.

German word *lebensraum*—the nation's living space.[19] The state's access to the mountains and increased control over the highlands was also beneficial to the U.S. containment policy in East Asia insofar as it promoted anti-communist state building, but was also effective in preventing possible guerrilla activity in the highlands. The opening of the mountainous frontier was therefore vital to the survival of the nation and, by extension, to the U.S. containment policy in East Asia. In this context, American engineers and scientists were imperial agents who served for their empire's mission to maintain its hegemony in East Asia by providing the South Koreans with the skills they needed to tame their erstwhile untamed interior.

The transfer of advanced technology and knowledge to elite-class South Koreans explains only one aspect of how mountain engineering projects were implemented. Most of the projects that I call mountain management were labor-intensive campaigns to build infrastructure in sparsely populated areas. The success of these projects depended on how much South Korean labor the U.S. and South Korean governments could assemble. In this context, the U.S. mobilization of South Korean labor through its proxy—the South Korean state—was a very effective strategy, as American engineers could secure local labor with the least resistance. Since 1947, after the U.S. military government failed to mobilize South Korean villagers for nationwide road construction, American planners outsourced labor mobilization to the South Korean government, which gathered workers through a revived colonial corvée system. After the Korean War, American agencies were also able to utilize South Korean conscripts, the number of whom dramatically increased through three years of brutal civil and international war. By using

[19] In the academia, it is widely acknowledged that the German concept of lebensraum was originated from the German geographer, Friedrich Ratzel, at the intersection of Darwinism and German nationalism in the late nineteenth century. According to Christian Abrahamsson, this concept evolved into one of other parts that constitutes the broader concept of "organic state" by Swedish political scientist Rudolf Kjellen. See C. Abrahamsson, "On the Genealogy of Lebensraum," *Geographica Helvetica* 68 (2013): 37-44.

various forms of labor mobilization—corvée, conscription, internal migration, and even civilian detention—the U.S. and South Korean governments were able to secure several million workers in the twenty years after the outbreak of the Korean War. This proxy labor mobilization was, I argue, one of the symptomatic aspects of "U.S. domination by (elite) South Korean consent."

The corvée of local villagers in highlands, which the U.S. and South Korean government agencies proactively called an example of "grassroots self-help," was the major contributor to the penetration of state power into the mountains. Despite the coercive aspect of the labor mobilization campaign in the highlands, U.S. and South Korean government agencies made efforts to present it as one of voluntary participation. Aiming to establish grassroots organizations in the highlands after the "democratic" labor mobilization in the TVA and the Civilian Conservation Corps (CCC), American planners emphasized the power of the grassroots motivated by nationalism and their commitment to local society.[20] Even some American planners expressed optimism that South Korea's own "democratic" organizations in local societies could outperform the forced labor of Soviet collective farms, thus revealing project's anti-Communist character. Taking a cue from the Americans, Park regime expanded grassroots organizations, even reaching into swidden hamlets in deep valleys that had remained outside of the biopolitical control of the lowland state. These organs were not simply a top-down mobilization apparatus. Under the Rhee and Park regimes, village organizations also served as an outlet through which locals could provide a bottom-up vision of how their small hamlets could use the resources in mountains near their villages. U.S. and South Korean government officials encouraged locals to

[20] Multiple works have grappled with American financial aid and technological supports for grassroot community building in Southeast Asia during the early Cold War. Notable works include but not limited to: Nick Cullather, *The Hungry World: America's Cold War Battle Against Poverty in Asia* (Cambridge, MA: Harvard University Press, 2010); Edward Miller, *Misalliance: Ngo Dinh Diem, the United States, and the Fate of South Vietnam* (Cambridge, MA: Harvard University Press, 2013); Daniel Immerwahr, *Thinking Small: The United States and the Lure of Community Development* (Cambridge, MA: Harvard University Press, 2015).

present bottom-up aspirations and provided financial support to those who excelled. In this way, an amalgam of American "self-help" and grassroots democracy, colonial legacy of corvée, and South Korean nationalism and local market economy evolved into a merit system that effectively motivated mountaineers to participate while hiding the coercive aspect of mobilization. As a result, communal mountains, which South Koreans had traditionally called *duitsan*, or backyard mountains, were positioned as communal frontiers that could help mountain hamlets escape poverty.

In addition to village organizations, wage workers and forced labor were another force that transformed the highland environment. In the early 1950s, U.S. engineers in South Korean tungsten mines were able to employ workers from war refugees, many of whom were hired through subcontractors called *deokdae*, a traditional labor supply agency dating back to the late Joseon period (1392-1910). The premodern practice of subcontracting survived until the late 1970s, when many South Korean coal mine operators hired subcontracted *deokdae* miners.[21] Soon, the cliff banks along streams flowing from mine shafts were populated by short-term contract miners who left their small mountain hamlets and settled with their families in company towns. As Immanuel Wallerstein notes, the emergence of wage labor was an indicator of "historical capitalism," a moment in capitalist history when the state could control rural labor through its poverty.[22] While capitalist employment was expanding, there were also many forced laborers who were confined to construction sites to serve the state's environmental engineering projects. Specifically for energy exploitation and transportation, the U.S. and South Korean

[21] For the historical presence of *deokdae* in Korean history, see Yoo Seungju, *Joseon Sidae Gwangeopsa Yeongu [The Study on the Mining Industry in Joseon Dynasty]* (Seoul, South Korea: Iljogak, 1994).
[22] For the discussions on how capitalist world-economy transfromed a large pool of "reserve of rural, land-based labor" into "urban part lifetime wage workers," see Immanuel Wallerstein, *Historical Capitalism with Capitalist Civilization* (London; New York, Verso: 2003). 91.

governments used female and child labor from mountain villages, mobilized conscripted South Korean men and even tens of thousands of detained civilians under the name of National Construction Service (*gukto geonseoldan*).

Given the unlikely coexistence of cutting-edge U.S. technology, reconstituted colonial organizations for labor mobilization, and forced labor and premodern subcontracting practices, it is not accurate to say that a capitalist order replaced the preexisting mode of production and transformed the mountains. Rather, using Harry Harootunian's phrase, I believe that a more accurate concept would be the coevality of peripheral modernities.[23] I postulate that the legacy of multiple temporalities remained in the highlands because no single state exercised overwhelming power in the highlands to replace the existing social order (i.e., toward land reform, wage contract, or unionism) before the Korean War. Even after this conflict, state power, I argue, modified "peripheral modernities" to facilitate exploitative capitalism, instead of replacing them anew.[24] In the following section, I recount how the relationship between peasants and mountains evolved in premodern and colonial time, and how state power and environmental degradation challenged it and shaped what I conceptualize as peripheral modernities in the highlands of the pre-Korean War era.

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[23] Harry Harootunian theorizes the coevality of peripheral modernities in order to highlight the plurality of modernities in interwar Japanese intellectual consciousness. He states that the coevality comes out from "(at) the intersection between new and residual stemming from a different time… (despite) common reference provided by global capital." Harry Harootunian, *History's Disquiet: Modernity, Cultural Practice, and the Question of Everyday Life* (New York: Columbia University Press, 2000), 62-63.

[24] Similar to my approach, Ken Kawashima borrowed this concept to conceptualize the hybridity in the prewar Japanese labor market in which Korean migrant workers participated in Japanese capitalist construction industry but hired in Tokugawa-style contract. Kawashima explains that premodern modality in labor relations does not necessarily mean that it was pre-capitalism or feudalistic residue. It was, rather, a sign of a fused capitalism implicating the "co-existence of two different modes of production fused in one…(which) "maintained and exploited pre-capitalist social practices within, and as part of, capitalist methods of extracting surplus value." Ken Kawashima, *Proletarian Gamble: Korean Workers in Interwar Japan* (Durham and London: Duke University Press, 2009), 75.

Place of Mountains in Korean History

> Korea is decidedly a mountainous country, and has few plains deserving the name.
>
> —Isabella Bird Bishop, 1897.

> In a country that is as plentifully sprinkled with mountains as a ploughed field is with ridges, these are frequently steep and stony in the extreme, and in the out-of-the-way parts which I visited the track was not unfrequently the precipitous and boulder-strewn bed of a mountain torrent, amid and over the jagged rocks of which none but a Korean pony could pick his way.
>
> —George N. Curzon, 1894.

In the late nineteenth century, Isabella Bird Bishop and George Curzon, two British writers traveled through Korea, Japan, and several Chinese provinces, including the mountainous Yangtze River basin. From their perspective, what distinguished the Korean peninsula from neighboring countries were numerous mountain ridges, a similar number of deep valleys, and inaccessible regions separated by natural barriers. Their observations provide a very revealing point for reading the way in which the mountainous topography led the course of Korean history in a certain direction. According to them, the key topographical aspect that characterizes Korea was the number of mountain ridges, not their height, which made the entire country curvilinear and necessarily divided. Due to the ubiquitous presence of mountains in Korea, almost all traditional villages, including the capital of Hanyang (Seoul), were located in small and large erosion basins. Most administrative units—*li* (hamlet), *myeon* (township), *gun* (county), and *do* (province)—were bounded by mountain ridges. Thus, in premodern Korea, cross-country travel was a harsh journey to pass over countless mountain passes, as opposed to traveling on China's well-maintained flat roads and canals networked across the vast plains between the Yellow River and the Yangtze River. Even a small half-day trip between two hamlets usually required crossing

a hill. The ruggedness of Korea's topography undoubtedly contributed to the weakness of the crown's power over the great houses and their estates scattered throughout the country.[25]

Because of the geological proximity between highlands and hamlets in traditional Korean society, mountains served as communal property in times of peace and as shelters in times of crisis. The mountains of Korea extend from north to south along the eastern coastline, with thousands of branches sprouting from the main mountain range, forming several long, isolated, but sizable highlands within the landmass of the Korean peninsula. Thousands of erosion basins, where the majority of Koreans lived, are formed at the intersections of these ridges. A traditional Korean village, either an agricultural town or a mountain hamlet, was typically surrounded by these mountains. South Koreans called them *duitsan* and wrote them in Chinese characters as *husan* (C: *hou shan*).[26] The fact that the word *husan* was coined in Korea and was rarely used in the same context in China was perhaps the best indication of mountainous Korea. Thousands of *duitsan*s were natural obstacles that prevented Korean dynasties from launching large-scale irrigation or construction projects like those in the alluvial plains of China. Instead, these *duitsan*s functioned as rural community commons where Korean villagers could gather extra food and other necessities. In a *duitsan*, farmers collected litter for fertilizer, wild fruits for food, herbs for medicine, wild animals for protein, fur, and craft materials, trees for building materials, and, most importantly, firewood for cooking and heating. *Duitsan* was also a sacred site, as all Koreans regardless of class—commoners, yangban aristocrats, and even slaves—were buried in nearby mountains. On a special holiday in the traditional calendar, descendants travelled to

[25] For a more articulated argument on the weak crown power and Joseon's "aristocracy," see Martina Deuchler, *Under the Ancestors' Eyes: Kinship, Status, and Locality in Premodern Korea* (Cambridge: Harvard University Press, 2015). Her theory, which identifies Joseon society as an aristocracy, has not been well received in South Korean academia, but scholars generally agree that Joseon's noble families had contained the power of the crown, especially after the sudden death of King Jeongjo in 1800.

[26] In the Annals of the Joseon Dynasty, there are couple of variations in writing *duitsan*, other than *husan*, such as *hugang* and *hurok*.

duitsan where their ancestors were buried and performed rituals to summon their spirits. It was not surprising, then, that Korean geomancy (*pungsu*) fortune-tellers (*jigwan*) had traditionally emphasized the shape of mountains, among other factors, in locating auspicious sites.[27] The weak central government and local aristocrats could not control most of these trespassing activities in rural mountains. In fact, mountains were part of agricultural life; rural communities were part of the ecosystem around highlands, as the mountains fed the people and the people returned to the mountains when they died.

In times of crisis, or when the state imposed heavy taxation or corvée, some peasants fled to remote valleys, biding their time for peace to come. The fact that almost every village had its *duitsan* meant that they could easily hide from state enforcement. Some refugees went further into deeper valleys and made a swidden, or even went so far as to form a bandit group. The history of mountain bandits (*sanjeok*) is likely as long as the history of taxation and corvée in Korea. Perhaps one of the most recent and dramatic cases of *sanjeok* was that of Donghak rebels who fled to Mt. Jiri, the highest peak in the south of mainland Korea, after the failure of their peasant rebellion.[28] In his book, *The Art of Not Being Governed*, James Scott discusses the history of Southeast Asian mountaineers who fled to the Southeast Asian highlands for similar reasons. Referring to the entire highlands as an anarchic space of ethnic hybridity, Scott illuminates how people whom he calls "state evaders" ended up settling in mountains, bringing their own cultures to the highlands, where they eventually mixed. In contrast to Southeast Asia,

[27] For the recent works on the popularization of Fengshui thoughts in the late Joseon Dynasty, see Jae-hoon Shin, "Joseon Hugi Eumtaek Pungsu eui Yuhaeng gwa Jeong Yak Yong eui Pungsu Insik," *Jangseogak* 34 (2015): 230-255.

[28] The insurgency of Donghak around Mt. Jiri had been rediscovered by student activists in the 1980s who were searching for the tradition of anti-imperialist and nationalist movement in Korean history. Bestsellers in the late twentieth century, such as Lee Byeongju's *Jirisan* (1985), Cho Jeongnae's *Taebaek Sanmaek* (1989), and Park Gyeonni's *Toji* (1994), also indirectly mention the Donghak insurgency in Mt. Jiri, helping the popularization of the nationalist narrative of Donghak and Mt. Jiri.

Korean mountains were more deeply connected to lowland civilization, as most of the refugee farmers returned to their homeland for a short time after the crisis, rarely intending to settle in the mountains permanently. Moreover, Korean mountains were not a place of heterogeneous ethnic hybridity, except for a few recorded cases of Jurchen tribes settling in Gaema Highlands in the north.[29] This ethnic isolation was due to the fact that the Korean mountains were geographically separated from the heterogeneous cultures around them. In short, Korean mountains were a space that functioned as a communal reserve of energy and organic materials, and a refuge in times of turmoil where peasants temporarily became "state evaders."

In the expansion of agricultural civilization on the Korean Peninsula, the role of the collection of organic resources and the emergence of an integrated ecosystem between rural villages and mountains has gone unnoticed in historiography.[30] Korean farmers were never passive actors who simply gathered what mountains provided them. They were, instead, active agents who intervened in the nature of mountains and aimed to be part of it, even in ancient times. One study shows that chestnut trees were originally not common on the Korea but spread across the peninsula at a drastic pace after the third century.[31] This study suggests that ancient Korean peasants used mountains as part of their rural economy by planting fruit trees. Similarly, John Lee's work on how local communities planted pine trees, particularly *Pinus densiflora*, in place of native oaks, which were logged during the failed Mongolian invasion of Japan and

[29] For notable studies on the Jurchen tribes in North Korean highlands (*jaegaseung*), see Lee Donggue, "Hamgyeongdo eui Sosu Jipdan, Jaegaseung Yeongu: Jaegaseung e Daehan Girok gwa Jeongchaek eul Joongshimeuro," *Taedong Gojeon Yeongu* 47 (2021): 97-132.

[30] Three edited volumes published in South Korea is noteworthy as only academic books that highlighted mountains as a distinctive space in (South) Korea: Choi Jeongho eds. *San gwa Hangukin eui Sam* (Seoul: Nanam, 1993); Kim Jongseong eds., *San gwa Uri Munhwa* (Seoul: Sumun Chulpansa, 2002); Hanguk Munhwa Yeoksa Jiri Hakhoe, *Hangukin ege San eun Mueot Inga* (Seoul: Minsokwon, 2016). However, the organic relations between peasants and mountains, or an integrated ecosystem between them had been rarely mentioned in these books.

[31] For more details, see Won-Kyu Park and Kwang-Hee Lee, "Urinara Geonchukmule Sayong deon Mokjae Sujong eui Byeoncheon," *Geonchuk Yeoksa Yeongu* 16, no. 1 (2007), 9-28.

Toyotomi Hideyoshi's invasion of Korea, or Imjin War.[32] These interventions suggest that the boundary between agricultural society and mountainous areas, or civilization and wilderness, was fluid in premodern Korea. The relationship between peasants and mountains were somewhat similar to the complementary relation that native Americans and early settlers in America had with nature, as observed in William Cronon and Richard White's books, respectively.[33]

The reciprocal relationship between human beings and mountains gradually broke down as more and more highlands were reclaimed in the late Joseon period. The breakdown began with the Imjin War, which devastated southern Korea's rural society for seven years. As massacres and famine continued in the countryside, many peasants sought refuge in the mountains, and some decided to settle there permanently. For example, Jeong Chiyeong's work chronicles the history of one mountain hamlet in Mt. Jiri, founded by a war-refugee patriarch who brought their entire families under the shade of the mountains during the Imjin War.[34] In the centuries following this war, Koreans began to reclaim steeper ridges and banks along the steep valleys to recover from the war damage. Historian Kim Dongjin suggests that there were many unrecorded cases of land reclamation that turned forests and hills into farms and swiddens in this period.[35] Not to mention that more human activities in the mountains disrupted the balance between natural regeneration and human collection of organic materials.

The post-Imjin War period also saw the burgeoning of the commercial economy and the spread of metallurgical knowledge, which led to a mining boom and more migration to the

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[32] John S. Lee, "Protect the Pines, Punish the People: Forests and the State in Pre-Industrial Korea, 918-1897," PhD diss., Harvard University, 2017, 61-62; 142. For the estimated portion of each tree species in the forest in last two millennia, see Park and Lee, "Ibid," 12.

[33] William Cronon, *Changes in the Land: Indians, Colonists, and the Ecology of New England* (New York: Hill and Wang, 1983); Richard White, *The Organic Machine: The Remaking of the Columbia River* (New York: Hill and Wang, 1995).

[34] Jeong Chiyeong, "Sanji Gaegan gwa Sanchon: Jirisan Jiyeok Jungsangan Sanchon eui Sarye Yeongu," MA Thesis, Korea University, 1990, 9.

[35] Kim Dongjin, *Joseon eui Saengtae Hwangyeongsa* (Seoul: Pureun Yeoksa, 2017), 123-39.

mountains. In geological terms, Korea's landmass is located on the extensive Au-Cu porphyry belt rich in copper and other non-ferrous metals (NFM). This belt was the outcome of an orogenic movement that had shaken the Earth's crest hundreds of millions of years ago, creating the Pacific Ocean and the steep mountains that surround it. These mountains were rich in skarn and porphyry, and subsequent tectonic movement led to the mineralization of tin, tungsten, gold, molybdenum, and copper.[36] Although Korea was not part of the ring of fire where seismic activity is extremely active, its landmass, particularly mountains, was part of the orogenic movement and contained rich NFM, including gold, silver, and copper. Mountaineers were one of the first people in Korea who found value in glittering minerals underneath their land. Instead of cultivating unrewarding mountain millets, some mountaineers joined in gold and silver *deokdae* mining units or pottery business that exploited Korea's rich kaolin and firewood, all of which gave a more pressure to the natural regeneration of forests.[37]

This period of increased human activity in the mountains coincided with population growth and the peak of the Little Ice Age, which forced Korean households to cut down more trees to generate more heat.[38] By the end of the nineteenth century, as a result of excessive logging, many mountain forests near villages were so deforested that Japanese travelers called them *hageyama*, or bald mountains.[39] Under colonial rule (1910-45), the Korean pronunciation of *hageyama*, *doksan*, became a loanword that spread throughout the peninsula. The diffusion of

[36] On the mineralization process of non-ferrous metals including tungsten under the tin belts around the Pacific Rim, see Rolf L. Romer and Uwe Kroner, "Phanerozoic Tin and Tungsten Mineralization—Tectonic Controls on the Distribution of Enriched Protoliths and Heat Sources for Crustal Melting," *Gondwana Research* 31 (2016): 60-95.
[37] For more on the mining industry in late Joseon period, see Ryu Seungju, *Joseon Sidae Gwangeop sa Yeongu* (Seoul: Korea University Press, 1993), 175-397.
[38] On the spread of floor heating system (*ondol)* during the Little Ice Age, see Kim So-ra, "Bul gwa Mul: Joseon Hugi Isang Jeoon Hyeonsang sok Hanseongbu eui Ondol Hwaksan gwa Cheonggyecheon Junseol," *Joseon Sidaesa Hakbo* 102 (2022): 105-147.
[39] See also Woo Youn Lee, *Hanguk ui sallim soyu jedo wa jeongchaek ui yeoksa* [The history of forest possession and policy, 1600-1987], *1600–1987* (Seoul: Iljogak, 2010) on the deforestation of Joseon forests before its colonization.

doksan was perhaps the most telling symptom of the endangered sustainability of Korean agriculture and the premodern energy regime. Deforestation even permanently damaged the genetics of some tree species. In the mid-twentieth century, some American silviculturists concluded that the crookedness of Korea's native *Pinus densiflora* was caused by overlogging, which led to the removal of almost all straight, fine pines but recessive crooked ones.[40]

After the annexation of Korea in 1910, the colonial government approached mountains in two ways. First, the colonial government viewed the highlands as a space with the potential to improve lowland agriculture. In the words of one American observer, the Japanese government saw Korea as the "rice bowl" of its empire. If an extensive irrigation system could be installed across the colony, Korea could export more rice to the metropole. Soon after the takeover, the Government-General of Korea (GGK, *chōsen sōtokufu*), the Japanese colonial government in Korea, initiated the construction of hundreds of reservoirs throughout the country, many of which were to dam steep mountain streams.[41] In addition, colonial bureaucrats assessed that Korea's forests could be restored through systematic reforestation and close monitoring. As David Fedman chronicles, the colonial government sponsored several forest surveying missions, one of which was led by the renowned botanist Nakai Takenoshin, and restored significant areas of deforested land. At the same time, GGK reestablished ownership of forests and cracked down on trespassers. Although some of the reforested areas were deforested again due to the soaring demand for timber during the Asia-Pacific War, Fedman contends that colonial forestry maintained a sustainable and profitable commercial forestry until its demise in 1945.[42]

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[40] Frank H. Kaufert, "Report and Recommendations on the Department of Forestry, College of Agriculture, Seoul National University," November 1956. Box 65, Folder 01, University of Minnesota Libraries, University Archives. (umedia.lib.umn.edu/item/p16022coll375:6084).
[41] One empirical case of a reservoir construction in the highlands was mountainous county of Cheolwon. Kim Yeonggyu, "Ilje Gangjeomgi Cheolwon gun Suri Johap Yeongu," *Gangwon Munhwasa Yeongu* 16 (2016): 127-175.
[42] For more on the colonial forestry, see David Fedman, *Seed of Control: Japan's Empire of Forestry in Colonial Korea* (Seattle: University of Washington Press, 2020).

On the other hand, the uncharted mountains of Korea and the people who hid in them represented an unknown danger and rebelliousness to colonial authorities. In fact, the last group of Koreans to resist Japanese aggression were guerrillas based in the mountains of southern Korea, including Mt. Jiri. Even after the military pacification of these Korean guerrillas in 1909, Japanese authorities continued to struggle with fighters in the mountains of southern Manchuria in the following decades. In addition, the mountains were a popular destination for dispossessed tenant-farmers who hoped to practice swiddening wherein landlords could not find and tax them. The skyrocketing number of swidden farmers, estimated at nearly 700,000 in 1927, threatened the sustainability of Japan's "rice bowl" and forced the colonial government to act.[43] Beginning in the late 1920s, some notable anti-swidden campaigns took place in the northern provinces of Korea, including a scandalous incident in which Japanese police burned down half of an entire village in the mountainous Gapsan County in Hamnam Province. However, even by 1945, colonial authorities were never able to eradicate swidden cultivation. Its persistence is an indicator of the colonial state's failure to take full control of the mountains and their unruly inhabitants.

Because of the persistent threat posed by mountain dwellers, the colonial state sought to vacate the mountains as much as possible and make them accessible only by permit.[44] In the long run, this policy was meant to dismantle traditional relationships between the mountains and peasants. However, GGK did not have one prerequisite for this goal: coal. Without an alternative source of energy, colonial authorities could not completely prevent Korean peasants from trespassing on mountains to collect firewood. In fact, after several geological surveys, officials became aware of the rich anthracite reserves in the Taebaek Highlands, the rugged highlands of

[43] Lee Yeosong and Kim Seyong, *Suja Joseon Yeongu* (Keijo: Sekwangsa, 1931): 51-52.
[44] For more on the Japanese anti-trespassing measures, see Chapter 4 of this dissertation.

Gangwon Province.[45] However, under an imperial energy supply chain, Korean anthracite was too expensive to exploit compared to mines in Manchuria, Hokkaidō and Kyūshū. Worse, the Taebaek Highlands and the colony as a whole lacked sufficient transportation infrastructure to bring coal to rural communities. After all, Korea was a rice bowl, not a coal scuttle. Coal mines in southern Korea remained largely untapped, and most of the peninsula's highlands were left underdeveloped until 1945. Instead, during the war, as Fedman notes, the colonial government imposed a draconian campaign to reduce firewood cutting, such as the "low-temperature lifestyle," in a desperate attempt to maintain the unstable balance between nature's regeneration and the growing demand for energy.[46]

When Korea was suddenly liberated in August 1945, the collapse of the Japanese Empire and the advent of the Cold War changed the relationship between man and mountain once again. The first impact was a huge influx of an estimated 2 million repatriates from Manchuria, Japan and even more distant battlefields.[47] Most of them returned to their hometowns in southern Korea, now under U.S. military rule, and many were in immediate need of building materials because some of their homes had been sold or compromised. Meanwhile, the end of the Japanese empire meant the collapse of its forestry system, which had long monitored and restricted traditional gathering activities in the mountains. The combination of these two factors allowed Korean loggers to capitalize on forest resources hitherto maintained by colonial authorities. The result was one of the most rapid deforestations in Korean history.[48] Some shocked intellectuals

[45] One of anthracite coalfields, Samcheok, opened the first mine in this region in 1936. Tae Woo Ko, "1930nyeondae Junghuban Gangwondo Gaebalgyehoek gwa Samcheok Jiyeok eui Sikminji Gongeophwa," *Yeoksa Munhwa Yeongu* 85 (2023): 60.
[46] For more on the "low-temperature lifestyle," see David Fedman, "Wartime Forestry and the "Low Temperature Lifestyle" in Late Colonial Korea, 1937–1945," *Journal of Asian Studies* 77, no. 2 (2018): 333-50.
[47] Bruce Cummings, *Origins of the Korean War, Vol 1: Liberation and the Emergence of Separate Regimes*, (Princeton, NJ: Princeton University Press, 1981), 60.
[48] See Chapter 5 of this dissertation for more details on the deforestation before the Korean War.

expressed their remorse and anger in newspapers, but there was little the ill-equipped U.S. military government could do.[49] Under these grim circumstances, it is reasonable to speculate that virtually no Korean intellectuals would have romanticized or supported the revival of the organic relationship between peasants and mountains. The crisis of deforestation in the post-1945 period paradoxically made intellectuals yearn for stronger state power to control human intervention in mountainous areas and advocate a central planning and management agency.

Meanwhile, heightened ideological tensions in Korea brought domestic violence to the highlands even before the Korean War, as the mountains once again became a refuge for unruly subjects displaced by the red purges of the U.S. military government and South Korea's own anti-communist regime. One of the first groups of people to go to the mountains were leftist miners. When the Japanese empire fell, the empire's supply chain collapsed with it, and most of mines in South Korea ceased their operations. Miners, one of the most unionized professions in Korea, soon went on strike, but in most cases, they were brutally crushed. Some miners who were lucky enough to avoid arrest fled to nearby mountains, hoping to find fugitive members of the South Korean Workers' Party (*namrodang*) who were also being purged by the U.S. military government. These people soon formed several leftist guerrilla units around towns in the Taebaek Highlands and sabotaged their mining operations. Thanks to its proximity to the northern border, the North Korean regime was able to send supplies and even trained fighters in an attempt to create "liberated zones" around rich coalfields and swidden villages in Taebaek Highland.[50] In the southern provinces, Mt. Jiri became another battleground for a guerrilla

[49] For instance, the renowned forest scientist and professor at the National Agricultural College (later to be College of Agriculture of Seoul National University), Hyun Sin Kyu, contributed an op-ed to Kyunghyang Shinmun in which he presented dismay of deforested mountains in only 2 years after the liberation and concerns about its ramifications. Hyun Sin Kyu, "Siksu ro Bon Segye eui Aeguksim," *Kyunghyang Shinmun*, April 5, 1947.
[50] Im Homin, "Gangwon Jiyeok Gongbi Tobeol Yeongu: 1948~ 6.25 Jeonjaeng Ggaji," *Gunsa Yeongu* 145 (2018), 45-71.

warfare that saw the greatest bloodshed on the mainland before the Korean War, the Yeosun Rebellion.[51] Guerrilla warfare in the highlands continued throughout the Korean War and was finally brought to an end in 1955. Coupled with post-liberation deforestation, 10 years of hot war brought the ecological relationship between the mountains and rural communities to an unrecoverable level.

Another outcome of the Korean War was about half a million North Korean refugees who fled to the mountains of South Korea in hopes of creating slash-and-burn farms. Many of these refugees settled in the narrow valleys of the Taebaek Highlands, where they believed that neither regime could find their villages. These people were emblematic examples of how South Korean mountain dwellers maintained premodern modes of production and lifestyles under the draconian nature of colonialism and even in the crossfire of a bloody civil war. During surveying missions after the War, American and South Korean engineers may have sensed what Harootunian described as a coexistence of colonial modernity and premodern lifestyles remaining in their impoverished villages, which they often described as "primitive" in their survey reports. Nevertheless, the end of the mountain war was a silver lining for state surveyors because it meant that there was no force left to resist the modern state's entry into the mountains.

Neo-Malthusian Self-Awareness as a Mountain Nation

> I called on the governor of Kyung-sang…his first question was, "Do the mountains sit as close together in your honorable country?"
>
> —James S. Gale, 1898

[51] Song-ja Yim, "Yeosun Sageon ihu Seonmu Gongjak eul Jungsim euro bon Jirisan Jigu eui Ppalchisan Jinap," *Hanguk Geunhyeondaesa Yeongu* 81 (2017), 183-213.

The Canadian missionary who traveled to Korea in the late nineteenth century, James Gale, recorded an interesting dialogue he had with a Korean governor. Like this inquisitive governor, many Koreans were aware that the thick mountain ridges over the horizon were the most prominent feature of their country's topography. As the cosmology of Koreans expanded beyond the Korean peninsula in the twentieth century, residents gradually realized that their mountainous topography was not a universal feature; compared to the nation-states of the Western hemisphere, their country had too many mountains and too narrow plains for an agricultural society with an overabundant population. American engineers who visited South Korea after the Asia-Pacific War had a similar impression. An American survey report in 1948 described South Korea as "a mountainous country...slightly larger than the state of Maine; yet its population...is approximately one-seventh that of the United States...(while) less than 25 per cent (*sic*) of the area of the country is suitable for farming."[52] To them, South Korea's topography was a textbook example of a "Third World" country that was likely to experience a neo-Malthusian food crisis, the dreaded consequence of postwar overpopulation that Western economists used to warn about.[53] After the Korean War, South Korea's environmental vulnerability looked even worse to outsiders because of wartime deforestation and subsequent agricultural degradation. American concerns about a potential neo-Malthusian crisis for mountainous South Korea was widely disseminated in South Korean society through the mass media, and in the 1960s some public schools began to include "Korea is a mountain nation (*sanji gukga*)" in their curricula.

[52] Day & Zimmermann, Inc., *Condition, Rehabilitation, and Further Development of Certain Elements in the Industry of the Republic of Korea* (Philadelphia, PA: Day & Zimmermann Inc., 1949), 6.
[53] On the rise of Neo-Malthusianism in the United States in the first half of the twentieth century, see Cullather, *The Hungry World*, 34-42.

The phrase "mountain nation" was not simply a statement conveying the plain fact that 70 percent of South Korea is comprised of mountains. Rather, I define "mountain nation" as a popularized discourse that emerged from an environmental determinist self-awareness that mountainous topography was responsible for South Korea's bleak post-Korean War reality, somewhat in a similar tone to the pervasive narrative that Namhee Lee calls "failed history."[54] On the flip side of this discourse, mountains were imagined as a promised land to "correct" the nation's historical trajectory through "proper" management. This discourse mandated that mountains should not be left as a wasteland; instead, they should be transformed into a useful interior that could solve impending environmental disasters and a food crisis; more broadly, mountains should be a resource frontier that could accelerate the nation's energy transition and industrialization. The "mountain nation" discourse also emphasized the role of the state as the qualified custodian for the management and planned engineering of mountains, in contrast to the libertarian and laissez-faire frontier opening in the early American "Wild West."[55] The ongoing crisis of deforestation, desertification, and frequent droughts and floods led the public to support or at least acquiesce to the state's self-mandate over mountains, even though it often involved unlawful actions such as evicting mountaineers and detaining civilians. Despite its emphasis on top-down, authoritarian management, the "mountain nation" discourse also encouraged grassroots participation in opening up the highland frontier as "self-help" agents of national development.

[54] Namhee Lee, *Making of Minjung: Democracy and The Politics of Representation in South Korea* (Ithaca and London: Cornell University Press, 2007), 3-4.
[55] By the same token, the strong presence of state as a regulator as well as planner in South Korean case presents a similarity to wilderness reclamation in Nordic countries in the nineteenth century and Hokkaidō under Meiji government.

Temporally, the popularization of the "mountain nation" discourse overlapped with the Park regime's initiation of the Comprehensive Regional Development Plan for Taebeak Highlands (*taebaeksan jigu jonghap gaebal gyehoek*, 1961). This project later evolved into a part of the First Comprehensive National Land Development Plan (*gukto jonghap gaebal gyehoek*, 1972), a series of nationwide, multi-year spatial plans designed to promote a specialized industry in need of economic growth. Juyoung Lee's work on this plan reveals an "academic genealogy" in which American and Japanese regional studies helped the South Korean government implement the land development plan since the early 1960s.[56] Meanwhile, I would like to shift the academic focus from the origins of the plan to the emergence of the *gukto* concept and the spread of a nationalist cosmology and epistemology embedded in it. The cosmological premise of the regime's land development planners was that all nations in the world have their own living space, or *gukto*, the native land inherited from ancestors and passed on to future generations. Epistemologically, this cosmology gave the nation-state a mandate that every object in the *gukto*—both human and non-human—was the property of the nation-state, whose use was to be determined by the nation-state. Under this epistemology, every region lost its locality, including the premodern organic relations between communities and the mountains, which had been used as the commons of rural hamlets. In this sense, the Park regime's land development plan was a scheme to deconstruct the plural relations between people and mountains and to expropriate mountains as the property of the nation-state to be transformed into resources for the nation's future. Given the unique historical context of Korean mountains, the creation of *gukto*, to tweak the expression of Hartoonian, was to replace coeval, peripheral modernities with a single modernity dictated by the state.

[56] Juyoung Lee, "Hanguk eui Gukto Gyehoek gwa Jiyeok Gwahak Iron: Je 1cha Gukto Jonghap Gaebal Gyehoek Surip eui Silhaeng, 1963-1972," MA Thesis, Seoul National University, 2015.

Under this nationalist cosmology and epistemology of *gukto*, the place of mountains was positioned as the nation's resource reserve for energy, water, and fertile soil. The most important of these resources was energy, especially coal. As Chapter 3 shows, coal was a strategic resource to protect the regime from deforestation and agricultural collapse. Under the Park regime, even as the energy transition to fossil fuels was underway with American support, the regime put more effort into bringing coal to urban centers at cheaper prices by designating the Taebaek Highlands as the center of South Korea's mining and energy industry in its first five-year *gukto* development plan (1961). Mining and transporting cheap coal were also important in securing populist support for Park's authoritarian regime. Moreover, under the regime's autarky drive in the late 1970s, coupled with the global energy crisis, the strategic importance of highland coal mines grew, and the state subsidized domestic coal. The function of the mountains as a resource heartland continued until the late 1980s, when coal use in post-authoritarian South Korea declined dramatically and was subsequently replaced by natural gas.

The "mountain nation" discourse was not just state propaganda for exploitative capitalism. I argue that the ultimate goal of South Korea's developmental state was to build an artificial ecology designed and managed by the state, including the exploitation and preservation of nature. Indeed, the mountains were the site of South Korea's first preservation movement as well as the site of the largest reforestation in Korean history. The intensive preservation efforts by the state and local society in the mountains implies that the traditional dichotomy of development/preservation hardly works in analyzing the understudied history of South Korean highland engineering. As such, I conceive of mountains as a state management zone, where the developmental state intervened and assumed the mandate to exploit or develop. As Chapter 4 shows, reforestation in South Korea was initiated as a means to combat deforestation and thereby

save the Rhee regime and the U.S. containment policy. In this sense, both reforestation and coal mining, which was promoted as "green energy" to replace firewood, were two opposing programs but bifurcated from the same teleology of the developmental state to save the nation's forest. Similarly, there was no contradiction between state initiatives to ban logging in communal forests and mobilizing refugees to cut down wild trees to reclaim them as collective farms, as long as both were in line with the "mountain nation" discourse.

The Trans-Pacific Extension of U.S. Frontier

> The mountains are made of many small stones. But they become high and broad. Plants and trees grow on them, the birds and beasts live on them, and rare gems are stored within them.
> —*Zhongyong* [The Doctrine of the Mean]

From a global perspective, the creation of a resource interior in mountains was not an uncommon phenomenon in the formation of modern nation-states. In the Western Hemisphere, many nation-states similarly rushed to their highlands and reclaimed them as remote interiors for agriculture, forestry, and mining a few centuries before South Korea. There were two reasons that modern nation-states commonly began mountain engineering at the same time. First, with the advent of technology and advanced bureaucracy, nation-states could rediscover the economic value of mountains by overcoming the remoteness and ruggedness of the highlands. For example, modern engineers could help nation-state governments turn the wilderness into commercial forests and to cultivate alpine crops and connect them to railroads and highways. The next reason is related to the nature of mountains. In geological terms, a mountain is a subterranean layer that has been uplifted by an orogenic movement. Orogenic movements accelerates mineralization, making it more likely than flat terrain to expose a mineral-rich

outcrop to the surface. Since the Industrial Revolution, these minerals, the value of which was previously less known, had suddenly become essential resources. One of them was tungsten, the rare NFM that engineers from Germany, France, Britain, Japan, and the United States rushed to hoard, exploring remote mountains around the world. As Chapter 2 shows, the motivation for extracting more minerals in mountains, such as tungsten, was one of the main driving forces behind the "colonization" of the highlands by the Euro-American empires. In this context, the rush to the mountains was an inevitable consequence of the rise of industrialized nation-states and modern forms of imperialism.

Among other previous campaigns, American frontier engineering was the most influential in shaping mountain management. This study finds the prototype of South Korean mountain engineering in the U.S. DOI's systematic intervention in its frontier since the mid-nineteenth century. The scope of DOI bureaus was so broad, from mining (Bureau of Mines, United States Geological Survey), water resources (Bureau of Reclamation), grazing (Bureau of Land Management), forests and preservation (National Park Service), wildlife (U.S. Fish and Wildlife Service), and indigenous people (Bureau of Indian Affairs), that almost all matters on the western frontier belonged to DOI engineers. In other words, DOI was the *de facto* steward of the American West, carrying out the internal colonization of the U.S. frontier as part of a global interior-building movement. Under DOI's rule, the importance of the American engineers who worked for this government agency and private companies affiliated with it grew exponentially. As Chapter 2 shows, some of these engineers functioned as *de facto* wardens of remote company towns in the American West. As Black writes, the presence of engineers camouflaged the

violence of U.S. frontierism as political neutrality and good, and helped the U.S. government disguise its expansion as benevolence.[57]

By the end of the Asia-Pacific War, American engineers had become agents of what some diplomatic historians have called a decolonization strategy. Since John Lewis Gaddis's book shed light on the role of decolonization policy as part of the U.S. containment strategy, historians have generally conceptualized it as an economic and cultural tool designed to win the hearts and minds of people in former colonies by promoting self-determination and anti-communist state-building, thereby limiting the influence of Leninism.[58] As Nick Cullather and David Ekbladh jointly note, American engineers played integral roles in U.S. government-sponsored anti-communist state-building by promoting agriculture and industry. Extracting untapped resources, opening mining roads, and establishing an energy regime for mining, smelting, and processing facilities were all part of mountain engineering and U.S. decolonization strategy. Meanwhile, as Chapter 2 illustrates, the commodities extracted from the Asian and Pacific highlands were exported to the advanced economies of the "Free World," including the United States, thereby serving the U.S. neocolonial quest for war materials.

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[57] Black, *Global Interior*, 11.

[58] Notable works to mention are: John Lewis Gaddis *Strategies of Containment: A Critical Appraisal of American National Security Policy during the Cold War* (New York: Oxford University Press, 1982); Elizabeth Cobbs, "Decolonization, the Cold War, and the Foreign Policy of the Peace Corps," *Diplomatic History* 20, no. 1 (1996): 79-105; Michael E. Latham *Modernization as Ideology: American Social Science and "Nation Building" in the Kennedy Era*. (Chapel Hill: University of North Carolina Press, 2000); Odd Arne Westad, *The Global Cold War: Third World Interventions and the Making of Our Times* (London, UK: Cambridge University Press, 2005); John Kent, *America, the UN and Decolonisation: Cold War Conflict in the Congo*, (London: Routledge, 2010); Cullather, *The Hungry World*; David Ekbladh, *The Great American Mission: Modernization and the Construction of an American World Order* (Princeton: Princeton University Press, 2010); Simeon Man, *Soldiering through Empire: Race and the Making of the Decolonizing Pacific* (Berkeley, CA: University of California Press, 2018).

If so, was the United States a neocolonizing force that exploited resources in South Korean highlands or a force of decolonization that rehabilitated resources left underdeveloped by the Japanese Empire?[59] To some extent at least, the U.S. extraction of underground resources reduced South Korea's reliance on the Japanese economy and even on U.S. aid by improving the South Korean government's balance sheet. Also, as recent studies have demonstrated, U.S. assistance during the Korean War and postwar reconstruction helped South Korea rapidly restore the agricultural productivity and forest cover.[60] However, as Chapter 2 illuminates, it is also clear that American engineers pressured the South Korean government to yield mining and management rights, mobilized and disciplined local workers, and prevented South Korean authorities from exercising their legal rights over mines. Consequently, this dissertation argues that U.S. assistance in South Korea's hinterland was another example of at least "unsolicited" cooperation that had already taken place in American enclaves in Mexico and the Andes before the Asia-Pacific War, purportedly in the name of decolonization.

U.S. neocolonial involvement in the mountains of the postcolonial states of the Asia-Pacific was also evident in counterinsurgency campaigns that mostly took place in the highlands. As Wen-Qing Ngoei's book shows, the United States intervened in counterinsurgency campaigns from the first of its kind, which took place in the Malay Peninsula. Since the Malayan

[59] Since 1945, the United States had claimed itself as a decolonizing and nation-building force in South Korea, and this view has been supported by some scholarship that highlights the role of the U.S. military and economic aid in the making, if not the entirety of, South Korea's "economic miracle." Gregg Brazinsky's view of the crucial role of the United States in South Korea's "nation building" epitomizes this perspective. See Gregg Brazinsky, *Nation Building in South Korea*; On the other hand, a number of works present the opposing view that the U.S.-led decolonization was "incomplete," or even "disrupted" by the American presence for multiple reasons, such as the division of Korea or U.S. militarization of South Korea. For more discussion, see Bruce Cumings, *Origins of the Korean War, Vol 1*; Matthew R. Augustine, "The Limits of Decolonization: American Occupiers and the "Korean Problem" in Japan, 1945-1948," *International Journal of Korean History* 22, No. 1 (2017): 43-75; Dong-Choon Kim, "How Anti-Communism Disrupted Decolonization: South Korea's State-Building Under US Patronage," in *The Palgrave Handbook of Anti-Communist Persecutions*, eds. C. Gerlach and C. Six (London, UK: Palgrave Macmillan, 2020), 185-202.

[60] E.g. see Brady, "Sowing War, Reaping Peace."

Emergency (1948-1960), communist guerrilla activities have spread across the mountainous regions of Southeast Asia, including Luzon, Mindanao, Myanmar, Cambodia, Laos, Thailand, and, most importantly, Vietnam. As several writers on insurgency in Southeast Asia, including Ngoei and Edward Miller, point out, one of the ways the U.S. government and anti-Communist regimes responded to guerrilla activity was to build strategic hamlets and connect highways in mountains. South Korea, I claim, was also part of this trans-Pacific network against highland insurgencies. Apart from the aforementioned guerrilla warfare in the mountains through 1955, Chapter 3 shows how the U.S. Army, concerned about future counterinsurgency campaigns, supported the construction of "coal highways," transportation routes established between small mine shafts in the Taebaek Highlands. In the broader Asia-Pacific context, South Korea's construction of mountain highways was part of what Colleen Woods calls the "empire's archipelago" that the U.S. military had been building since the beginning of the Pacific War.[61]

Taking all of the above contexts into account, my dissertation conceives of South Korea's mountain as one of the first sites where the U.S. decolonization mission and containment policy were simultaneously implemented and intersected. In this way, my study situates South Korea's mountain engineering and management within the global history of decolonization and containment. In doing so, my dissertation engages with recent scholarship in trans-Pacific studies that challenges narratives of U.S. exceptionalism by emphasizing the construction of a militarized U.S. empire in Asia and the Pacific after World War II, contributing to new understandings of this part of history in a more geographic and spatial lens.[62]

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[61] For instance, Colleen Woods, "Building Empire's Archipelago: The Imperial Politics of Filipino Labor in the Pacific," *Labor* 13, no. 3-4 (2016): 131-52.

[62] Notable works that challenge the U.S. exceptionalism by critically approaching the U.S. presence in the Pacific include but not limited to: Lon Kurashige, Madeline Hsu, and Yujin Yaguchi, "Special Issue: Conversations on Transpacific History," *Pacific Historical Review* 83, no. 2 (2014): 183-88; Janet Hoskins and Viet Thanh Nguyen, eds., *Transpacific Studies: Framing an Emerging Field* (Honolulu, HI: University of Hawai'i Press, 2014); Lisa Yoneyama, *Cold War Ruins: Transpacific Critique of American Justice and Japanese War Crimes* (Durham and

Chapter Outlines

This dissertation consists of four chapters, each of which is organized around four key projects of mountain engineering—tungsten mining, road construction and coal mining, forestry, and national park—all of which show the peculiar trajectory of upland history in South Korea. Each chapter is arranged in chronological order, but a significant portion of each chapter temporally overlaps due to the intertwined nature of each program. Taking this issue into consideration, I organized chapters to show a "chain reaction" in which one program laid the foundation for another program to be initiated, and how it steered the trajectory of upland history in a direction that was different from that of the lowlands.

Spatially, my dissertation focuses primarily on the vast Taebaek Highland plateau along the east coast of South Korea, but also touches on the mountainous communities around Mt. Jiri. especially in Chapter 5. In the first two chapters, I present the role of tungsten mines and coalfields in the Taebaek Highland in terms of the energy transition that transformed this region into the home of several mining towns and industrial centers. After introducing reforestation that took place throughout South Korea's mountains, I turn to Mt. Jiri in Chapter 5 to show how earlier successes in Taebaek Highland provided inspiration for mountain development in the local society of Mt. Jiri.

I designed each chapter to demonstrate the vision of the mountains held by the three agencies that my dissertation identified as the main actors: American consultants—economists, engineers, scientists, urban planners who served for the U.S. empire, the South Korean developmental regime, and local society. In doing so, I aim to show that mountain management

London: Duke University Press, 2015); Brian Russell Roberts and Michelle A. Stephens, eds., *Archipelagic American Studies* (Durham and London: Duke University Press, 2017).

was not a fully orchestrated, top-down plan, but rather a multi-party management in which different interests of the nation-state, the U.S. empire, and grassroots converged and contested over the use of mountains. I argue that each actor had different priorities and interests and projected them onto the mountains—as a resource frontier for the Cold War, as a mining heartland for industrialization, as an energy reserve for gaining popular support, as destroyed forest land for restoration, or as local property for improving living standards of residents. By bringing in media, publications, survey reports, and oral interviews that reflect the labor practices on the mining, construction, and reforestation sites, each chapter reveals the spaces wherein each participant could present their aspirations or confront the visions of others. In this sense, each chapter shows that the trajectory of mountain management was more like the way in which several ripples interfere with each other, leaving an unpredictable trace on the surface of the water, rather than an uninterrupted single trajectory.

Chapter 2, "Extended Frontier," examines the opening of South Korea's resource frontier initiated by American engineers' rehabilitation of Sangdong Mine, the largest tungsten mine in the non-Communist world, during the Korean War. Temporally, I situate the Sangdong Tungsten Mine within the trans-Pacific trajectory of American engineers' search for NFMs. In this context, the chapter argues that American mining engineers aimed to build a vertically integrated mining facility from mining to chemical processing, with abundant energy supplied by nearby anthracite mines in the Taebaek Highlands, modelled after NFM mines in American West. In doing so, this chapter argues that Sangdong Mine rehabilitation project, which included road construction and the opening of nearby coal mines, laid the foundation for future highland engineering and energy transition. Also, tracing the interaction between American and South Korean engineers, this

chapter bridges the colonial opening in the American Western frontier and the creation of neocolonial South Korean resource interior.

Chapter 3, "All Roads Lead to Coal Mines," sheds light on how South Korea's first energy transition to fossil fuels was made possible by the South Korean state, U.S. military engineers, and South Korean workers in the 1950s and early 1960s. In the context of U.S. state-building in East Asia, this chapter begins by recounting the context in which American engineers and economists proposed an energy transition to fossil fuels as a way to boost South Korea's economic growth and address the deforestation crisis. This chapter describes how initial efforts to rehabilitate coal mines and roads around the Sangdong Mine expanded to railroad and highway building projects that covered entire Taebaek Highlands. By highlighting the labor of corvées, conscripts, and detained civilians in rail and road construction sites, this chapter argues that South Korea's energy transition was a project made possible by the service and sacrifice of cheap labor who built what contemporaries called the "coal highway."

Chapter 4, "A Good Tree is a Fast-Growing Tree," brings attention to the "conservation" side of mountain engineering. In this chapter, I revisit the mid-1950s as the period when South Korean forestry transitioned to full-scale conservation, banning any type of tree-cutting, for the first time in Korean history. In the midst of the deforestation crisis, this chapter shows how U.S. and South Korean forest scientists and foresters selected three species—*Pinus rigida* (*ligida sonamu*), *Alnus sibirica* (*san ori namu*), and *Robina pseudoacacia* (*akasia namu*)—based on their soil retention, growth rate, and fuel efficiency. Next, I highlight how the U.S. funded the South Korean government to purchase seedlings of these three species from 2,000 or more collective nurseries of Village Forestry Associations (VFA: *sallimgye*) and distribute them to villages under deforestation pressure. Finally, I emphasize that trees purchased by the

government were planted by hundreds of thousands of (forced) village volunteers around the deforested mountains.

Chapter 5, “Preservation as a Force of Development,” reveals the pre-history of Mt. Jiri National Park, the first national park of South Korea. In this chapter, I investigate how local elites, the developmental regime, and American park planners jointly designed South Korea’s first national park around Mt. Jiri in 1967 as a recreational park. Contrary to the conventional narrative that presents Mt. Jiri National Park as South Korea’s first natural reserve, this chapter uncovers the developmental origins of the park espoused by locals, the developmental regime, and even preservationist park planners of IUCN. In so doing, this chapter asks what it meant to preserve nature in the 1960s-South Korea in the context of the developmental populism of Park Chung Hee regime and Cold War preservationism.

Chapter 2

A Frontier Extended:

U.S. Tungsten Mining and Opening of the Highland Resource Frontier, 1945-1954

> We [the United States] can get more materials from abroad, on terms beneficial to ourselves and other free nations.
>
> —*Parley Report*, 1952

In this chapter, I foreground the U.S. tungsten mining at Sangdong Mine during the Korean War as the inception of a "resource frontier" in South Korea's Taebaek Highlands. Since World War I, tungsten had been an irreplaceable resource in the defense industry, as material engineers applied tungsten carbide to projectiles and armor and improved war lethality and defense power of armor.[63] After the outbreak of the Korean War in 1950, the U.S. government began a war material stockpiling program including tungsten, believing that a full-scale invasion by the Soviet Union was imminent. Sangdong Mine, the mine possessed the largest known reserves of this mineral in the world for a single mine, became the centerpiece of the U.S. mineral stockpiling program, which transformed entire Taebaek Highlands into war-torn South Korea's economic lifeblood. According to a source in the South Korean Ministry of Commerce, the U.S. government purchased all of South Korea's tungsten production in 1953, which accounted for 73.3 percent of South Korea's gross exports.[64]

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[63] Sam Kean, *The Disappearing Spoon: And Other True Tales of Madness, Love, and the History of the World from the Periodic Table of the Elements* (New York: Little, Brown & Co, 2010): 81-97.

[64] Ministry of Commerce and Industry, Republic of Korea. "Tungsten Mining Industry in Korea," Folder "Tungsten, Korea Jan.-1954," FRC Box 37, Entry 417, Record Group (hereafter, RG) 291, National Archives at College Park, MD. USA. (Hereafter, USNA.)

Figure 2.1. Major tungsten mines on the Korean Peninsula. Sangdong Mine was the largest tungsten mine in the non-communist world.

What made tungsten mining stand out among other American interventions in the history of the South Korean highlands was the integrated mining complex that American engineers built on the rugged Taebaek Highlands. The construction of integrated mining complex in Sangdong—a beneficiation mill, smelter, chemical processing plant, power plant, and a new array of roads—stemmed from tungsten's complicated mining and metallurgical process. For tungsten to be used, engineers had to crush tungsten ore, separate the tungsten concentrate (using flotation), and finally chemically process it into powdered 99.99 percent pure tungsten carbide. But that large tungsten mines were mostly located in Pacific Rim highlands far away from

refineries and chemical processing plants in industrial centers caused massive logistical problems. To overcome geological obstacles in accessing these metals in the highlands in their western frontier and the Pacific Rim, American engineers had developed a highly sophisticated network of integrated mining facilities to increase the recovery rate of ore and profitability. This required the building of infrastructure—power networks, waterlines, roads, and railways—in the virtually uninhabited highlands of the American West, the Andes, and Asia-Pacific coastal highlands. It was one of the reasons that the DOI sent its geologists and mining engineers to Sangdong, in order to supervise the construction of a beneficiation mill, chemical processing plant, powerplant and roads. These megaprojects of construction brought about a sea-change in Taebaek Highlands that GGK had never projected onto its rugged terrain.

As Megan Black demonstrated, since the 1930s, DOI gradually expanded the scope of strategic mineral explorations to overseas "mineral frontiers" in search of alternative resource reserves to replace European mines.[65] Using examples of mining exploration programs in Latin American minefields in the 1930s and postwar foreign mining interventions, Black suggests that the United States attempted to distinguish itself from European colonialism by claiming its own efforts involved "cooperation" and promising "resources for all mankind."[66] As this chapter argues, the construction of integrated mining complex in Sangdong Mine and building of American mining enclave fits within the history of the United States' expansion of its "mineral frontiers" toward the Pacific Rim during the middle of the twentieth century. This history of mining also marks a historical significance in the history of South Korean highlands, as a

[65] Black, *The Global Interior*, 85-96.
[66] This idea, which Black calls "resource globalism," was well exemplified in a remark offered by DOI Secretary Julius Albert Krug in 1949 that minerals "do not really belong to any one corporation or to any one Nation; they belong to all mankind." Black, *Global Interior*, 129.

successful model for future mining development in the coalfield of Taebaek Highlands, which had been left untapped under Japanese colonial rule.

By situating the South Korean highlands as one of America's last uncharted mineral frontiers of the Pacific Rim, this chapter argues that U.S. mining of South Korean tungsten was part of the American westward quest for NFMs which began in the late nineteenth century. In this context, I highlight the introduction and spread of integrated mining complexes—mining facilities designed to mill and process ores *on site*—devised by American mining engineers to extract NFMs in remote highlands of the Pacific Rim.[67] A closer look at how U.S. engineers mined, transported, and processed tungsten ore in South Korea in the context of the growing U.S. intervention in rare mineral mining in the Pacific Rim suggests that Sangdong mining project was part of a larger highland mining project across the Pacific. Indeed, American introduction of integrated mining facilities in Sangdong Mine was first of its kinds in other highlands around the Pacific Rim that included the Philippines, Indonesia, and Papua New Guinea, all of which saw the construction of similar integrated mining facilities during the Cold War.[68]

The neocolonial mining practice in Sangdong, which extracted a sovereign state's resource using indigenous labor for America's war preparation, was paradoxically carried out by American engineers who were sent to rehabilitate the mining industry in South Korea, as part of U.S. mission for "decolonization." This paradox offers a new window into the self-contradictory

[67] For instance, several U.S. tungsten miners could dominate the market through multiple mergers and infrastructure projects before and during World War II. On the prewar and wartime history of the tungsten mining industry in the United States, see Ronald H. Limbaugh, *Tungsten: In Peace and War, 1918-1946* (Reno and Las Vegas, NV, 2010).
[68] On mining in Cold War Philippines, particularly copper, see Alvin Camba, "From Colonialism to Neoliberalism: Critical Reflections on Philippine Mining in the "long twentieth century," *The Extractive Industries and Society* 2, no. 2 (2015): 287-301. On the "extractive regimes" of Indonesia, Indonesia Papua, and New Guinea, see Paul K. Gellert, "Extractive Regimes: Toward a Better Understanding of Indonesian Development," *Rural Sociology* 75, no. 1 (2010): 28-57; Alvin Camba et al, "From the Postwar Era to Intensified Chinese Intervention: Variegated Extractive Regimes in the Philippines and Indonesia," *The Extractive Industries and Society* 7, no. 3 (2020): 1054-1065.

rhetoric embedded in America's mission of decolonization. To introduce previous scholarship in Chapter 1 again, historians argue that decolonization is an essentially imperialist strategy aimed at the state-building by anti-communist elites and thereby intended to prevent the spread of communism, rather than genuinely focusing on the independence of postcolonial states. Aside from this traditional interpretation of decolonization strategy, this chapter reveals the contradiction and fallacy of decolonization by recounting how American engineers in Sangdong, who were propagandized as agents of state-building in decolonized nation-states, assisted the U.S. neocolonial mining of strategic minerals in South Korea, and sought to subjugate South Korean technicians and local workers. As the section that follows showcase, however, the neocolonial mining practices of American engineers met with resistance from South Korean technicians and the Syngman Rhee regime.

In this context, I position South Korea's resource-rich Taebaek Highlands as a battleground in which the U.S. neocolonial mining strategy disguised as a decolonizing force clashed with the nationalist aspirations of South Korean technicians to build its own mining interior on the highlands. The first section of this chapter foregrounds the Pacific Rim highlands as a site in which America's westward territorial colonialism until the mid-twentieth century and its Cold War mission of decolonization was intersected and overlapped. The next sections of this chapter shed light on American survey of Taebaek Highlands, the construction of the integrated mining complex in Sangdong, and lastly, the mutiny of South Korean technicians. In this framework, the clash between American engineers and the South Korean government and technicians could be seen as a microcosm of the larger conflict between American engineers and South Korean nationalist elites over the control of the resource-rich highlands.

March to Pacific Rim Highlands

The first model of integrated mining facility in Sangdong emerged in the American western frontier, in which U.S. engineers struggled to overcome the unfavorable geographical condition in the mineral-rich highlands. In the late nineteenth century, American base metal mining industry, searching for a profitable NFM mines across the country, gradually headed for the western frontier, leading the territorial colonization of American west. In particular, by the turn of the century, U.S. copper metal miners rushed to rich base metal deposits in the southwestern highlands and the northern of the Rocky Mountains. As demand for base metals grew after WWI and western mines were depleted, mining engineers, with the support of the DOI, began to reclaim mines in Alaska, the Philippines, and the Andes, all of which were located atop steep mountains near the Pacific Ocean. What was unique to the base metal mining industry was that it exclusively targeted sparsely populated highlands.

It was not only the belief in Manifest Destiny that led NFM miners to the western highlands and beyond. The geological characteristics of NFMs, such as molybdenum, zinc, copper, tin, lead, and tungsten, provide background for understanding westward expansion of the U.S. mining industry toward the Pacific Ocean in the twentieth century. As a result of orogenic movements, NFMs metals were concentrated in porphyry and skarn deposits surrounding the Pacific Ocean, mostly in remote, sparsely populated highlands far from major urban centers,.[69]

[69] Many large-scale porphyry deposits are rich in copper, gold, and molybdenum, and most are concentrated around the Pacific Rim. Pacific porphyry deposits supply 75 percent of the world's copper demand and 20 percent of gold. On the characteristics of porphyry deposits around the world, see R. H. Sillitoe, "Characteristics and Controls of the Largest Porphyry Copper-Gold and Epithermal Gold Deposits in the Circum-Pacific Region," *Australian Journal of Earth Sciences* 44, No. 3 (1997): 373-388; David R. Cooke et al, "Giant Porphyry Deposits: Characteristics, Distribution, and Tectonic Controls," *Economic Geology* 100, no. 5 (2005): 801-818. South Korea's landmass includes less porphyry deposits than its neighbors but few skarn deposits are rich in rare metals, including tungsten. See Bu Kyung Lee and Yong Won John, "Sangdong Gwangsan Geum Seukareun Gwangsang eui Jigu Gwahak jeok Yeongu [A Geochemical Study of Gold Skarn Deposits at the Sangdong Mine, Korea]," *Jawon Hwangyeong Jijil* [Economy, Environment, and Geology] 31 No. 4 (1998): 277-290.

Hundreds of millions of years of pressure and heat beneath the Pacific Ocean's "ring of fire" culminated in an extremely high concentration of NFM in the Pacific Rim (Figure 2). It did not take long for U.S. miners to realize that the NFM reserves around the Pacific Rim could offer them an unprecedented opportunity for their mining business.

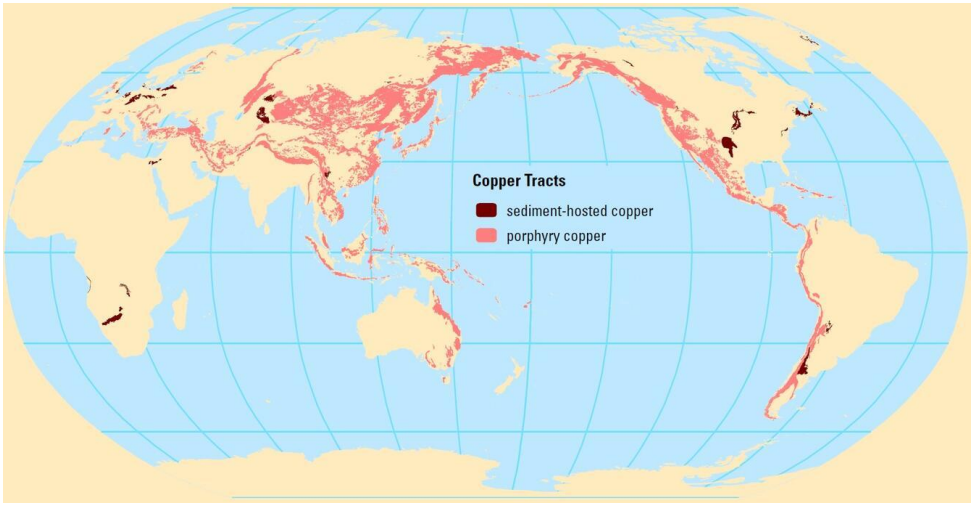

Figure 2.2. Global Copper Map by the United States Geological Survey (USGS). Around the Pacific Rim is a huge Au-Cu porphyry belt rich in copper and other NFMs. Today, over 70 percent of the world's copper is mined around this belt. USGS Website: https://www.usgs.gov/media/images/global-copper-map-0

However, NFM miners in the western United States faced substantial difficulties in turning the region's uneven, scattered metal deposits into profitable mines.[70] The quality of copper deposits in the southwest was inferior and copper packets were scattered across rugged mountains, where infrastructure and labor were almost nonexistent. The response of mine owners was to hire mining engineers to adopt newly invented technology to improve the recovery rate. Beginning in the 1890s, the introduction of air compressors, froth flotation, and electrolytic

[70] Sarah E. M. Grossman, *Mining the Borderlands: Industry, Capital, and the Emergence of Engineers in the Southwest Territories, 1855-1910* (Reno and Las Vegas, NV: University of Nevada Press, 2018), 6.

refining technology allowed mine owners to operate on a larger scale in dramatically less time. Moreover, this new technology led to an expansion of existing metal mining operations and accelerated the consolidation of small mining companies. Though these technological advances helped to overcome geographical difficulties, they also made the mining process more complex. According to a member of the Mining and Metallurgical Society in 1907, the "pretension to know the whole mining business [could] be nothing but a fraud."[71] As the historian Kathleen H. Ochs has suggested, this led to "shop culture" gradually giving way to an expert culture, which relied on university-trained mining engineers, mechanical engineers, and metallurgists who were capable of operating complex of mining facilities.[72]

All of this innovative mining, metallurgical, and smelting technology required a reliable supply of power, water for flotation, transportation routes, and manpower even in harsh environments. To this end, U.S. mining engineers introduced the vertical integration mining method, through which mine owners could extract high grades of concentrates on site. The U.S. government also supported it through steady investments in infrastructure. Both the increasing scale of operations and the government's construction of infrastructure benefited mine operators by keeping overhead costs to a minimum and allowing for large capital expenditures on new equipment.[73] Prior to the outbreak of World War II, several major mine operators and their engineers increased the number of integrated mining facilities across the western frontier of the United States, dwarfing the number and scale of the mines and smelters in Appalachia. During the same period, U.S. mining engineers began building integrated mining facilities in the remote

[71] Duncan Money, "American Mining Engineers and the Global Copper Industry, 1880-1945," in *Born with a Copper Spoon: A Global History of Copper, 1830–1980,* eds. Robrecht Declercq et al (Vancouver, BC: UBC Press, 2022), 66.
[72] Kathleen H. Ochs, "The Rise of American Mining Engineers: A Case Study of the Colorado School of Mines," *Technology and Culture* 33, No. 2 (1992): 280.
[73] R. M. Murray, "Presidential Address," *Proceedings of the Australasian Institute of Mining and Metallurgy* no. 66 (1927): 118-119.

northern Mexican highlands, benefitting from the road infrastructure built by the Mexican government. With the acquiescence of the Mexican government, these large mining operation sites functioned as American enclaves in Mexico.[74]

Vertical integration and consolidation empowered mining engineers to serve as supervisors for workers and their families, and as governors of mining towns who were responsible for various civil matters. During the interwar period, according to Duncan Money, engineers were responsible for technical duties, such as "surveying, mapmaking, design of underground and surface plant and machinery, purchasing, prospecting, and investigating new sites," and managerial duties (hiring, firing, and managing).[75] The range of duties that engineers were responsible for can be seen by the activity of the base metal engineers of Calumet & Arizona Co., who "have done a great deal in the way of sociological activities and have built much of the township, including a large store which it conducts, churches, hospital, etc."[76] Similarly, in 1928, an engineer reflected that "increasing demands were being made on the modern mining engineer," not only in terms of "his knowledge of mining, metallurgical and mechanical details, but more particularly... his administrative and organizing abilities."[77] As such, the mining engineers' responsibilities ranged from mining operations and the management of the affairs of the mining town to the design and construction of infrastructure. The integrated mining complex also gave rise to hierarchical, racialized relationships between engineers and unskilled workers, the majority of whom were people of colored. Put briefly, by the end of the 1930s, mining engineers functioned as wardens of the western frontier, responsible not only for

[74] Grossman, *Mining the Borderlands*, 9.
[75] Money, "American Mining Engineers," 65-66.
[76] Murray, "Presidential Proceedings," 122.
[77] Money, "American Mining Engineers," 66.

the production, transportation, and processing of ore, but also for the management of the population and the environment.

This trend toward consolidation and on-site processing can be seen in the mining of one of the most important base metals, tungsten. In the late 1930s, the mining conglomerate US Vanadium began discussing the construction of beneficiation and chemical processing facilities at the Pine Creek Tungsten Mine in the Sierra Nevada Mountains. The Sierra Nevada tungsten deposit, which was the largest deposit in the United States, had long been known to geologists but was never considered profitable due to its isolated location. To ensure that the mine would remain profitable even when the price of tungsten dropped, US Vanadium planned to build a chemical processing mill in the high canyons of the Sierra Nevada that would produce 99.99% tungsten carbide on site. This was particularly cost effective because tungsten mining produces too many tailings to transport. Of course, the Pine Creek mining complex would not have been possible without the power supplied by large hydroelectric dams along the Sierra Nevada valleys and the gasoline trucks that replaced hordes of mules. The processing plant, completed in 1941, helped make the Pine Creek Mine the largest producer of tungsten in the United States during the war.[78]

During World War II, U.S. engineers introduced an integrated mining facility and infrastructure construction to foreign highlands, specifically in the Mesoamerican hinterlands and the Andes.[79] This grew out of several geological survey missions to Latin American countries sponsored by the DOI, which was looking for alternative mineral mines to replace

[78] On US Vanadium's Pine Creek plant and its energy supply, see Joseph M. Kurtak, *Mine in the Sky: The History of California's Pine Creek Tungsten Mine and the People Who Were Part of It* (Reno, NV: University of Nevada Press, 2006).
[79] For instance, *The Mines Magazine*, the monthly periodical published for the alumni of the Colorado School of Mines, published personal letters of metal mining engineers from Philippines, Ecuador, Colombia, Java, Sumatra, Honduras, Bolivia, and Peru.

European exporters who were, at the time, at war. The DOI's exploration mission in the Andes marked the first expansion of integrated mining technology to Pacific Coast mines outside of the United States and Canada. As Black notes, Interior engineers demanded massive investments to develop roads and power networks in the Latin American highlands, and to introduce efficient and advanced mining technology. The DOI complied with these requests, granting mining investments under the aegis of "cooperation" to avoid a backlash from nationalist elites against U.S. imperialist interventions. Though this was an imposed form of cooperation, the DOI framed its geological survey and infrastructure construction as aspects of U.S. foreign aid aimed at helping foreign nations to modernize.[80]

World War II helped U.S. geologists and mining engineers make inroads in the Pacific by providing opportunities for young engineers in the military to gain field experience. Following the attack on Pearl Harbor in 1941, tens of thousands of mining students and young engineers enlisted in the military.[81] They proved essential in U.S. military operations, specifically by surveying terrain for the placement of explosives, building camps, and, most importantly, securing water resources.[82] When the war ended, these young geologists and mining engineers were ready to continue serving their nation. Consequently, the U.S. government could easily mobilize a large number of professional engineers for geological surveys and mine rehabilitation programs in the occupied territories on the other side of the Pacific.

Sangdong: An Uncharted Mine of Pacific Rim Highlands

[80] On DOI's geological survey missions in the 1930s and 1940s, see Black, Global Interior, 84-116.
[81] Professors in the U.S. geology community also helped geology students serve in field-related units. Letter from Frank Reeves to Wm. R. Robey, March 9, 1942, From U.S. Library of Congress, *William Walden Rubey Papers*, Folder 14, Box 89.
[82] For the history of military geologists by 1945, see James Underwood, Jr. *Military Geology in War and Peace* (Boulder, CO: University Press of Colorado, 1998).

During the short peacetime between the end of World War II and the outbreak of the Korean War, several U.S. geological surveys were conducted around the Pacific Rim as part of America's anti-communist state-building project. As the demand for metal drastically declined after World War II, the U.S. government changed its policy on base metals, moving away from strategic mineral stockpiling to assisting in the economic recovery of occupied countries. This shift included the transition of the foreign mining supervising agency from DOI to the Economic Cooperation Administration (ECA).[83] The ECA's plan was to help reopen mines, from which the United States would then procure the produced commodities, based on the mining data on East Asian colonies that were housed by British and Japanese government.[84] The exportation of minerals to the United States would in theory help the occupied nation could more independent from the economic tie with the metropoles of former colonizing empires.[85]

U.S. geological surveys of the former Japanese Empire opened the last uncharted NFM deposits for U.S. engineers in the Pacific Rim. When the U.S. Army landed in Japan and South Korea in the fall of 1945, one of the first orders of the Supreme Commander of the Allied Powers (SCAP) was to survey Japanese and Korean mines. SCAP's primary interest was the exploration of energy sources, not only traditional solid fuel like coal, but also new energy sources, namely radiogenic minerals. Secondary priority was given to the exploration of profitable minerals, mostly base metals. SCAP ordered its geologists to verify the estimated value of the reserves of these base metal mines. In South Korea, a survey team led by an

[83] Letter from Alan M. Bateman to Evan Just, September 23, 1948, Folder "Deficiency Materials Projects Procedure," Box 8, Entry 417, RG 291, USNA.
[84] Letter from James Cooley to I. N. P. Stokes, October 11, 1949; Letter from Evan Just to T. K. Finletter, May 23, 1949, RG 291, Folder, "115(6)(9)," FRC Box 8, Entry 417, RG 291, USNA.
[85] The commitment to international aid was also manifested in the title of an ECA proposal for foreign mines rehabilitation programs. "A Long-Range Practical Plan for the Relief, Rehabilitation and Industrialization of the World by the American People," Folder "ECA-ACT Policy and Problems," Box 5, Entry 417, RG 291, USNA.

experienced geologist, David Gallagher, examined 37 mines beginning in November 1945.[86] In early 1946, Gallagher reached the tungsten mine in Sangdong, which was said to produce the highest grade of tungsten in the entire Japanese Empire during the war.[87]

According to Gallagher, Sangdong Mine had been operated by the Japanese mining company Kobayashi Kōgyō [Kobayashi Mining Co.] from 1937 to 1945, during which time it was the main supplier of tungsten to the Japanese defense industry.[88] Despite an optimistic estimate about the amount of tungsten in the deposit, Gallagher reported two major problems with the Sangdong mine. First, due to the collapse of the Japanese Empire, there were no signs of future tungsten purchase contracts. This would prevent full operation indefinitely. The second problem was a lack of integrated local mining facilities, which owed to the technological limitations of the Japanese Empire. Until the end of colonial rule in 1945, Kobayashi relied heavily on animal and human labor in mining and transportation, and the level of mechanization was low. In addition, a lack of electricity and transportation prevented Kobayashi from building a smelter on site. Since the nearest smelter was in Seoul, Kobayashi used animal and human labor to transport tungsten ore from Sangdong to the nearest railroad station; it was then shipped by rail to Seoul for smelting. Worse, the Seoul smelter could only produce ferrotungsten, an alloy with a purity of approximately 80 percent.[89] To produce pure tungsten concentrate, Japanese engineers had to ship ferrotungsten from Seoul to an advanced processing plant on

[86] "Mineral Reconnaissance Survey of Far East," November 27, 1951, Folder: "Foreign Minerals," Box 2, Entry 417, RG 291, USNA.
[87] David Gallagher, "Report of Activities During Week Ending 23 June 1946," June 24, 1946, "Report of Activities during Week Ending 30 June 1946," July 1, 1946, Folder: "Selected Correspondence to and from -Korean Branch Mining Division, NRS, GHQ in Korea," Box 9262, Entry UD1838, RG 331, USNA.
[88] For the history of tungsten mining in Korea under colonial rule, see Chad Denton, "More Valuable than Gold," *Seoul Journal of Korean Studies* 26 (2013): 361-395.
[89] "Tungsten," Folder: "South Korean Tungsten Production," Box 9251, Entry UD1838, RG 331, USNA.

mainland Japan.[90] The inefficiency of scattered mining and processing facilities throughout the empire certainly contributed to the lower lethality of Japanese ammunition during the war.

Based on Gallagher's geological surveys of Sangdong, the ECA planned to rehabilitate Sangdong using U.S. mining technology; it would also add proceeds from tungsten sales to the balance sheet of the South Korean government and help Syngman Rhee's anti-communist regime stood up. However, the post-World War II decline in the price of tungsten thwarted the ECA's dream of rehabilitation, as Sangdong's tungsten output became unprofitable at the current international price. The North Korean cutoff of electricity in early 1948 was another blow to Sangdong, forcing it to shut down the beneficiation mill.[91] When South Korea gained independence from U.S. military rule in August 1948, the international price of tungsten was at its lowest point in a decade. Due to economic setbacks of the tungsten industry, the economic planners of SCAP and ECA became disillusioned about the prospects of the mine and decided to transfer operating rights to the South Korean government's new tungsten mining company, Korea Tungsten Mining Company (KTMC). For those American planners, Sangdong Mine was not a meaningful property to occupy, unless a hot war broke out and triggered a surge in tungsten demand.

After the Americans left, KTMC fell into a deep slump owing to corruption and a further drop in the price of tungsten. U.S. military sources note that the managers at Sangdong purportedly committed embezzlement and bribery. For example, this source recounted that the company spent too much money on "entertainment," implying that the company was bribing

[90] During the Korean War, the engineers at SCAP referred to Ikuno Smelter in Hyogo Prefecture in Japan for Sangdong's ore refining. Ikuno may have been one of the smelters that Kobayashi used during World War II. "Chemical Treatment for Recovery of Tungsten from Sangdong Mine Ore," July 3, 1951. Folder: "Secret Correspondence File-1951," Box 9263, Entry UD1838, RG 331, USNA.
[91] Wilfred S. Wright, "A Resume of Post-Liberation Operations at Sangdong Tungsten Mine," May 12, 1950, Folder: "Sangdong Tungsten Mine-Korea," Box 9262, Entry UD1838, RG 331, USNA.

high-ranking officials and politicians in Syngman Rhee's new government, even as the company was sitting on a massive deficit. The army of the Republic of Korea (ROK), which was garrisoned near the mine, and National Police posed another threat to KTMC. Both frequently demanded "graft" from KTMC, as high as 60 percent of the company's revenues, threatening to "confiscate" assets of equivalent value from the company. *De facto* looting by state agencies severely deteriorated KTMC's mining capacity and profitability, and culminated in huge wage arrears.[92] After several months of wage arrears angry miners staged a strike in December 1948. The strike was quickly quelled by South Korean national police and military, with the death of several workers and the arrest of many more.[93] After the purge of leftist workers at the mine, the right-wing union and the pro-government board squabbled over the management of KTMC. To win government support, each side slandered the other as communists and refused to cooperate, culminating in a near shutdown of the mine.[94] Worse yet, international tungsten prices continued to fall until early 1950, reaching the lowest recorded price since 1945. South Korean miners were on the verge of starvation.[95]

As a last resort, the U.S. government sent another geological survey team led by Wilfred S. Wright in early 1950 to increase Sangdong's productivity. After completing the survey, Wright's final report, which was submitted to the ECA in May 1950, made two suggestions.

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[92] On the interwar operation of Sangdong, See Wilfred S. Wright, "A Resume of Post-Liberation Operations at Sangdong Tungsten Mine," May 12, 1950, Folder: "Sangdong Tungsten Mine-Korea," Box 9262, Entry UD1838, RG 331, USNA; Joseph F. Harrington, "South Korean Tungsten Production," Folder: "South Korean Tungsten Production," Box 9251, Entry UD1838, RG 331, USNA.

[93] Daehan Jungseok Sasa Pyeonchan Wiwonhoe [History Compilation Committee for KTMC], *Daehan Jungseok Chilsipnyeonsa* [*Seventy Years History of KTMC*] (Seoul, South Korea, 1989); Wright, "A Resume," May 12, 1950, RG 331, USNA. Wilfred Wright attributed the leftist-affiliated workers' labor strikes to chronic electricity shortages beginning in 1948 and the resulting decline in production.

[94] Harrington, "Production," USNA.

[95] "Seongmyeongseo [The Statement]," *Donga Ilbo*, March 15, 1949. Another *Donga Ilbo* article estimated that some 3,000 men was employed at the mine. It was a comparable estimate to 4,500 miners at neighboring Machari Coal Mine, the biggest operating coal mine in South Korea then. "Yeongwol e Saneop Hakgyo "Gyeonghyeop" seo Seollip e Chaksu [ECA set to build a Vocational School at Yeongwol]," *Donga Ilbo*, June 17, 1949.

First, Wright suggested hiring an experienced manager with extensive knowledge of the mining industry, accusing KTMC's current managers with incompetence, specifically in dealing with labor disputes, embezzlement, and being unable to deal with the company's massive debt. Second, Wright proposed introducing advanced mining equipment and facilities as well as building new roads to increase recovery rates and productivity.[96] In effect, Wright's proposal was to implement a consolidated mining facility based on the U.S. model. In the long run, Wright's proposal fit within the United States' larger trajectory of expanding its base metal mining industry to the Pacific frontier. Wright's proposal to invest a significant amount of money in the declining tungsten industry initially would have been considered unrealistic by ECA officials. However, an unexpected event that occurred a few days later completely changed the U.S. government's approach to South Korean tungsten and ultimately brought Sangdong into the U.S. NFM mining frontier. That event was the outbreak of the Korean War.

Neocolonial Operation by Military

The Korean War reversed U.S. government policy on foreign mines from focusing on aid to stockpiling. Hawkish policymakers in Washington viewed the North Korean invasion as Joseph Stalin's testing of the patience of the United States. Therefore, they believed that the U.S. government should revive the wartime stockpiling program before the real war against the Soviets began.[97] However, it did not take long for the hawks to realize that the U.S. stockpile of strategic materials, most of which were base metals, was not adequate for another full-scale war. Worse, the small base metal mines in the western United States were unable to meet the U.S.

[96] Wright, "A Resume," May 12, 1950, RG 331, USNA.
[97] W. Y. Elliott to Henry H. Fowler, December 5, 1952; James T. Kemp to Deputy Administrator, June 10, 1952, "Metals and Minerals, Miscellaneous," Box 2, Entry 417, RG 291, USNA. These letters written in 1952 attest that the strategic materials stockpiling program for the last two years was in preparation for a full-scale war.

government's new production targets due to the previous five years of downsizing. Soon after the Korean War began, agencies formerly responsible for stockpiling during World War II—the Department of Defense, GSA, and DOI—began discussing how to resume stockpiling. These agencies held regular meetings, which soon evolved into the Defense Material Procurement Administration (DMPA).[98] One of DMPA's major duties was to administer foreign material exploration programs, the role formerly performed by ECA.[99]

The strategic base metal that was most urgently needed was tungsten (Figure 2.3). The United States had relatively few profitable tungsten mines. In fact, during World War II, the United States had imported Chinese tungsten to meet its demand (Table 2.1). In 1949, U.S. government statisticians became more pessimistic. One even claimed that the United States' supply of tungsten would only last thirty days.[100] In addition, Chinese mines under communist control stopped exporting tungsten to the non-communist bloc after the outbreak of the Chinese Civil War (1946-1949).[101] Thus, after the outbreak of the Korean War, the DMPA reviewed all major tungsten mines in the non-Communist world and concluded that securing Sangdong Mine's tungsten reserves was essential to offset the U.S. shortage.[102]

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[98] For the early history of DMPA, see "A History of the Program Development Division and the Domestic Expansion Division," June 30, 1953, Folder "Domestic Mines," Box 1, Entry 417, RG 291, USNA.

[99] A GSA document specified that the DMPA was funded and staffed by the Mutual Security Agency and the Department of the Interior under the Defense Production Act of 1950. Jeff Larson, "Operating Procedure No. 1, Revised," February 28, 1952, Folder: "Mutual Security Agency," Box 22, Entry 417, RG 291, USNA. Also see the appendix of the "A History of the Program Development Division," June 30, 1953, USNA, for the lists the directory of former and current staffs at DMPA. For the historical background behind the mineral exploration led by Geological Survey, see Black, *Global Interior*, 69-72

[100] Letter from C. C. Concannon to Thomas J. Williams, Argentina, August 30, 1949, Folder: "Tungsten," Box 133, Entry UD13, RG 151, USNA.

[101] Letter from Department of Commerce, Office of International Trade to John Stenhouse, May 16, 1947, Folder: "Tungsten – China," Box 133, Entry UD13, RG 151, USNA. This source also delivers the news that all mined tungsten in China in 1947 headed for the Soviet Union.

[102] In a telegram from U.S. ambassador to South Korea, John Muccio, reported that Sangdong's output was enough to make up 25 percent of U.S. annual projected consumption of tungsten. Pusan to Secretary of State, April 20, 1951, Folder: "Tungsten (Korea) Nov 1950-Dec 1951," Box 37, Entry 417, RG 291, USNA.

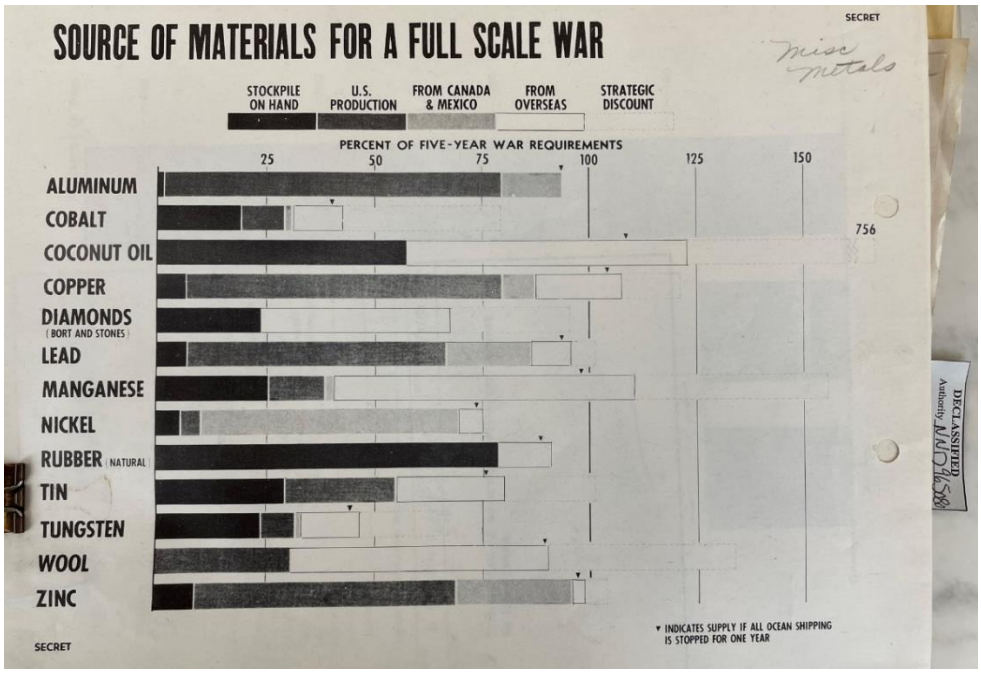

Figure 2.3. "Source of Materials for a Full Scale War." Tungsten and cobalt were two base metals that were rare in the U.S. and thereby expected shortages in time of war against the USSR. Folder: "Metals and Minerals-Miscellaneous," Box 2, Entry 417, RG 291, USNA. Declassified Authority No. NND965080.

Table 2.0.1. Production of Tungsten Ores (in tons of concentrates 60 percent WO_3), 1953

United States	8,500
South Korea	7,416
Bolivia	2,212
Brazil	2,632
Portugal	1,968
Canada	2,880
Myanmar	2,600
Thailand	2,560
China (Mainland)	22,000
USSR	8,250

Source: Ministry of Commerce and Industry Republic of Korea, "Tungsten Mining Industry in Korea," Folder: "Tungsten Korea Jan.-1954," Box 37; "ROK Government Request for Information on Tungsten Markets and Prices," March 22, 1954, Folder: "Tungsten, Korea Jan.-1954," FRC Box 37, Entry 417, RG 291, USNA. China' production is estimate of 1952 and USSR's production is estimate of 1951.

To prepare for the reopening of the mine reoccupied by North Korean and Chinese Armies in early 1951, SCAP sent a geological survey team led by an experienced geologist, Joseph Harrington, to Sangdong Mine. Harrington's objective was to examine the damage the war had caused and assess the feasibility of employing an integrated mining facility model there. To this end, Harrington investigated various aspects of the mine, including basic flowsheet, environmental conditions, potential energy sources, labor and housing conditions, and transportation.[103] Due to the urgent need for South Korean tungsten, Harrington's survey report

[103] Harrington, "Production," RG 291, USNA.

was to be delivered directly to Secretary of State Dean Acheson and General Douglas MacArthur.

Figure 2.4. U.S. geologists and South Korean miners, circa 1951. The people in this photo appear to be the crew members of Harrington's reconnaissance mission. Folder "Secret Correspondence File-1951," Box 9263, Entry UD1838, RG 331, USNA. Declassified Authority No. 775023.

In his initial survey report submitted in May 1951, Harrington called for the immediate replacement of South Korean managers with experienced American engineers, blaming the incompetence of South Korean managers for the underdevelopment of what he hailed as "the finest scheelite deposits in the world." Harrington also requested that U.S. military units "protect" the mine's property, particularly its trucks, from South Korean authorities. These units

would also "protect" the mines from Communist guerillas who, according to Harrington, had infested the area, making it difficult for white men to travel alone and prolonging the reopening of the mine.[104] In short, Harrington described the status of the mine similarly to how U.S. geologists had described underdeveloped mines in Bolivia and Peru, which were caught in the struggle between nepotist nationalist governments and the sabotage efforts of communist guerrillas.

In order to produce tungsten at full capacity, Harrington proposed building two pieces of infrastructure. First, he asked the U.S. Army to rebuild a power plant in nearby Yeongweol to restore electricity to the Sangdong Mine and power the beneficiation plant. For fuel, the power plant would draw on the neighboring Machari coal mine, once rehabilitated.[105] Machari was one of the largest coal mines in South Korea mentioned in Gallagher's report, but by the time Harrington surveyed it, it had been destroyed by South Koreans to prevent North Koreans from mining it. Next, to ensure the reliable transportation of tungsten ore, Harrington called for the construction of a road transportation network covering the twenty-mile radius between Machari, the Yeongwol power plant, and Sangdong. For Harrington, repairing the road between Machari and Sangdong was most pressing, as it would allow engineers to replace the existing animal-powered transportation with fifteen-ton trucks.[106]

Ultimately, Harrington presented a blueprint for a consolidated mining complex modeled after that of Pine Creek, where a mine, mill, and chemical processing plant were vertically integrated.[107] By using this plan, Harrington believed that any miner in the future could mine

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[104] "Ibid."
[105] Before the construction of an advanced beneficiation facility, Harrington proposed to ship the beneficiated ore to Japan, where it would be smelted in Yokohama. "Ibid."
[106] "Ibid."
[107] "Examination of Sangdong Tungsten Mine, South Korea," June 20, 1951; "Chemical Treatment for Recovery of Tungsten from Sangdong Mine Ore," July 3, 1951, Folder: "Tungsten," Box 13, Entry 417, RG 291, USNA; SCAP G-4 to NRS, Telegram from G-4 to NRS," July 4, 1951, Folder: "Secret Correspondence File – 1951," Box 9263,

tungsten at Sangdong without worrying about profitability. As of 1951, the break-even cost for tungsten mined at Sangdong was too high to be considered profitable, largely owing to high mining costs and a lack of beneficiation mills. Without a beneficiation mill and chemical processing plant, the recovery rate of Sangdong's ore was about 50 percent.[108] In addition, the tungsten would have to be shipped to a chemical processing plant in Colorado to be fully processed. By building a chemical processing plant at Sangdong, the mine would be able to produce almost pure tungsten carbide on site, lowering the break-even cost for Sangdong ore from more than $40 to less than $10, which would make Sangdong the lowest-cost, highest-quality ore mine in the non-communist world. It was with this plan in mind that Harrington suggested bringing in a management company from the United States with expertise in milling and processing operations.[109]

Entry UD1838, RG 331, USNA. To implement this plan, the U.S. military invited engineers from Pine Creek to Sangdong. Joseph M. Kurtak, *Mine in the Sky*, 111.

[108] Joseph Harrington, "Analysis of South Korean Tungsten Production With Specific Data on The Sangdong Tungsten Mine," June 15, 1951, Folder: "Secret Correspondence File-1951," Box 9263, Entry UD1838, RG 331, USNA.

[109] "Sangdong Tungsten Mine, Korea," August 16, 1951, Folder: "Secret Correspondence File-1951," Box 9263, Entry UD1838, RG 331, USNA.

Figure 2.5. Air-bombed Yeongwol Thermal Power Plant. (Folder: "Sangdong Tungsten Mine-S. Korea," Box 9282, Entry UD1838, RG 331, USNA. Declassified Authority No. 775023)

Despite Harrington's hostility toward South Korean managers, he showed sympathy for local workers around Sangdong. In fact, he believed that these miners would be useful for solving an expected shortage of skilled labor in Sangdong, given their experience and work ethic. For example, Harrington was impressed by the willingness of South Korean workers to labor in harsh conditions. When Harrington arrived in the region in 1951, he found refugee workers in the snow-covered forests surviving on edible roots and eking out a living by placer mining along the streams that flowed from the mine. According to Harrington, these miners begged to work in the mine, even if they were paid only in food, which they needed to keep their families alive. Harrington knew that the success of mining in Sangdong "depends largely upon an already scarce item,—the underground miner," which only grew scarcer as locals fled the advancing

Chinese army in January 1951. At that point, the number of available workers at Sangdong dropped from 1,300 to 200, much to the dismay of Harrington, who estimated that at least 1,500 men would be needed to reopen the mine.[110] In Harrington's view, the dedication of these local workers was far superior to that of the corrupt South Korean managers. Consequently, Harrington requested the DMPA to give priority of employment to former miners in the forest.[111]

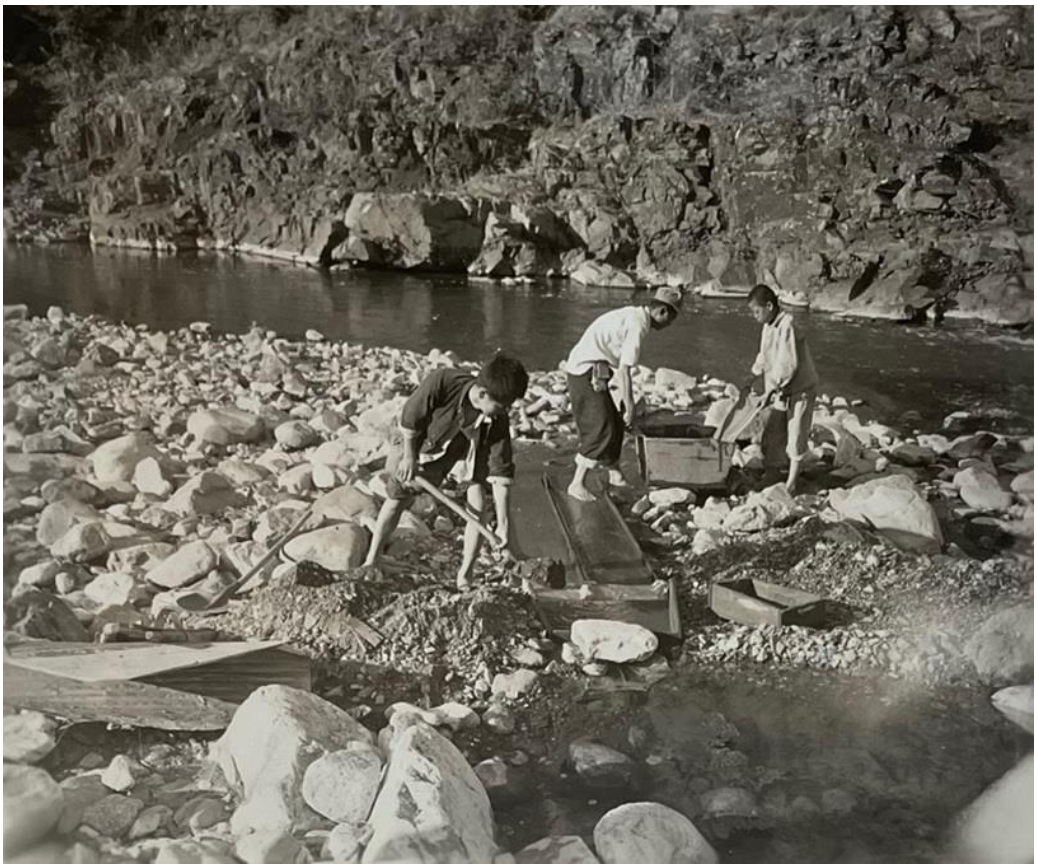

Figure 2.6. Placer Miners in Sangdong. (Folder: "Sangdong Tungsten Mine-S. Korea," "Sangdong Tungsten Mine-S. Korea," Box 9282, Entry UD1838, RG 331, USNA. Declassified Authority No. 775023)

[110] *Chilsipnyeonsa*, 175-76.
[111] Letter from Harlan to Howard Young, November 23, 1951, Folder: "Tungsten," Box 13, Entry 417, RG 291, USNA.

Harrington's survey was the signal for the US army to occupy the Sangdong Mine. Based on the suggestion mentioned in Harrington's survey report, the U.S. Eighth Army, the commanding field army in South Korea, launched a plan to build a consolidated mining complex in Sangdong, which was entitled the "Coal-Power-Tungsten Area Plan." After reading Harrington's report, General MacArthur's Tokyo office ordered DMPA to begin operations at Sangdong by any means necessary, transferring management authority of the Sangdong mine from the ECA to DMPA and the U.S. Army.[112] On MacArthur's orders, the Eighth Army sent an engineering unit to Sangdong in August 1951 to rehabilitate the war-damaged Machari Coal Mine and the Yeongwol Power Plant, which would supply power to the Sangdong tungsten complex. To restore power, military engineers brought in emergency communications equipment and heavy machinery to rehabilitate the Machari Mine, which included installing a high-voltage transmission line.[113] In the long run, the engineers wanted to supply Yeongwol with coal from another anthracite mine, the Samcheok Mine, which had higher quality outcrops. To this end, they asked the U.S. military command to build a road over the rugged mountain pass between Samcheok and Yeongwol and to provide more trucks.[114] At Harrington's request, the Eighth Army also took charge of trucking tungsten output from Sangdong to the pier in Busan with a combat company. In so doing, the Eighth Army protected the mine and tungsten convoys from communist guerrillas as well as the South Korean army and police, who were noted to "make demands upon the operators of the mine which will make economical opn (*sic*) of the mine

[112] A. J. Walsh to Howard I. Young, "Sangdong Tungsten Mine," January 7, 1952, Folder: "Tungsten," Box 13, Entry 417, RG 291, USNA; SCAP G-4 to NRS, Telegram from G-4 to NRS," July 4, 1951, Folder: "Secret Correspondence File – 1951," Box 9263, Entry UD1838, RG 331, USNA. General MacArthur was referred to as CINCEF.

[113] "Equipment for the Coal Mine Stripping Operation at the Machari Coal Mine in Yongwol Area," September 8, 1951, Folder: "Supply," Box 18, Entry A1 1301, RG 338, USNA. For the high-voltage line, see "Message from CINCFE to DA," Box 18, Entry A1 1301, RG 338, USNA.

[114] Telegram from Tokyo (Murphy) to Sec State," August 1, 1952, Folder: "Tungsten Korea Jan. 1952-Dec. 1952," Box 37, Entry 417, RG 291, USNA.

impossible."[115] With the concerted efforts of U.S. Army and Army of Engineers, Sangdong became a heavily militarized mining enclave, protected and managed by the U.S. military.

As predicted in Harrington's survey report, the restoration of power, the improvement of transportation, and the introduction of new mining methods and equipment increased Sangdong's production exponentially, surpassing even its colonial output. Nevertheless, the U.S. Army estimated that the addition of Harrington's proposed chemical processing plant and advanced mill would lead to even greater output. In 1952, the recovery rate was still only about 50 percent, meaning that the U.S. Army was shipping too many tailings to advanced processing facilities in Japan and Colorado.[116] To implement Harrington's plan for an integrated mining complex, the U.S. Army needed to put experienced metallurgists, engineers, and chemists on the mine's board of directors. This was the reason that the U.S. government rushed into a management takeover agreement with South Korea and KTMC in 1952.

Mutiny against Rule by Engineers

In early 1951, the United States and South Korean governments began negotiating the former's takeover of management at Sangdong and the tungsten purchase agreement. The U.S. government demanded three conditions. First, it requested exclusive rights to purchase all of South Korea's tungsten production, at least temporarily. The second request was that South Korea finance the construction of the chemical plant and the expansion of the factory using proceeds from tungsten sales. Finally, the U.S. government insisted that a U.S. contractor to be

[115] This battalion also took care of the security of Yeongwol and Okbang, another private tungsten mine. From CINCFE to DA, Box 18, Entry A1 1301, RG 338, USNA.
[116] Air Mail to H. F. Yancey, July 27, 1951; "Production and Marketing of Tungsten in Colorado," March 7, 1952, Folder: "Harlan's Reports," Box 14, Entry 417, RG 291, USNA.

appointed by the U.S. government, manage the mining, refining, and sale of South Korean tungsten.[117]

The South Korean government, however, strongly opposed this proposal. This opposition to a U.S. monopoly on tungsten purchases stemmed from the fact that tungsten sales were a cash cow for the ruling party of South Korean President Syngman Rhee. For example, in June 1952, financial officials in the Rhee regime allocated $4 million from the proceeds of tungsten sales to crony traders at half of the exchange rate. At the same time, the regime permitted these traders to pay for the importation of exclusive commodities, such as flour and fertilizer, with tungsten money. The traders then sold imported American flour and fertilizer at a much higher price. The opposition parties suspected that most of the profits from this crony trading went into the secret account of Rhee's ruling party, but they could not prove it.[118] It was not surprising, then, that Rhee was so stubborn about a U.S. proposal for a management takeover that would limit the autonomy of his regime's backdoor trade. Contrary to the South Korean argument that the mine had become national property after liberation from Japan in 1945, DMPA officials maintained that the Sangdong mine was a strategic asset for U.S. war preparation, and therefore management rights were non-negotiable. They were determined to have a U.S. manager take charge of the mine to improve the recovery rate and facilitate faster shipment of South Korean tungsten to the United States.[119]

At the negotiating table, the American agenda of neocolonial tungsten mining clashed with the Syngman Rhee government's postcolonial claim to mining rights. At first, on March 31, 1952, the U.S. and South Korean governments both agreed that South Korea would sell all of its

[117] Acheson to Ambassy Pusan, July 12, 1951, Folder: "Tungsten General," Box 37, Entry 417, RG 291, USNA.
[118] "Jungseok bul Sageon Sangse Bunseok [Close Analysis on the Tungsten Dollar Incident]," *Donga Ilbo*, July 21, 1952. 1
[119] Walsh to Pusan, September 10, 1951, Folder: "Tungsten General," Box 37, Entry 417, RG 291, USNA.

tungsten production exclusively to the United States. Negotiations on management control, however, remained at an impasse because the two sides' objectives could not be reconciled. In October 1951, the U.S. government handed the South Korean government a draft of the agreement for a managerial takeover, which stipulated that a U.S. manager would oversee the mining process and that South Korea would be liable for the costs of future plant projects implemented by the new manager.[120] Syngman Rhee eventually budged. At the negotiating table the following August, South Korean delegates told their U.S. counterparts that the South Korean government would at least select an American manager to oversee the mine.[121] In response, GSA chief Jess Larson threatened the South Korean ambassador to the United States, Yoochan Yang, with the withdrawal of all U.S. military personnel currently assisting the mine's rehabilitation and the transportation of tungsten for export if South Korea refused to accept a U.S.-appointed manager.[122] The South Korean Minister of Commerce protested and cited the South Korean constitution, which restricted the "foreign monopoly of underground resources."[123] But this protest was in vain. On September 18, 1952, Acheson gave Rhee a final warning that the expansion of the Sangdong mine would not be possible unless Rhee accepted the U.S. offer.[124] In the end, after a year and a half of negotiations, Rhee had no choice but to accept the U.S. government's appointment of the new management company, which was contracted for five years.[125]

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[120] "Draft Management Contract," October 17, 1951, Folder: "Tungsten," Box 13, Entry 417, RG 291, USNA.
[121] Airgram from Pusan to Secretary of State, August 8, 1952.
[122] From San to DEPTAR Wash DC, September 25, 1952, Box 37, Entry 417, RG 291, USNA; Jess Larson to Dr. You Chan Yang, August 22, 1952, Folder: "Larson-July, August, September 1952," Box 4, Entry 417, RG 291, USNA.
[123] "Ibid."
[124] Acheson to Ambassy Pusan," September 18, 1952, Folder: "Tungsten Korea Jan. 1952–Dec. 1952," Box 37, Entry 417, RG 291, USNA.
[125] "Rough Draft," From Hoover Institute, *Frank Crampton Papers*, Folder: "Korea," Box 2.

For the new management company, the U.S. government sought a contractor that specialized in comprehensive construction projects, including milling, processing facilities, and infrastructure. A total of sixteen U.S. companies responded to the open bidding for this project, many of which had experience in base metal mining in the western United States and Latin America. Out of those sixteen, the U.S. government selected the Utah Construction Co. on November 17, 1952. [126] Utah Construction had a reputation as a trustworthy government contractor, but not specifically for building mines. Since its creation in 1900, Utah Construction had participated in many government and military projects in the western United States, Mexico, and, more recently, the Pacific Theater at war. These projects included the construction of railroads, highways, and dams, perhaps the most famous of which was the Hoover Dam. In mining, however, Utah Construction was not a big name. Its first involvement in base metal mining was in a Peruvian mine in 1946. That the U.S. government still selected Utah Construction suggests that its main focus was on building a mining complex and the requisite infrastructure rather than the mining itself.[127]

On November 17, 1952, Utah Construction sent twelve engineers to take over the management of the Sangdong Mine, initiating what could be called "rule by engineering."[128] Upon their arrival, Utah Construction's engineers claimed that they would seek to cooperate with local engineers. In reality, however, Utah Construction's engineers aimed to oust South Korean technicians by replacing them in many key positions.[129] The Utah engineers were particularly

[126] Airgram from Dulles to Am Embassy Tokyo, January 22, 1953, Folder: "Tungsten Korea Jan.-Dec. 1953," Box 37, Entry 417, RG 291, USNA.
[127] On the early history of Utah Construction, see Sterling D. Sessions and Gene A. Sessions, *A History of Utah International: From Construction to Mining* (Salt Lake City, UT, 2005); Alexander M. Wilson, *Leading a Changing Utah Construction and Mining Company: Utah International, Ge-Utah, BHP-Utah, 1954 to 1987* (Berkeley, CA, 2000).
[128] Dulles to Embassy Tokyo, January 22, 1953.
[129] Pusan to Dep of State, June 4, 1953, Folder: "Tungsten Korea Jan.-Dec. 1953," Box 37, Entry 417, RG 291, USNA.

interested in taking control of the mine's recovery laboratory. To justify their takeover of the laboratory David Baker, the project manager for Utah Construction, expressed dissatisfaction with KTMC's recovery methods, which he called "archaic."[130] After the takeover of the laboratory, he replaced the Korean methods with American ones with new recovery processes best suited to Sangdong's tungsten metal formation. Baker's method ultimately increased the recovery rate at Sangdong significantly. In doing so, Baker's team demonstrated technical superiority over the South Korean technicians and solidified their dominance in the mine.

Utah's engineers also took advantage of their superior status as white, educated, and American engineers to recruit South Korean skilled workers, using their credit from the U.S. Army. Under Utah's leadership, skilled workers were given priority in food and fuel (coal) rationing.[131] These workers were even exempted from military and wartime conscription by an agreement with the South Korean government.[132] These benefits dramatically improved the living conditions of skilled workers and helped Utah recruit more experienced miners from throughout the Korean peninsula, including refugees from the north. As a result of improvements in mining methods and working conditions, Utah reported a 93 percent increase in production in 1952 compared to the previous year, over-achieving the U.S. Army's goal.[133]

Unlike smooth "(imposed) cooperation" in the Mexican and Bolivian mines before World War II, the cooperation between Utah Construction, the South Korean government, and South Korean engineers did not go easily. From the beginning, South Korean officials of the Rhee regime felt that the manner in which the United States took over management of the mine

[130] Leonard C. Clark (A statement), May 14, 1953, Folder: "Tungsten Korea Jan.-Dec. 1953," Box 37, Entry 417, RG 291, USNA.
[131] On the second-hand testimonies of Sangdong's skilled workers, Jang Young-geun, *Teongseuten Gyegok Saramdeul [People in the Valley of Tungsten]* (Seoul, South Korea, 2021) 44; 78; 83; 127; 176.
[132] Ministry of Commerce and Industry Republic of Korea, "Tungsten Mining Industry in Korea," Folder: "Tungsten Korea Jan.-1954," Box 37, Entry 417, RG 291, USNA.
[133] "Ibid."

was too coercive, and that the management agreement itself was not equitable. They believed that the United States had effectively robbed the South Korean government of valuable property by leveraging its technological edge and military power.[134] In response, South Korean officials attempted to sabotage Baker's mine and mill expansion plan by delaying payment for scheduled expenditures. Sabotage was likewise happening on the ground at Sangdong. There, South Korean engineers were angry that they had been unexpectedly removed from their positions by Utah Construction, despite their contributions to the rehabilitation of the mine during the war. The South Korean engineers refused to call the Utah engineers "managers" and deliberately referred to them as an "advisory group." Refusing to follow orders from the Utah engineers, South Korean engineers planned their own separate mining projects.[135] South Korean engineers later testified that they also agreed with the view of South Korean government officials the U.S.-ROK management arrangement was inequitable, as it was "too advantageous to Utah ... [while] Utah put in no investment at all."[136]

In the summer of 1953, tensions between South Korean engineers and Utah Construction erupted into a mutiny. According to Baker, Utah's engineers noted that KTMC forged monthly production figures that were lower than what was actually produced, so it could maintain a secret reserve of tungsten that could be used in case of a sudden drop in monthly production. Baker thought that KTMC kept this secret reserve for its own survival, as a drop in monthly production might lead the South Korean government to suspect that KTMC managers were communists. Moreover, during an internal interrogation held in April 1953, Utah engineers accused South

[134] "Report to the President on the Sang Dong Tungsten Mine," July 3, 1953, From Hoover Institute, *Frank Crampton Papers*, Folder: "Korea," Box 2.
[135] David D. Baker, "A Statement from the Utah Construction Company to the Government of the Republic of Korea," May 18, 1953, From Hoover Institute, *Frank Crampton Papers*, Folder: "Korea," Box 2.
[136] "Conference at Korean Embassy, 4:15 P.M. October 15, 1952," From Hoover Institute, *Frank Crampton Papers*, Folder: "no. 1," Box 2.

Korean engineers of sabotaging Utah's assay samples with oleic acid in order to lower the recovery rate of Utah's solution. They also accused the South Korean engineers of manipulating the results of South Korean recovery samples to make their own method appear more effective than Utah's method. Utah Construction's engineers claimed that the South Korean government conspired all this scheme in order to get rid of Utah's management for the failed recovery experiment. In May, having lost all trust in their South Korean partners, Utah engineers called in U.S. GIs and occupied the mill. The South Korean government responded by sending in police led by the Minister of Commerce. After an intense standoff, the Utah engineers fled to Busan, having received a series of insults and physical threats from South Koreans.[137]

After the mutiny, the South Korean government's demand for autonomy from unsolicited U.S. management clashed with the United States' effort to impose neocolonial model of "cooperation." The account of Syngman Rhee's mining advisor, Frank Crampton, epitomizes the dismay felt by the South Koreans by transferring their most valuable asset to a foreign body against the will of their sovereign nation-state:

> The management contract between the Republic of Korea and the Utah Construction Company is so worded as to deprive the government of Korea of any right, privilege or control of any phase of mine or mill operations, including decision, or physical and financial rights. It is a contract without equity…without recourse on the part of the government of Korea…inasmuch as all powers are taken away from Korea and vested in the Utah Construction Company by virtue of the unprecedented wording of the management contract that deprives a sovereign government of all of its rights and places

[137] Baker, "A Statement."

them in the hands of a California corporation, over which the government of the United States, by virtue of the management contract, has no control. [138]

Similarly, South Korean engineers testified that they were angered when they learned that Utah engineers were purchasing a record player and camera for private purposes, and even consorting with a South Korean prostitute using South Korean tungsten money.[139] On receiving these complaints, the South Korean government did not apologize to the U.S. government; instead, it demanded the abrogation of the management agreement.

Figure 2.7. Photograph of Syngman Rhee and Frank Crampton. Crampton was a graduate of the Colorado School of Mines and later served Syngman Rhee with a strong anti-imperialist enthusiasm as expressed in his personal note: "What we call corruption in the oriental is the result of foreign imperialist domination … Korea is an excellent example of the imperialism processes." Frank Crampton, From Hoover Institute, *Frank Crampton Papers*, Box 2.

[138] "Rough Draft," *Frank Crampton Papers*, Box 2.
[139] A conversation transcript with no title, From Hoover Institute, *Frank Crampton Papers*, Folder: "no. 1," Box 2.

American engineers responded by invoking the "techno-optimist authoritarianism" that it had used since Wilfred Wright's first geological survey in 1950.[140] In short, they argued that rule by U.S. engineers was the best form of leadership for Sangdong, considering that the South Korean economy and its available technology were both underdeveloped, and that recovery and production rates had improved under Utah Construction's management. This belief in America's superiority was likewise heard in Baker's disdainful remarks about KTMC's mismanagement and ideological struggles, and in Harrington's letters, which contrasted KTMC's greedy managers with the suffering miners who worked for them.[141] By contrast, U.S. engineers positioned themselves as both politically-neutral technocrats and "saviors" of indigenous people, much like their predecessors who had reclaimed Mexican and Bolivian mines in the name of cooperation. Sangdong was no different; this tungsten mine was part of the global resource frontier that the United States had pledged to protect from the "barbaric violence" of Soviet communists, and whose people were to be rescued from poverty brought on by the alleged incompetence of indigenous owners.[142] As wardens of the frontier, U.S. engineers legitimized themselves by "enlightening" South Korean engineers and overseeing the welfare of South Korean workers. Despite the veneer of "cooperation," the rhetoric of Utah Construction and U.S. engineers was closer to authoritarian populism, an undemocratic rule legitimized by material progress.

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[140] I borrowed the concept of techno-optimism or techno-authoritarianism from the recent article on *The Atlantic* warning of the rise of anti-liberal techno-moguls, such as Elon Musk and Marc Andreessen who often advocate authoritarian rule by engineers, unfettered by the discussions of "tech ethics" and the "existential risk" posed by them. Adrienne LaFrance, "The Rise of Techno-Authoritarianism," *The Atlantic*, January 30, 2024.
[141] Frank, A. Crampton to Colin m. Peters, December 30, 1953. From Hoover Institute, *Frank Crampton Papers*, Folder: "Korea," Box 2.
[142] Joshua P. Howe, "The Tailings of Cold War U.S. Foreign Policy," *Diplomatic History* 47, no. 2 (2023): 263.

Rule by engineers came to an abrupt end when their frontier lost its value. The death of Stalin and the waning of the Korean War in early 1953 suddenly led to the easing of tensions between the United States and the Soviet Union—and a subsequent drop in the international price of tungsten. With diminishing security concerns, protectionists in Washington raised their voices about cutting the budget for foreign mineral stockpiling.[143] Now in the midst of an international détente, the U.S. government had less reason to bother with South Korean tungsten. On July 17, 1953, the U.S. Department of State (DOS) replied to a cable from the Embassy in Seoul that there was "no urgency" to purchase South Korean tungsten, citing the international price of tungsten, which had fallen to $40, well below Sangdong's production cost of about $65. Nevertheless, the DOS instructed the embassy to mediate the conflict between Utah Construction and the South Korean government so that the consolidated mining complex could be built on schedule. The DOS still considered the Sangdong Mine a strategic asset, but now as a means to rebuild the South Korean economy, not as a source for the U.S. commodity stockpile.[144]

Finally, the Syngman Rhee regime regained its most valuable asset from American hands. On September 17, 1953, Utah Construction and South Korea reached a new agreement under which South Korea would regain management of Sangdong and Utah would provide technical advice on the construction of a new mill and processing plant.[145] With a sense of jubilation, Frank Crampton observed how South Korean officials celebrated it: "(South Korea) recovered sovereign rights … not [surrendering] (*sic*) any of its sovereign rights and will not allow any phase of extraterritoriality."[146] In reality, the new agreement was the result of the

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[143] "Ibid," 270-272.
[144] Dep of State to Pusan, July 17, 1953, Folder: "Tungsten Korea Jan.-1954," Box 37, Entry 417, RG 291, USNA.
[145] Seoul to Dep of State, November 3, 1955, Folder: "Tungsten Korea Jan.-1954," Box 37, Entry 417, RG 291, USNA.
[146] Frank A. Crampton to Syngman Rhee, "Loss of Soveringty (*sic*) of the Republic of Korea, in relation to the cancelled Utah Construction Company management contract and other proposed or possible contract," From Hoover Institute, *Frank Crampton Papers*, Folder: "Korea," Box 2.

United States losing its appetite for tungsten. In 1954, during a meeting at the DMPA, U.S. officials decided not to renew the U.S. compulsory tungsten purchase agreement with South Korea and to inform South Korea to find a new buyer on the international market.[147] The South Koreans soon realized that there would be no immediate bid for South Korean tungsten in the international market owing to their high tungsten production cost. This meant that they would have to continue "cooperating" with the Utah engineers until the construction of chemical processing plant. The plant was completed in 1959, reducing Sangdong's production cost to $10. However, the tungsten market remained dormant until the last of the Utah engineers left South Korea. The U.S. government's foreign aid agencies, such as the ICA, supported the construction of the chemical plant in an effort to make Sangdong profitable again, but their "decolonization" efforts remained unsuccessful throughout the 1950s, in contrast to the successful operation under DMPA during the Korean War.

Conclusion

Sangdong Tungsten Mine was the first integrated mining facility built by American engineers in South Korea. To extract Sangdong's deep-seated tungsten deposits American engineers transplanted the integrated mining model from the American west and the Andean highlands. The integrated mining model was not the only one that American engineers brought to South Korea. Similar to several American mining projects in the Pacific Rim highlands, U.S. engineers built a neocolonial mining enclave around Sangdong in which their superiority as white engineers over local technicians and miners were strictly observed. The construction of mining complex greatly assisted America's neocolonial stockpiling of tungsten during the

[147] "To the Files," February 1, 1954, Folder: "Tungsten, Korea Jan.-1954," Box 37, Entry 417, RG 291, USNA.

Korean War, the first Hot War in Asia and the Pacific. The American mining project in Sangdong shows that the opening of South Korea's mining frontier in its highlands was inherently rooted in the colonial and neocolonial mining tradition embedded in the westward march of the U.S. mining industry.

The consequence of the conflict between American engineers and South Korean technicians reveals the postcolonial context in which the U.S. government could not sustain its mining colonialism in the South Korean highlands. American mining of Sangdong's tungsten contradicted its commitment to decolonization; the U.S. government recognized South Korea's sovereign rights over its mines in 1948 and touted its efforts to decolonize and state-building in South Korea before the Korean War. After the Korean War, it could not stop the neocolonial extraction and stockpiling of South Korean tungsten using the labor of South Korean technicians and miners, because of the urgency of its war preparations. This dilemma could not be resolved until the specter of an all-out war calmed down in 1953 and the U.S. government downsized its stockpiling program.

The mutiny of South Korean technicians was a symbolic moment in which the American strategic objective to secure tungsten and South Korean nationalist aspirations—specifically represented by South Korean technicians who desired to manage their own mines—clashed. Besides invoking the diplomatic rhetoric of "cooperation," U.S. engineers sought to justify their technological superiority by contrasting the "incompetence" of South Korean managers with their own expertise, and by claiming that they would ensure better welfare for local workers. However, the discontent of South Korean technicians, who eventually led a mutiny, reveals that the nationalist desires of South Korean technicians trumped the "cooperative" efforts U.S. engineers. The success of the South Koreans' mutiny at Sangdong put an end to American "rule

by engineers," but it did not mean the end of superiority of engineers. If anything, South Korean technicians took the superiority of American engineers and used it in numerous development projects in the highlands over the next few decades, as Chapter 3 shows. In a sense, the conflict between South Korean and American elite engineers was a struggle for control of the highlands between neocolonial imperialism and postcolonial developmental nationalism.

Even after the American engineers withdrew from the management of Sangdong Mine, they continued to supervise the South Koreans in the development of the South Korean highlands. For instance, some of Utah Construction's engineers left in Sangdong and consulted with South Koreans until the completion of world's second chemical processing plant constructed on the mining site in 1959. Also, as Chapter 3 illuminates, Utah Construction made its name as a major U.S. contractor in a joint agreement between the U.S. and South Korean governments to assist South Korea's five-year mining industry promotion program in 1955. Throughout the 1950s, Utah Construction would participate in numerous road and rail construction projects in South Korea's energy and mineral-rich—and sparsely populated—highlands, helping to open a new resource frontier to the young republic, as one of the U.S. government's most trusted contractors in South Korea.[148]

[148] "Contract between the Government of the United States of America and Utah Construction Company," February 16, 1956, Box 23, Entry 480, RG 469, USNA.

Chapter 3

Coal Highways:

Highland Road Construction and Energy Regime Change, 1951-1961

> There is no way to improve living standards without increasing GNP per capita. There is no way to increase GNP per capita without increasing energy supply.
>
> —Chung In Wook, 1956.

This chapter examines the massive railroad and highway construction projects in the eastern highlands of South Korea in the context of South Korea's efforts to transition to a coal energy regime in the 1950s.[149] I argue that the construction of highland road network repositioned the South Korean highlands as the energy reserve of South Korea, by linking small untapped mines to energy consumption centers in the lowlands. The unprecedented extraction of anthracite beneath Taebaek Highlands changed the energy regime of South Korea by replacing major source of heating energy in households from firewood to coal. Victor Seow defines an energy regime as "the assemblage of political institutions, technological artifacts, environmental conditions, labor arrangements, market forces, ideologies, and bodies of knowledge and

[149] In Korean historiography, there is only a fraction of studies on the energy industry in the 1950s, let alone coal industry. On energy industry of South Korea before 1960, see John DiMoia, "Atoms for Sale?: Cold War Institution-Building and the South Korean Atomic Energy Project, 1945–1965," *Technology and Culture* 51, no. 3 (2010): 589-618; Derek Kramer, "A New Kind of Energy: Atomic Science in the Cold War Koreas: 1945-1958." PhD diss., University of Toronto, 2021; Ohsoo Kwon, "Machinations from on High: U.S. Aid Plan and Oil in South Korea." *Diplomatic History* 46, no. 1 (2022): 173-97. On coal industry in the 1950s, see Song "Haebang Jikhu Hanil Seoktan Muyeok eui Gujo wa Seonggyeok [Post-liberation period's Korea-Japan coal trade: Structure and character]." *Hanguksa Hakbo* 17 (2004): 105-41.; Lim Chaisung, "Gun Pagyeondan eui Daehan Seoktan Gongsa Jiwon gwa Seoktan Saneop eui Buheung [The military detachment to support DHCC and the rise of coal industry] (1954.12~57.8)," *Dongbang Hakji* 139 (2007): 241-286; Jeong Jin-A, "1950nyeon dae Gun eui Gyeongje Munje Gaeip Gwajeong: Gongbyeongdae wa Yukgun Pagyeondan eui Hwaldong eul Jungshim euro [How the military intervened in the economic issues in the 1950s: the corps of engineers and the army detachment to DHCC]," *Ihwa Sahak Yeongu* 37 (2009): 261-87.

expertise that come together to govern the extraction, transportation, and consumption of energy."[150] Using Seow's broad concept of energy regime, this chapter shows how discussions about the role of energy in economic growth, concerns of deforestation, and populist politics of heating energy supply were intertwined and culminated in the construction of highland highways and heating energy transition from firewood to coal.[151] By illuminating the role played by "coal highways" in the energy regime change, this chapter argues that the opening of energy frontier in South Korean highlands in the late 1950s was a pivotal moment in the energy transition to coal.[152]

This chapter argues that the construction of highway networks in the highlands was the result of a co-production between the Western "thermoeconomic" model of economic growth, new mobilities introduced by the U.S. military, and the South Korean state apparatus of labor mobilization rooted in the colonial corvée system. The first part of this chapter argues that the transition to coal energy was initially discussed as an energy source to improve South Korean living standards as viewed by American and local economists and engineers. Before the Korean War, American economic planners considered GDP to be an indicator of the quantitative growth of an economy and shared a belief that the growth of an economy was determined by the gross

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[150] Victor Seow, *Carbon Technocracy: Energy Regimes in Modern East Asia* (Chicago, IL: University of Chicago Press, 2021), 15.

[151] On more discussion on the importance of energy transportation in the energy transition, see Timothy Mitchel, *Carbon Democracy: Political Power in the Age of Oil* (London, UK: Verso, 2013).

[152] In many scholarships in South Korea, the 1950s was viewed as the period in which Syngman Rhee regime could barely survived through the unprecedented U.S. aid to South Korea, or a period in which the economic foundation for the "take-off" under Park regime was being formulated at best. On the U.S. economic aid to South Korea in the 1950s, see Lee Hyun-jin, 1950nyeondae Hanmi Hapdong Gyeongje Wiwonhoe eui Unyeong gwa Yeokhal [The management and role of U.S.-ROK CEB], *Hanguk Minjok Undongsa Yeongu* 48 (2006): 385-430; Lee Hyun-jin, *Miguk eui Daehan Gyeongje Wonjo Jeongchaek, 1948-1960* [The U.S. economic aid and policy to South Korea, 1948-60], (Seoul: Hyean, 2009); Park Tae-Gyun, *Wonhyeong gwa Byeonyong: Hanguk Gyeongje Gaebal Gyeheok eui Giwon* [Prototype and metamorphosis: The origins of South Korea's economic development planning] (Seoul: Seoul National University Press, 2007). On recent studies on the provincial development programs before 1961, including road constructions, see Heo Eun, "1950nyeondae Huban Jiyeok Sahoe Gaebal Saeop gwa Miguk eui Hanguk Nongchon Sahoe Jaepyeon Gusang [The late 1950s local development initiatives and the U.S. idea to restructure the South Korean rural society]," *Hanguksa Hakbo* 17 (2004): 275-312.

heat produced, a concept that some economists called thermoeconomics. This part of the chapter showcases how this theory influenced American and South Korean economic planners to choose anthracite as South Korea's primary energy source. But after the Korean War, the main motivation for energy transition, I posit, switched to the concerns of deforestation as the second part of this chapter illustrates. This change was partly in response to the American economist Robert Nathan's grim estimate that South Korea's forests would disappear in 25 years due to excessive domestic use of firewood. Fears of an environmental crises and the eventual collapse of the South Korean regime motivated the U.S. and local governments to mobilize an unprecedented number of laborers to the Taebaek Highlands, including hundreds of thousands of laborers (i.e., corvée, conscripts, and detained civilians), in order to build railroads and what was known as the coal highways (*untan godo*) for diesel locomotives and U.S. Army trucks, respectively. [153]

The construction of the coal highways had three implications for the South Korean highlands. First, the Taebaek mountain range in particular became the energy production center of South Korea insofar as the highland road network connected previously separated economic spheres of the lowlands to the highlands. The role of highways and trucks were crucial in the transformation of the Taebaek Highlands. Under Japanese colonial rule, a railroad network connected major transportation hubs throughout the empire, but it was highly limited in

[153] Many previous works on the South Korean labor under authoritarian regimes had focused on the activism and protest, with less concerns on the industrial sector and geographical nature in which these activisms came out. For those particular works on the detention of civilians to construction sites under Park regime, see Song-ja Yim, "1961nyeon 5.16 ihu Kukto Gonseol Saob gwa Kukto Gonseoldan Unyeong Shiltae [Post-5.16 Land Development Project in 1961 and NCS management]," *Hanguk Geunhyeondaesa Yeon'gu* 67 (2013): 900-942.; Song-ja Yim, "Minjudang jeongwon-gi gugto geonseol saebeui cheujin gwajeong [Land development project and its progress under minju regime]." *Sarim* 46 (2013): 443-80; Kyuhan Han, "5.16 Kudecha Gikhu Gukto Geonseoltan Gwa Jisik Cheongnyeon 'Gungi Japgi' [Post-5.16 coup period NCS and the disciplining young intellectuals]," *Yeoksa Bipyeong* 111 (2015): 385-416; Inhwa Kang, "Byeongyeok eul Tonghan Shimin Jagyeok eui Hyeongseong [Citizenship qualification through military service]," *Sahoe wa Yeoksa* 131 (2021): 101-134.

transporting energy sources for households; moreover, railroads could not connect scattered mine shafts, briquette factories, and multiple households. The construction of highways and the introduction of American trucks eventually replaced South Korea's postcolonial energy regime and transformed the Taebaek Highlands into a new energy reserve of the nation.

Second, the construction of coal highways and railroad rescued the Rhee regime from the fuel shortage crisis and an environmental collapse. As the section that follows illustrates, the surge of refugees and mass destruction of housing in Seoul caused a severe fuel shortage crisis after the Korean War. However, as Chapter 1 chronicles, the spread of *doksan* and extreme deforestation forced the Rhee regime to impose a draconian ban on firewood cutting. Both fuel shortages and deforestation were of great concern to American economic planners in post-Korean War South Korea, who believed that current coal shortages would undermine popular support for Rhee's anti-communist regime and U.S. hegemony in East Asia. American economists hoped that increased coal production and transportation would accelerate the energy transition from firewood to coal in South Korean households, thereby reversing the trend of deforestation before it caused irreversible damage to South Korean agriculture. This was the historical context in which U.S. aid agencies as well as the U.S. Army were so desperate to build an extensive network of highways and railroads in the South Korean highlands throughout the 1950s.[154] In this way, this chapter highlights that the construction of coal highways and the transportation of highland coal were central to the American rehabilitation plan for war-torn South Korea.

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[154] On heretofore works on transportation of Korea by the mid-twentieth century, see Russell Patrick Burge, "The Promised Republic: Developmental Society and the Making of Modern Seoul, 1961-1979" (PhD diss., Stanford University, 2019); Sungjo Kim, "All Highways Lead to the City: The Rural-Urban Hierarchy and the Highways in 1970s South Korea," *Jiyeok Baljeon Yeongu* 29, no. 1 (2020): 111-141; Derek J. Kramer, "'We Go on Our Own Boats!': Korean Migrants and the Politics of Transportation Infrastructure in the Japanese Empire," *International Review of Social History* 67, no. 2 (2021): 295-316.

Lastly, this chapter postulates that upland highways were conduits through which South Korea's energy transition, South Korea's own expansion of state control over remote highlands, and the U.S. trans-Pacific building of a logistical "artery" across remote mountains could intersect.[155] As the last part of this chapter shows, the U.S. military in South Korea assisted the construction of coal highways as part of its containment strategy. To reiterate my point in Chapter 1, unruly mountains in East Asia were main targets that the U.S. government sought to contain from the spread of communism, culminating in several notable counterinsurgency campaigns in the highlands of Southeast Asia. To prepare for a possible anti-guerilla war in South Korean highlands, U.S. military aimed to build highways connecting key strategic points in Taebaek Highland, the former battleground of a deadly guerilla warfare that Chapter 1 recounts. For the South Korean government, the coal highway brought a significant number population of mountaineers, including swidden farmers, estimated to be at least 250,000 before the Korean War, under the state's gaze.[156] After the completion of the coal highways, the Park regime would use these roads as a conduit for its mountain engineering programs, from transporting construction materials for small and large dams, tree seedlings for reforestation sites, to evicting swidden farmers to reserved "rehabilitation farms." As Jo Guldi has noted, many of the trade and administrative routes that connected the centers and peripheries of Rome, Persia, Bourbon France, and England were originally built for military purposes by mobilized

[155] The analogy of artery and body found in the building of energy translation routes (artery) in the national economy (body) has long tradition in Western Hemisphere. As Cara New Daggett sharply notes, the analogy of artery/body was the outcome of the popularization of thermodynamic epistemology and the biological metabolism. Similarly, in South Korea, the discussion of building the nation's land (*gukto*) was spatial politics, but it was also constructing a new energy regime likened to a biologic metabolism, by developing an energy resource/energy intake, building an energy transportation route/artery, to put the nation/body to work. For more discussion on how thermodynamics, energy regime, and national metabolism was correlated, see Cara New Daggett, *The Birth of Energy: Fossil Fuels, Thermodynamics, and the Politics of Work* (Durham, NC: Duke University Press, 2019).
[156] "Hwajeon Gyeongjak Buji Nongnimbu seo Jueui, *Donga Ilbo*, February 12, 1950.

soldiers.[157] By the same token, the construction of upland highways was an indispensable part of the state-building that integrated the remotest part of South Korea, but also part of the American Empire's building of trans-Pacific transportation routes.[158]

Coal for Growth

Despite the long history of energy use in human civilization, energy, and the ability to measure it, were only "discovered" relatively recently. Nor was the impact of this discovery limited to the fields of physics and chemistry. Cara New Daggett illuminates how the energy metabolism of an organism became a popular concept among scholars who then used it as a model to explain, in thermodynamic terms, the rise and fall of civilizations.[159] Herbert Spencer's argument that the rise of European capitalism was inevitable given the amount of energy input in the past is perhaps the most famous example of such an explanation.[160] Likewise, the Nobel laureate in chemistry, Wilhelm Ostwald, hypothesized the correlation between the evolution of an organism to energy flow and energy metabolism, arguing that "evolution was simply the history of the increasingly productive conversion of the 'native energy' offered by nature."[161] Another Nobel laureate, the British chemist Frederick Soddy, similarly applied the thermodynamic model to the evolution of society. He argued that cheap energy is the true source of wealth because more energy can create more economic value, circulating through different

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[157] Jo Guldi, *Roads to Power: Britain Invents the Infrastructure State* (Cambridge, MA: Harvard University Press, 2012), 5-6.

[158] On the U.S. mobilization of indigenous labor for the construction of Asia-Pacific military logistics, see Woods "Ibid."; Andrew Friedman, "US Empire, World War 2 and the Racialising of Labour," *Race and Class* 58, no. 4 (2017): 23-38; Patrick Chung, "From Korea to Vietnam: Local Labor, Multinational Capital, and the Evolution of US Military Logistics, 1950-97," *Radical History Review* 133 (2019): 31-55.

[159] Daggett, *Ibid*, 116.

[160] *Ibid*, 117-118.

[161] *Ibid*, 116.

sectors just as heat flows in nature.[162] Soddy's energy-determinist view of social progress, dubbed "thermoeconomics" by critics, was more symptomatic than scientific, for it signaled the extent to which theories of evolution and the progress of human civilization were under the influence of thermodynamic epistemology in fin-de-siècle academia.

Economics was not immune to the influence of thermodynamics, as seen most prominently in the example of the nineteenth-century British economist William Stanley Jevons. Jevons became famous for his book, *The Coal Question* (1865), which proved a direct link between gross energy production and economic growth in British history. Using coal consumption per capita as an indicator of energy production, Jevons argued that Britain's massive growth in wealth during the nineteenth century resulted from cheap coal production costs, supplies, and mining technology. But Jevons also expressed concern that Britain's strength might peak in about a century, when coal production was expected to reach an all-time high, which would therefore require the British Empire to secure more energy resources in order to maintain its hegemony.[163] In fact, Jevons's neo-Malthusian energy skepticism also stemmed from the lessons of thermodynamics, which dictated that energy, once consumed, could never be recycled.

By the 1950s, the introduction of GNP as a standard for measuring economic growth and the experience of managing energy as a source of economic growth during the war led the U.S. government and its allies to make securing energy production a top priority, which they thought would ensure the relentless growth necessary to win the Cold War. Phillip Lepenies underscores the significance of the birth of GNP in 1934, which he argues changed the public's perception of

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[162] Frederick Soddy, *The Role of Money* (Hertford, UK: Stephen Austin and Sons, 1934), 1-23.

[163] William Stanley Jevons, *The Coal Question: An Inquiry Concerning the Progress of the Nation, and the Probable Exhaustion of Our Coal Mines* (London, UK: Macmillan and Co., 1866), 102-103. (Pages were cited as per the online version formatted by Patrick Draper.)

the national income: rather than see it as simply raw data for economists, they increasingly saw it as a topic for political debate.[164] While during the Depression of the 1930s the public viewed the GNP as an indicator of the health of the national economy, during World War II it became a barometer to assess the strength of the United States and its enemies, influencing military decisions. For example, relying on economic data, U.S. economists advised striking at Nazi Germany's energy production facilities and transportation routes, which turned out to be the most cost-efficient targets for damaging the German economy.[165]

By the same token, U.S. economists designed the postwar reconstruction plan for Europe to maximize economic growth as measured by GNP. As GNP became, in Gareth Dale's words, "a magic wand to achieve all sorts of goals," the importance of energy resources was also emphasized, as these were what sustained the growth of GNP.[166] In 1952, as geologists warned that the rapid depletion of fossil fuels could slow economic growth, the Truman administration commissioned a report on the prospects for underground resources, including coal, and how it could affect the U.S. GNP growth. Later known as the Paley Report, this report estimated how much more energy would be needed "for a doubling of the size of the US (*sic*) nominal GNP," implying a need for a more aggressive strategy to secure energy resources.[167] The U.S. drive for more energy was also reflected in post-war economic plans for non-communist East Asia. For example, SCAP endorsed the Japanese government's plan to promote the coal industry in 1946,

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[164] Philipp Lepenies, *The Power of a Single Number: A Political History of GDP* (New York, NY: Columbia University Press, 2016), 63.

[165] Mark Guglielmo, "The Contribution of Economists to Military Intelligence during World War II," *The Journal of Economic History* 68, no. 1 (2008): 138.

[166] Gareth Dale, "The Growth Paradigm: A Critique," *International Socialism* 134 (2012) (Retrieved from https://isj.org.uk/the-growth-paradigm-a-critique [accessed March 5, 2024]).

[167] Lane, Richard. "The American Anthropocene: Economic Scarcity and Growth During the Great Acceleration." *Geoforum* 99 (2019): 1

which was known as the Priority Production Policy (*keisha seisan seisaku,* PPP).[168] To speed up coal production, SCAP sent a "Special Mission for Coal Mines" (*tankō tokubetsu chōsadan*) to coal fields in Hokkaidō and Kyūshū to calm labor disputes.[169]

Motivated by the U.S. energy discourse and the success of the Japanese PPP, several educated South Koreans initiated a discussion about building a coal energy regime in their own country. One of these pioneers was Chung In Wook, one of the few people in South Korea with a degree in metallurgy (from Waseda University), who later became the chairman of South Korea's national coal mining company, Dai Han Coal Company (DHCC, *daehan seoktan gongsa*). In 1946, Chung travelled to Japan where he witnessed how the PPP was revitalizing the Japanese economy.[170] As the director of the coal industry for the U.S. military government in Southern Korea (1945-48), Chung proposed a coal development plan similar to that of Japan, but on a much larger scale. He sought to exploit the deep coal seams beneath the Taebaek Highland by mobilizing several million unemployed South Koreans. Chung's project was rejected by his supervisors, who considered him to be megalomaniac, but Chung did not give up.[171] After the Korean War, he displayed his unwavering commitment to a coal energy regime in a column penned in 1956. Citing an article by American nuclear physicist Kenneth Davis, he wrote "the better standard of living would not come without GNP growth, and GNP would not grow without

[168] Laura Hein, *Fueling Growth: The Energy Revolution and Economic Policy in Postwar Japan* (Cambridge, MA: Harvard University Press, 1990), 7.

[169] Michiko Wada and Tai Harada, "Naze keishaseisan hōshiki ga arisawa hiromi no gyōseki ni natta no ka [How did PPP become an achievement of Arisawa Hiromi]," *Keiei ronshū* 5, no. 1 (2019): 6.

[170] Chung In Wook and Chung In Wook Jeongi Pyeongchan Wiwonhoe, *Seongakja Chung In Wook* [Chung In Wook, the foreseer] (Seoul: Chunchugak, 2000), 103.

[171] *Ibid*, 91.

energy supply growth."[172] Chung's column hints at the extent to which thermoeconomics and growth economics permeated the thinking of South Korean engineers and bureaucrats.

The division of Korea into two separate spheres and the subsequent cutoff of South Korea from the energy supply chain of the Asian continent forced SCAP and U.S. military government in South Korea to look to highland anthracite as a primary energy source. In the geological survey mission led by geologist David Gallagher to South Korea in the 1945 (aforementioned in Chapter 2), SCAP ordered to investigate potential energy sources, particularly the anthracite seams in the Taebaek Highland.[173] Based on Gallagher's survey report, a group of American engineers visited South Korea three years later and proposed a plan to develop coal mines in the Taebaek Highland for power generation.[174] A year later, in 1949, an American economic consulting firm, Day and Zimmerman (D&Z), presented a blueprint for building South Korea's coal energy regime based on South Korea's anthracite reserves. After several months of surveying and meeting with South Korean engineers, including Chung In Wook, D&Z geologists estimated that 346.5 million tons of anthracite were recoverable under the Taebaek Plateau, far more than estimates from the colonial era.[175] Describing South Korea as "a country slightly larger than the state of Maine...[with] population of...one seventh that of the United States" and with "less than 25 per cent of the area...suitable for farming," D&Z geologists suggested that the anthracite reserves could be a resource for the industrialization of South Korea, allowing it to

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[172] Chung In Wook, "'Enereugi-" Gaebal e Daehan Jeonmang ["Energy": Its prospect of development]," *Seoktan* 6 (1956): 18.

[173] Gallagher, David. "Report of Activities During Week Ending 23 June 1946." June 24, 1946," Folder: "Selected Correspondence to and from - Korean Branch Mining Division, NRS, GHQ in Korea," Box 9262, Entry UD1838, RG 331, USNA.

[174] Jeong Dae Hoon, "Haebang ihu eui Ceonwon Gaebal Gusang kwa Cholleok Saneop Kaepyeon [Post-liberation power development ideas and the restructuring of electricity industry]," PhD diss., Hanyang University, 2022, 78; 85.

[175] Day & Zimmermann, *Condition*, 392.

manage its overpopulation and over-reliance on agriculture while encouraging economic growth.[176]

Household Energy Transition

While U.S. and South Korean engineers were discussing the coal-powered energy regime in South Korea, the heating energy metabolism of the vast majority of South Korean households remained invisible from the gaze of state bureaucrats. Even as coal began had begun seeping into everyday life of Koreans under Japanese rule, as seen in the increasing use of steam locomotives, steamers, and power plants, local households continued to rely heavily on biomass. Historically, Koreans heated their homes by burning firewood in traditional fireplaces called *ondol*.[177] To produce heat in *ondol*, Koreans collected biomass from trees in the mountains, including firewood, branches, and litter, and burned it in *ondol*. Koreans living in the vicinity of large cities bought firewood from oxcart timber merchants and timber-rafting traders who floated downriver from the Taebaek Highland.[178] (Figure 3.1) The colonial government kept no records of gross firewood production and trade, nor did the subsequent U.S. military government or Rhee regime. As such, it was unclear what share of Korea's total energy consumption belonged to firewood before the Korean War.

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[176] *Ibid*, 6.

[177] See e.g. Fedman, David. "The Ondol Problem and the Politics of Forest Conservation in Colonial Korea." *Journal of Korean Studies* 23, no. 1 (2018): 25-64.

[178] On lumber trade in colonial Seoul, see Bae Jae Soo, "1929nyeon Gyeongseongbu eseo Sobidoen Imsan Yeollyo eui Guseongbyeol Teukseong mit Yutong Gyengno [The distribution of firewood consumed in Seoul in 1929, categorized by sort and character]," in *Ilje Gangjeomgi Joseon eui Sallim Iyong: Saneop Yongjae wa Yeollyojae eui Sugeup Chueui mit Yeonghyang* [Forest use during the colonial period: the supply of lumber and firewood and its ramifications], edited by Bae Jae Soo et al, (Seoul: Gungnip Sallim Gwahakwon, 2005).

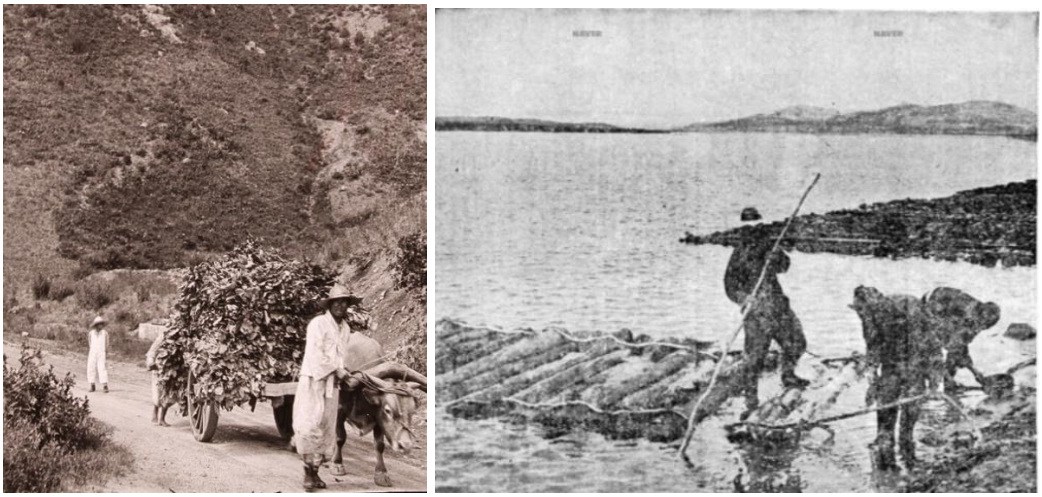

Figure 3.1. (Left) An itinerant firewood trader with an oxcart. Circa. 1928. (Right) Workers organizing timber rafts on a quayside of suburban Seoul in 1959. Left to right, Folder: "Korea." RG 226, Box 4. USNA. Imported by the National Institute of Korean History. Reference code AUS005_06_03V0000_943. http://archive.history.go.kr/image/viewer.do?catalogId=AUS025_24_00V0000_045. Accessed on March 15, 2024; Right: *Kyunghyang Shinmun*, February 19, 1959.

The paucity of state's record on household fuel consumption caused a serious fuel shortage crisis in South Korea during the Korean War. During the war thousands of refugees who lost their homes during the war flocked to major cities, including Seoul. From 1951 to 1954, the population of Seoul nearly doubled from 640,000 to 1,240,000, excluding unregistered residents.[179] In addition, the heating systems of many households were compromised during the recent Korean war, as 55,000 of the existing 200,000 households were reportedly damaged or destroyed.[180] Therefore, it caused an unprecedented demand for firewood that could not be met by suburban forests, which had already mostly been cut down. Even worse, the postwar regime limited the entry of firewood into major cities to protect deforested mountains. To tackle the

[179] Son Jeong Mog, *Seoul Doshi Gyehoek Iyagi: Seoul Gyeokdong eui 50nyeon gwa Na eui Jeungeon* (Seoul: Hanul, 2003): 124-25.

[180] Seoul Metropolitan Government Statistics, http://stat.seoul.go.kr/seoul_system3.jsp?stc_cd=418 (accessed March 1, 2024).

shortage of firewood, South Korean government and American aid agencies introduced coal briquette stoves as a temporary alternative for refugees. Soon, South Koreans found that coal was easier to transport and even more efficient for heating than firewood. As the demand for coal skyrocketed in the midst of the shortage of firewood and population increase, the price of coal briquette had experienced the sharpest price hike of all the commodities that had been affected by wartime inflation.

As dependence on coal grew exponentially, the Rhee regime desperately tried to secure additional coal to maintain public support for his unpopular authoritarianism. However, transporting coal in war-torn South Korea was an extremely challenging task because there was no direct road between the capital of Seoul and the major coal mines in the Taebaek Highland. In 1953, the South Korean government announced that it had produced 350,000 tons of coal, exceeding Seoul's estimated demand of 100,000 tons. However, with the existing transportation infrastructure, the South Korean government could only transport 80,000 tons per month at best.[181] The rest of the coal was stored in yards, some of which was occasionally lost during the rainy season.[182] As hundreds of thousands of tons of coal sat unused in coal yards while cities waited for it to be transported, frustration with the regime's incompetence quickly began to grow.

Some South Korean politicians even reported ominous signs of dissent on the streets of Seoul.[183] In the National Assembly sessions in Fall 1953, some statesmen reported anger heard on the streets of Seoul about the shortage of fuel and perceived incompetence of the Syngman Rhee regime. The situation worsened during the winter seasons as temperatures often dropped to

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[181] Jaehyeong Lee, National Assembly of the Republic of Korea, 2 Congressional Record 16 (September 28, 1953).
[182] Day & Zimmermann, Inc., *Condition, Rehabilitation, and Further Development of Certain Elements in the Industry of the Republic of Korea* (Philadelphia, PA: Day & Zimmermann Inc., 1949), 48.
[183] "Woldong Yollyonan Shimgak." *Donga Ilbo*, September 18, 1951.

5°F (-15°C), with one resident of the city remarking, "We are going to freeze to death."[184] Some statemen targeted the incompetency of the government officials, asking why they had not stockpiled coal., despite a large influx of war refugees into Seoul which, would lead to an increased demand for coal. Several other statemen criticized the government's firewood ban for fuel shortage, calling it "impractical." However, nor could the regime simply lift the ban on firewood heating; indeed, American advisors had warned the government that the continued cutting of trees for firewood would wipe out all of South Korea's forests in just 25 years.[185] The fuel crisis that would continue to trouble the South Korean government throughout the 1950s was a hard lesson for state officials in the importance of a reliable energy supply for what might be called "energy statecraft."

Robert Nathan's report for South Korea's economic statecraft was the first American response to South Korea's fuel crisis, which detailed design for transporting route for highland coal. Unlike previous coal survey reports that focused on electricity, the report of Robert Nathan, a trained macroeconomist who was commissioned to report on South Korea's post-Korean War reconstruction plan, included estimates of household energy consumption. Nathan estimated that the proportion of biomass in total household energy consumption was 97%, far more than anthracite which only constituted 2%.[186] Nathan also warned the South Korean government that firewood consumption was still on the rise, increasing by ten to twenty percent each year. He

[184] Rep. Duyeong Ham, National Assembly of the Republic of Korea, 3 Congressional Record 19 (November 8, 1954).

[185] Robert R. Nathan Associates, Inc., *An Economic Programme For Korean Reconstruction* (New York, NY: United Nations Korean Reconstruction Agency, 1954), 29.

[186] Robert R. Nathan Associates, Inc., *An Economic Programme For Korean Reconstruction* (New York, NY: United Nations Korean Reconstruction Agency, 1954), 299.

attributed the continued use of firewood to its low price and easy accessibility. Coal, by contrast, was expensive, owing to its distance from markets and transportation bottlenecks.[187]

Nathan's report was also inspirational to the South Korean government as it concluded that, in order to combat severe deforestation, the South Korean government should prioritize the distribution of coal to households, not industry. Nathan listed the ongoing environmental disasters in South Korea wrought by deforestation: "Loss of soil fertility through the removal of litter to meet fuel needs, the increased rate of run-off and the lowering of the ground water level, floods, followed by droughts, and the drying up of streams and springs, the silting up of reservoirs and…serious erosion."[188] If deforestation continued unchecked, Nathan predicted that South Korea's forests would disappear in less than 25 years and that South Korea's agricultural sector would collapse. Consequently, he believed that transitioning away from using firewood should be the centerpiece of the South Korea's anti-deforestation plan.[189] Nathan's view resonated with many South Korean technocrats who shared his concern about deforestation and commitment to energy transition. One of these South Koreans was Chung In Wook. In an article, he argued similarly, citing Nathan's report, that moving away from what he called a "primitive" energy consuming structure, in which biomass accounted for 78% of entire energy consumption, was the only way to stop deforestation.[190] In this sense, Nathan's report sparked the creation of one might call "co-production of knowledge" for an energy regime change in South Korea.

Nathan's report was also one of the first to present a master plan for the transportation of coal. This had two components: "industrial railways" and "coal highways." For the first stage,

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[187] *Ibid*, 340-341.
[188] *Ibid*, 296.
[189] *Ibid*, 294.
[190] Jeong In Wook, "Enereugi-," 18-19.

Nathan proposed building at least two branch railways from the Trans-Korean Railway to the mining centers in the Taebaek Highland, crossing deep ravines to do so.[191] In particular, Nathan urged the South Korean government to give priority to the construction of the Yeongam Railway, a proposed line that would connect the mining town of Chollam with the Second Trans-Korean Railway (*jungangseon*), and which would cut through a sixty-mile area that Japanese engineers considered impassable.[192] (Figure 3.2) The Yeongam line was proposed to alleviate a bottleneck caused by the disconnection between the coal fields and the Trans-Korean Railway. As it was, Taebaek's coal had to be shipped from port cities on the east coast to Seoul, a 25-day voyage that resulted in a serious backlog.[193] The construction of the Yeongam line was expected to reduce transportation time to less than a day, cut transportation costs to 10% of the current price, and increase transportation capacity by 160,000 tons per a month.[194]

For the next stage, Nathan proposed building a road network in the Taebaek Highland that would connect hundreds of untapped small coal seams with highland railroad stations, one of which would be built in Chollam. This project would overcome mining difficulties posed by the unique geological formation of Taebaek Highlands. Citing the D&Z report, Nathan noted that the area was "subject to a large amount of faulting and folding," resulting in "no regular, continuous seams of coal, as wild tectonic movements accumulated coal reserves in small, fragmented pockets outside the original seams." Consequently, as Nathan noted, "the reserves of each coal mine were scattered in the deep valleys of the vast plateau with an extraordinarily

[191] D&Z also proposed this railroad but It was first proposed for the development of natural resources including lumber and coal, not for conservation. Day & Zimmermann, *Condition*, 16.

[192] Nathan Associates, *Programme*, 372-373.

[193] Cheoldo Geonseolguk, *Cheoldo Geonseol Yaksa* [The short history of rail construction] (Seoul: Gyotong Gyoyang Joseonghoe, 1965), 72.

[194] *Ibid*, 72.

smaller size of seam than normal mines."[195] The coal scattered in the highland was inaccessible by rail and deemed uneconomical to miners. However, Nathan speculated that these mines could become profitable if a road network could be built to connect the small mines, making them accessible by truck.

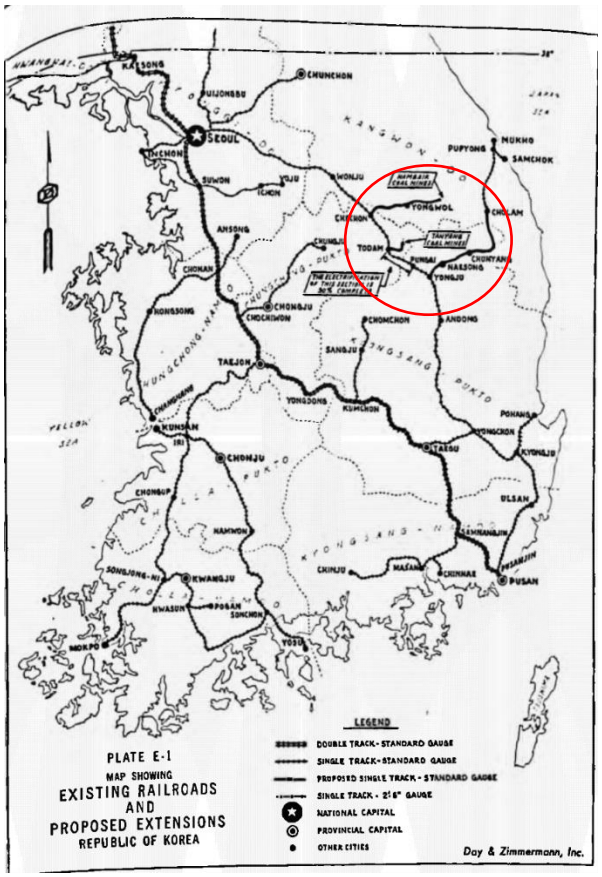

Figure 3.2. Map of the proposed railroad extension (highlighted with a red circle by the author). Day and Zimmermann, *Condition*, 26.

[195] Nathan Associates, *Programme*, 333.

The South Korean government agreed with Nathan that the construction of the Yeongam Line should be prioritized. At the crossfire of fuel crisis and attacks from statement, South Korean state officials also became aware of coal transportation bottleneck, and solving it should be their top priority to address the fuel shorty in Seoul. For Rhee's regime, therefore, establishing transportation routes to the coal minefields was a matter of survival as it faced the twin pressures of grassroots discontent and an environmental crisis.

However, there were two prerequisites for what would be largest infrastructure construction project ever undertaken in South Korea. First, both governments had to secure sufficient funds, engineers, and labor. But soaring inflation in South Korea made U.S. aid agencies reluctant to authorize large expenditures, having witnessed during the Chinese Civil War how hyperinflation undermined public support for the Kuomintang government, leading to its collapse.[196] For this reason, U.S. aid agencies were extremely cautious about providing heavy equipment and engineers to the South Korean government. Second, both governments needed new mobilities. In fact, one of the reasons that the Japanese government had not been able to begin the construction of the Yeongam Line previously was that it did not have diesel locomotives to operate on the line.[197] Colonial-era steam locomotives could not haul heavy loads of coal up the steep slopes in the area. Moreover, South Korean engineers had no experience designing a bridge for heavy diesel freight trains. However, the new mobilities that the U.S. brought in 1945 helped make Nathan's proposal a reality.

Corvée, Conscripts, and New Mobilities

[196] On the view of contemporary economists on the hyperinflation of Kuomintang government, see Colin D. Campbell and Gordon C. Tullock, "Hyperinflation in China, 1937-49," *Journal of Political Economy* 62, no. 3 (1954): 236-245.

[197] "Na eui Reil Insaeng 60nyeon [My life on rail for 60 years]," *Wolgan Joseon*, August 2009.

One of the advantages that Nathan and American engineers had was that they could make use of new mobilities from the U.S: diesel locomotives and the military trucks, both of which contributed significantly to the Allied victory in World War II. Diesel locomotives were unsung heroes on the home front. With far greater pulling power than steam engines, diesel freight trains helped the U.S. economy by transporting goods more quickly over the steep mountains of the American interior and delivering them on time. Likewise, the massive fleet of military trucks gave the U.S. Army the most horsepower of any army in history and helped the it win battles in the rugged terrain of Europe, Asia, and the Pacific. In 1942 alone—the year that the United States entered the war—the army ordered 880,000 trucks.[198] Field commanders praised the incredible mobility and durability of American trucks compared to those of the Axis powers.[199] In South Korea, the truck most commonly used by the U.S. Army was the six-ton GMC model CCMC, which enabled the U.S. Army to control the remote hinterland of South Korea at a very early stage of the occupation. (Figure 3.3)

[198] James A. Wren, *Motor Trucks of America* (Ann Arbor, MI: University of Michigan Press, 1980), 171.
[199] Uwe Feist, *United States vs. German Equipment 1945* (Bellingham, WA: Ryton Publications, 2013), 25-26.

Figure 3.3. A GMC CCMC truck is loading coal at a mine near Hwasun. Circa. 1948. South Koreans nicknamed this truck "jemushi" after the Japanese way of romanizing GMC (*ji-emu-shi-*). RG 111, Entry 111SC. USNA. Imported by the National Institute of Korean History. Reference code AUS005_06_03V0000_943. http://archive.history.go.kr/image/viewer.do?catalogId=AUS005_06_03V0000_943. Accessed on March 15, 2024.

The biggest obstacles to the U.S. Army's trucking operations in South Korea were the limited and poorly maintained roads inherited from the colonial government. Upon arrival in South Korea, the U.S. Army quickly realized that the road conditions in South Korea were worse than expected. South Korea inherited 8,900 miles of roads from the Japanese Empire, but U.S. civil engineers assessed that most of the roads were worn out from severe flooding and heavy wartime traffic, making long-distance travel between villages a challenge.[200] In a 1948 report, the American officials estimated that some 3,000 new bridges would need to be installed to ensure transportation during the rainy season, typically between June and August.[201] But building new roads was even more challenging for engineers. According to one of them, a significant difficulty

[200] "History of the Bureau of Highways." August 3, 1948. Folder: "History of the Bureau of Highways," Box 40, Entry A11256, RG 332, USNA, 4.
[201] "Ibid," 9

was caused by the limited number of days suitable for construction each year, owing to a three-month flood season (June to August) and a three-month harsh winter (December to February).[202]

In response, the U.S Army revived the notorious colonial-era corvée system in 1947 to improve the poor road conditions. This was a "labor tax" that forced one member of each household to provide five days of labor or pay a tax. However, only a small number of workers opted to perform the labor. Learning this lesson, the following year the military government introduced an incentive system to reward the provincial governments with the best performance in road maintenance. This system received an immediate positive response from South Korean governors. According to official records, the U.S. military government was able to capitalize on nearly eight million man-days of work in 1948, equivalent to at least 1.6 million workers.[203] The corvée work in 1948 contributed to a remarkable improvement in road conditions, but it also established a model for civilian mobilization for future projects.[204]

During the construction of Yeongam Line, the cash-strapped South Korean government once again called for corvée labor as a substitute for the heavy equipment. On September 28, 1953, a U.S. aid agency, the Foreign Operation Administration (FOA), approved the expenditure on the construction of the Yeongam Line.[205] For the construction of Yeongam Line, the U.S. FOA appointed Utah Construction Co. for the credit it acquired from the rehabilitation of the Sangdong tungsten mine. Under the supervision of technical consultants from Utah Construction, the U.S. government was to provide heavy equipment to help inexperienced South Korean

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[202] Van Dyke, A. J. "The Present Status of Highways in South Korea July 1955." Folder: "Project-Roads&Bridges," RG 469, Entry UD1276, Box 15, 19.

[203] "History of the bureau of highways," 10-12.

[204] The corvée system under the U.S. military rule continued to the forced labor on the frontline during the Korean War. See Lee Sang Euy, "Hanguk Jeonjaeng ihu eui Nomu Dongwon gwa Nodongja Saenghwal [Post-Korean War Labor Mobilization and the lives of workers]," *Hanguksa Yeongu* 145 (2009): 291-327.

[205] Cheoldo Geonseolguk, *Cheoldo Geonseol Yaksa*, 70.

contractors build 39 tunnels and 56 bridges across the cliffy gorge of the Taebaek Highland.[206] Not long after construction started, however, the Combined Economic Board (CEB), the agency that managed the expenditure of U.S. aid money, cut 95% of the construction budget due to the concerns of postwar inflation.[207]

In the midst of protracted construction of the Yeongam Line, the Syngman Rhee regime faced growing discontent of Seoul residents over fuel shortages, which only worsened when a flash flood in the Taebaek Highland in September 1954 halted all coal shipments to Seoul for a month.[208] Desperate to complete the coal railway before another winter, the Rhee regime hired approximately 3,000 local farmers and North Korean refugees, including the elderly, women and children, to work on the construction sites.[209] With no equipment other than a wooden backpacking frames called a *jiges*, nicknamed "A-frames" by U.S. GIs for their resemblance to the letter, local workers and refugees carried construction materials in the no-man's-land along the narrow gorges of the Nakdong River. (Figure 3.4). The work was arduous, harsh, and frequently delayed, while pay was often late and regularly came in the form of food, such as a sack of potatoes, rather than a paycheck.[210] Some even lost their lives working on the railroad.[211] Their sacrifice shows that the highlanders were sacrificed for the urban dwellers, for fear that fuel shortages would undermine populist support for the regime.

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[206] "Aero e Bongchak han Yeongam Yeongwolseon Gongsa [The constructions of Yeongam Yeonwol line were stuck]." *Chosun Ilbo*, December 20, 1954.

[207] On CEB's role, see Lee Hyun-jin, "1950nyeondae Hanmi Hapdong Gyeongje Wiwonhoe eui Unyeong gwa Yeokhal [The management and role of U.S.-ROK CEB]," Hanguk Minjok Undongsa Yeongu 48 (2006): 385-430.

[208] Cheoldo Keonseolguk, *Cheoldo*, 72.

[209] *Daehan Seoktan Gongsa, Daehan Seoktan Gongsa 50neyonsa: 1950~2000* [The history of DHCC's 50 years: 1950-2000] (Seoul: *Daehan Seoktan Gongsa*, 2001), 100.

[210] "Yeongamseon Gaetong Gongsa [Yeongam line construction]." *Chosun Ilbo*, December 5, 1955.

[211] A total of 24 men were reportedly dead during the construction. "Oneun 14il wiryeongje geohaeng [The ritual ceremony will be held on 14th]." *Donga Ilbo*, January 11, 1956.

In 1955, the Rhee regime decided to mobilize a younger, more disciplined, and, most importantly, cheaper labor force: the engineering corps of the South Korean army. Despite its title of "engineering corps," ROK engineering corps had minimal constructions supplies, typically only shovels, as the FOA was reluctant to supply heavy equipment and explosives to South Korean military units.[212] Consequently, ROK conscripts dug in the mountains with pickaxes and sledgehammers and cleared the areas with their bare hands, even during cold nights when the temperature dropped below 5°F (-15°C) (Figure 3.5).[213] The army's only advantage was that it could use confiscated civilian trucks.[214] Ultimately, by relying laborers working day and night, the South Korean government was finally able to open the Yeongam Line on December 30, 1955.

[212] Cheoldo Keonseolguk, *Cheoldo*, 70.
[213] "Aero e Bongchak han Yeongam Yeongwolseon Gongsa."
[214] "Yeongamseon Gaetong Gongsa,"

Figure 3.4. Local children mobilized to the Yeongam Line construction site. Top left is a child carrying an "A-frame." Circa. 1954. Folder: "Korean National Railway, Construction, Technical Assistance - Korea, 1955-1956." Collection of Utah Construction Co./Utah International, Series 120/3/2 1-2.7, MS 100, Box 94. Weber State University Library.

Figure 3.5. Soldiers carrying rocks from the Yeongam Line construction site with no heavy equipment on site. Circa. 1954. "Folder: Korean National Railway, Construction, Technical Assistance - Korea, 1955-1956." Collection of Utah Construction Co./Utah International, Series 120/3/2 1-2.7, MS 100, Box 94. Weber State University Library.

The opening of the Yeongam Line left a lasting mark on Korea's energy regime. First, it greatly increased the daily transportation capacity of coal. Transportation costs also dropped significantly, as travel time and fuel costs per ton fell from 3,618 South Korean Hwan to 333 Hwan. With lower transportation costs, coal became more competitive on the market and was increasingly demanded by South Korean customers. Meanwhile, the successful construction work of the South Korean engineering corps made a remarkable impression on the U.S. and South Korean governments, suggesting that South Korean conscripts were the best workforce to use for future road construction projects. The trust that the South Korean army earned from the United States led to the South Korean army participating in American-led road construction

projects as subcontractors and, during the next decade, as supervisors of detained civilian workers.

The Coal Highways and Construction Service Corps

After the construction of Yeongam Line, U.S. economic planners and engineers moved on to the next stage, the construction of "coal highways." In 1955, the Office of the Economic Coordinator (OEC), the body that oversaw all aid agencies in South Korea, including UNKRA, FOA, and ICA, approved the South Korean government's Five-Year Plan for Increased Coal Production (*seoktan jeungsan ogaenyeon gyehoek*, 1955-60). The coal highways were the centerpiece of the coal production plan, which aimed to increase output by 262% from 1956 to 1960. The vast majority of that increase was to come from small, scattered, underdeveloped mines that could not yet be reached by road.[215] By building a road network in the highlands, the U.S. and South Korean governments hoped to increase production from small private mines by 503% by 1960 and replace the use of firewood once and for all.[216]

To build roads in the extremely difficult terrain of the highlands, the OEC turned to the U.S. Eighth Army, the commanding army of all U.S. Army forces in South Korea, for assistance of army engineers and heavy equipment. In fact, in the mid-1950s, the U.S. Army was the only organization with enough of both engineers and equipment to lend to major construction projects in South Korea. Eighth Army commanders responded positively to the request of OEC; they were also eager to build highways that penetrated Gangwon highlands to improve the mobility of the U.S. Army in the highlands in a time of potential war. For instance, in a letter to Economic

[215] Lim, "Gun Pagyeondan," *Dongbang Hakji* 139 (2007): 256.
[216] "Ibid," 256.

Coordinator William Warne, Eighth Army Chief of Staff General A. McAnsh stated that several proposed "two-way, all-weather roads" traversing the vast South Korean highlands would give the U.S. army a strategic advantage in the event of a military operation.[217] In 1956, the Eighth Army and the OEC organized an *ad hoc* committee on the road and rail development program, which evolved the following year into a joint OEC-Army-ROK committee for road construction.[218] This committee initiated the construction of four major roads in the highlands, linking cities on the east coast with inland cities in the west, scheduled to be finished by 1960.[219] During construction, the OEC was to provide funding and communication equipment with the South Korean government, while the Eighth Army was to send engineers and equipment.

As per the decision by the Highway Committee in 1957, the U.S. Army mobilized South Korean conscripts and peasants living in highland hamlets to work on the road construction sites as *de facto* forced labor. The U.S. Army and aid agencies could control the South Korean government and military to muster conscripts and peasants, by calling for the participation of South Korean army and the Ministry of the Interior (ROKMIA) in the joint U.S.-ROK road construction committee as observers. In these meetings, U.S. army officers could request South Korean officials to mobilize workers for a project in which they wanted to use South Korean labor. South Korean conscripts were particularly popular with American engineers for their cheap labor costs. OEC engineers found that they could save a significant amount of budget by using South Korean conscripts, as labor costs typically accounted for as much as 80% of the total construction budget.[220] In addition, it was occasionally even easier for American engineers to

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[217] McAnsh, A. T. to Mr. Warne, March 27, 1957. Folder: "project-Highways-Bridges FY57," RG 469, Entry P316, Box 3. USNA.

[218] "Ibid."

[219] "Ibid."

[220] "Transportation." Folder: "Korea Program - FY 1955/56 Cong. Pres. Back-up Material (2 of 2)." RG 469, Entry UD479, Box 3. USNA.

hire South Korean conscripts, as the population of Taebaek Highland was not yet large enough for a massive labor mobilization, while the number of conscripts stationed in this region was high enough after the Korean War. In the meantime, American engineers could hire local peasants suffering from extreme poverty in the post-Korean War countryside at a relatively cheap price for small-scale road construction sites or maintenance projects as well. Mobilized peasants were usually paid half in cash and half in goods, such as cotton and grain.[221] Due to the poor treatment of these workers, the U.S. diplomat in South Korea, Gregory Henderson, referred to these conscripts and peasants as "public slave(s)" in his autobiography.[222]

[221] "NCS Report." June 28, 1961. Folder: "Highway Reports." RG 286, Entry P590, Box 1. USNA.

[222] Gregory Henderson, *Korea: The Politics of the Vortex* (Cambridge, MA: Harvard University Press, 1968), 348.

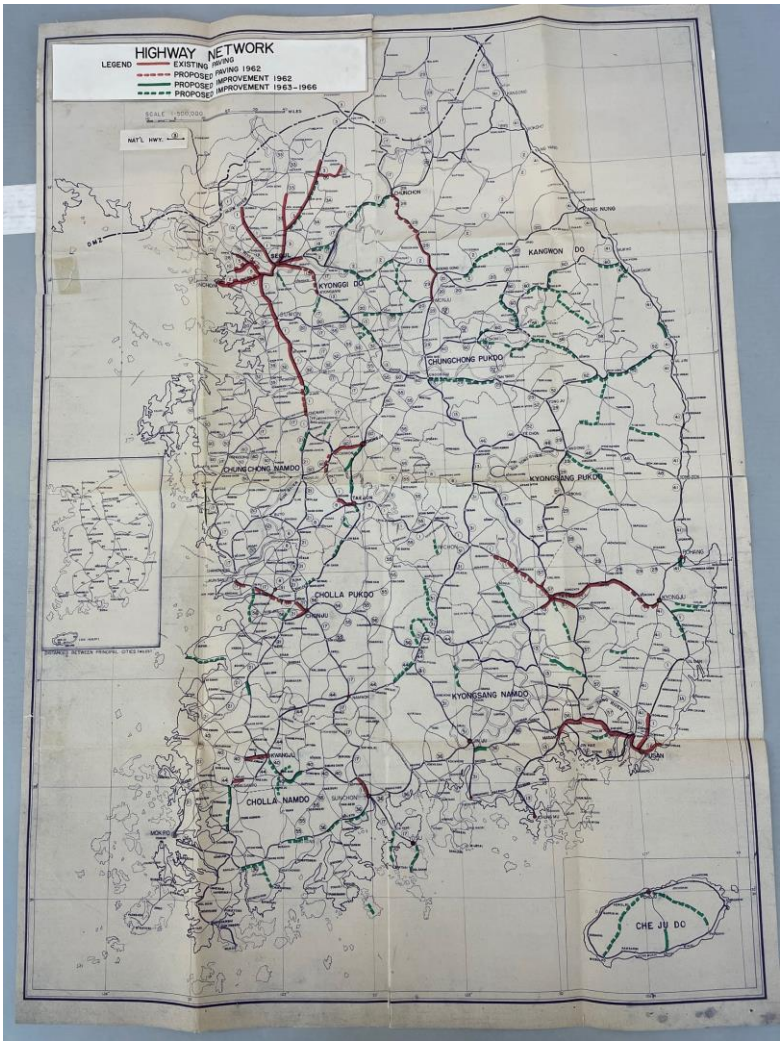

Figure 3.6. Map of highway network plan (1960-66) by OEC. Green dotted lines are proposed highways and mostly concentrated around the Taebaek Highland. Circa. 1960. Folder: "8953.26112-661." RG 59, Entry 1611, Box 2909. USNA. Declassified Authority No. 775023.

Some of the results achieved by South Korean conscripts during their forced mobilization were enough to surprise their American supervisors. For instance, in 1961, the work of South Korean conscripts totaling 14,000 men enabled the U.S. Army was to complete a strategic road project connecting two major cities in Gangwon Province, Chuncheon and Wonju, ahead of

schedule.[223] New highways, improved roads, and maintenance by South Korean conscripts greatly improved the transportation of highland coal to Seoul and made a room for more production in coal mines. Between 1956 and 1961, coal production of South Korea increased by 325%.[224] All of these outstanding achievements were due in part to the improved engineering skills of field officers of South Korean Army. In a report in 1961, an impressed U.S. Army officer remarked that the officers of the South Korean Corps of Engineers had evolved into "county highway engineers," describing them as "virtually the only group of individuals…who possess sufficient training in and knowledge of highway maintenance."[225]

The year 1961 marked a turning point in the construction of coal highways, as South Korean engineers took the initiative of the highland road network project. Having earned recognition from the U.S. Army, the South Korean army and government finally launched their own road construction project. In February 1961, the new government under Prime Minister Chang Myeon announced a plan to build 145 miles of coal highways each year around the counties of Samcheok, Yeongwol, and Jeongseon, home to the last but largest undeveloped coal reserves of South Korea, after acquiring the approval from the Highway Committee. Although American engineers were present on site and provided technical advice, South Korean army officers designed and supervised the construction of the roads with their own conscripts. When there was a labor shortage, officials from ROKMIF mobilized local farmers to construction sites. The Chang government expected that the completed roads would connect numerous private small mines in this region, increasing the production from private mines by 30% while reducing

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[223] "Hwakjang Doeneun Chunwon Doro Gongsa Yeongjang [Chunwon road expansion construction]." *Kangwon Ilbo*. February 15, 1961.

[224] "Yeondom it Wolbyeol Sobyeol Saengsannyang [Coal production by year, month, and mine]." *Seoktan* 6 (1964): Appendix 1-2.

[225] "Highway Maintenance Organization, Korea." Folder: "Highway Reports." RG 286, Entry P590, Box 1. USNA.

transportation costs by 30%.[226] American aid agencies and the U.S. Army supported Chang's plan by providing funds and transporting construction materials. U.S. aid agencies and the South Korean government also hoped that this construction project would alleviate widespread unemployment in this region by hiring locals.[227] However, many local residents saw it as another form of forced labor, leading to growing discontent with the Chang's government around Taebaek Highlands.[228]

The Chang government was unable to see its initiative come to fruition. In May 1961, three months after the plan was announced, General Park Chung Hee overthrew Chang's democratic government. The new military government took over the coal highways project and turned it into what Michel Foucault would have called a stage for "punishment as spectacle," using detained civilians to construction sites for public punishment.[229] For instance, under the new regime, some two thousand hoodlums (*ggangpae*) detained by the military police replaced local residents at multiple road construction sites, including the one connecting the mining towns of Hwangji and Samcheok.[230] The military government announced that this forced labor would teach these thugs the value of work, and many South Koreans saw it as a deserved retribution for their crime.

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[226] "Gaebal Gidarineun Samcheok eui Bogo," *Kyunghyang Shinmun*. February 28, 1961; "Tangwang Jigu Doro Hwakjangdeunge Gun Chamga," *Chosun Ilbo*, April 5, 1961. Also look at *Buheungbu [Ministry of Rehabilitation]*, Gukto Geonseol Saeop Haeseol [The analysis of national land development project] (Seoul: Buheungbu, 1961), 12

[227] "Part I-Highway Maintenance Organization in Korea." Folder: "Highway Reports." RG 286, Entry P590, Box 1. USNA.

[228] "Pumpari ga Deo Natda," May 2, 1961. An American advisor left a similar impression. "An organization exists that is adaptable to a continuing road maintenance program. (but) supervisors apparently do not … properly acquainting the workers with them." O'Neill, Brian B. "Report of Advisory Liaison Trip Spring Road Maintenance Program," March 26, 1962. Folder: Highway Reports. RG 286, Entry P590, Box 1. USNA.

[229] Michel Foucault, *Discipline and Punish: The Birth of the Prison*, translated by Alan Sheridan (New York, NY: Vintage, 2012), 8.

[230] Kang Inhwa, "Byeongyeok," 109.

Aside from the spectacular aspect, the mobilization of hoodlums also aimed at proving the coup leaders' competence in statecraft by providing energy sources to urban households, many of which were still doubtful of the illegitimate coup government. From the beginning of the government takeover, the leaders of the coup government tried to prove their competence by persistently contrasting themselves with the officials of the Rhee and Chang regimes, whom they used to refer to as "obsolete politicians (*gutae jeongchiin*)." One of the ways in which the coup leaders sought to win the hearts and minds of the people was to provide coal at a stable price, unlike the Rhee and Chang regimes. The mobilization of hoodlums was one of the ways the coup government implemented to achieve this goal. To this end, the coup government disciplined hoodlums, allegedly including some innocent civilians, with the aim of opening the road before the winter of 1961. In this regard, the coal highway was a testing ground where the coup government could convince urban residents of its competence. The U.S. Eighth Army and the USOM, aware of this situation, continued to provide material and technical support for the construction of the road, even though they were informed of the detained civilians in the Highway Committee.[231] In November 1961, after six months of construction, the South Korean government announced that the road construction was completed on time.[232]

Seeing that using forced labor from a socially despised group in energy transportation sites was both popular and useful strategy, the military government searched for another group that could be used to finish the coal highways project, which would require at least 40,000 workers. The military government soon found the right prey: draft evaders. The military government estimated the number of draft evaders to be over 200,000, more than 70% of whom

[231] "Meeting of the Working Committee for the Improvement of Highways in Korea," June 22, 1961. Folder: "Paving-Memo of Understanding for FROKA Project." RG 286, Entry P590, Box 3. USNA.

[232] "Samcheok Jigu Saneop Doro Hwakjang Gongsa Wanseong [Samcheok zone industrial road expansion completed]." *Kangwon Ilbo*. December 8, 1961.

were high school graduates with upper-class backgrounds.[233] Under the Chang government, working-class males had staged several protests, urging the government to establish a fair draft system.[234] On August 17, 1961, the military government, aware of the dismay of the working-class conscripts and their families, established the National Construction Service (NCS: *gukto geonseoldan*) and announced that draft evaders would be conscripted and serve in the construction service for one and a half years. The NCS had five brigades, all of which were to work on energy production and transportation sites such as dams, railroads, petroleum plants, and coal highways.[235]

Figure 3.7. Coal highways (*untan godo*) in Jeongseon County today. (Photos taken by author, August 8, 2023.)

[233] Cho Seongeun, "Gukto Geonseoldan eui Jonjae Euieui [Why the NCS exists]," *Choego Hoeibo* 13 (1962): 89; Kim Chaewan, "Taebaek Sallok e Meari Chida: Jeonjik Daehak Gangsa Yeotdeon Eneu Gukto Geonseoldanwon eui Sugi [Echoed in the Taebaek Highland: An account of lecturers who were conscripted to the NCS]," *Shinsajo* 1, no. 9 (1962): 222.

[234] Kang Inhwa, "Byeongyeok," 109.

[235] Im Songja, "Gukto Geonseoldan," 925.

Figure 3.8. Garrison buildings of the Third Brigade, NCS. Jeongseon County. (Seoyeon Kim, Yeohaeng Seukechi Jeonseon. Seoul: Jeongseongun, 2020, 182-83.)

The Third Brigade of the NCS played a crucial role in the military government's plan to build a 25-miles (40 km) road through the deepest valleys of Jeongseon County in the Taebaek Highland. Geologists estimated that Jeongseon County's coal reserves were the largest in the country, but many of the seams remained untapped because of the lack of roads. To develop these mines, the military government assigned the largest number of men (4,760) to the Third Brigade and sent them to Jeongseon County. In order save expenses, NCS conscripts were given only shovels to perform various tasks, including breaking rock found thirty-feet (10 m) underground.[236] Wages remained low, leave was not allowed, and the work was intense, leading to many injuries and three deaths, at least.[237] After the conscription period ended, the conscripts were allowed to go home on December 31, 1962, leaving behind a nearly completed two-way coal haul road in Jeongseon County.[238]

[236] Seo Namwon, "Na eui Geonseoldan Saenghwal Sugi [My diary during the NCS service]." Sasanggye 11, no. 1 (1963): 283.
[237] "Ibid," 283.
[238] "Ibid," 287.

After the completion of the coal highways in Jeongseon County, deep-seated coal seams of this region finally became profitable. One of those mines was Sabuk Mine, the largest privately owned coal mine in East Asia, which was put into operation in 1962, following the opening of the coal highway around the mine. Some of the largest coal producers in South Korea, including Samtan Mining Co., could expand its business over the next decades based on its profits from massive coal mines in this region. These private coal mines of the Taebaek Highland would play a critical role in South Korea's fuel transition by supplying cheap coal briquettes to Seoul, which was mined by people who risked their lives in 3,000-foot underground shafts, and endured extremely low wages, compared to state-owned DHCC. In 1968, DHCC announced that coal now constituted 85% of fuel consumption in urban households, suggesting that the fuel transition to coal was in its final stage.

Conclusion

The construction of coal railroad and coal highway had three historical implications; first, it accelerated South Korea's energy transition from firewood to coal in households, which accounted for the vast majority of energy consumption in South Korea; second, the road networks in highlands integrated heretofore uncontrolled areas of South Korean mountains into the rest of the South Korea and, by extension, the trans-Pacific logistics lines of the U.S. empire[239]; third, the energy regime change left two notable Anthropocenean markers: the world's fastest growth in forest stock in the last fifty years and the world's second highest carbon

[239] The construction of upland highways was not uncommon projects in the highlands of non-communist East Asian countries. For instance, Taiwanese government built Central Cross Island Highway (zhongheng gonglu) with the support of the U.S. aid agencies in the 1950s. In the next decades, U.S. aid agencies and military opened new roads that penetrated jungles and forested mountains in Indochina.

emissions from coal per capita (2023).[240] The excessive carbon emissions that South Korean society would experience in the years that followed were an unexpected result of the opening of South Korea's mining frontier, initiated by the mining of Sangdong tungsten and the construction of coal highways in the 1950s.

The uniqueness of coal highway and South Korean opening of highland frontier is found in Park regime's hijacking of road construction initiative, driven by the regime's imperative to secure populist supports. As this chapter reveals, the fuel crisis was the main driver of the transition to coal in Syngman Rhee regime. Similarly, the Park regime sought to establish their legitimacy by solving the energy transportation bottlenecks using draconian tools that were off limits to democratic regimes: the corvée, forced labor, illegal detention, and the spectacular *amende honorable*. In one sense, the building of coal highways suggests an insidious symbiotic relationship between fuel consumers, who wanted a stable source of heat, and the illegitimate authoritarian regime, which demonstrated its *raison d'être* by securing it. By the same token, this symbiotic relationship brought about a spatial hierarchy between the energy consumption center and the exploited, and even colonized energy production center in highlands.

[240] "Jeonjaeng hu Sallim Bogwon Seonggong han Segye Yuil Gukga [The only country that restored the forest after the war]," *Jungang Ilbo*, October 13, 2020.

Chapter 4

A New Ecosystem:

Post-Korean War Soil Conservation and Reforestation, 1950-1960

> South Korea is a forest country (*sallim gukga*), for 73 percent of its territory is forest…Some people say that South Korea is an agricultural country. But in essence, South Korea is a forest country.
>
> —Kang Jinguk, 1956.

This chapter foregrounds the reforestation project in the 1950s as another turning point in the use of mountains and forests in South Korea. I argue that the 1950s marked a transition of state's goal of forest management from exploitation to preservation for the first time in Korena history. In this period, the postcolonial state steeped up reforestation efforts and banned the collection of related resources, implementing a mode of forestry that Takemoto Taro calls "protection forestry" (Figure 4.1). This type of forest management was opposed to "exploitation forestry" in previous regimes. As noted in Chapter 1, the GGK initiated the scientific management of forest and conservation efforts on denuded mountain slopes to tackle the catastrophic deforestation of Joseon Dynasty.[241] However, colonial officials and peasants alike envisioned forests as the major source of heating energy and timber production, and thereby the focus of colonial forestry was to maintain the equilibrium between harvested forests and

[241] Notable works on colonial management of forest are Jae Soo Bae and Yeo Chang Youn, "Ilje Gangjeomgi Joseon eseoeui Shikminji Sallim Jeongchaek gwa Ilbon Jabon eui Chimtu Gwajeong," *Sallim Gyeongje Yeongu* 2, no. 1 (1994), 1-37; Young Shim Kang, "Ilje Shigi Gukyurim Daebu Jedo eui Shikminjijeok Teukseong gwa Daebu Bandae Tujaeng," *Ihwa Sahak Yeongu* no. 29 (2002), 101-130; Choe Byong-Tek, "Ilje ha Jeonsi Chejigi (1937-1945) Imeop Dongwon chaek gwa Sallim Jawon Gongchul," *Hanguksa Hakbo* no. 32 (2008): 267-305; Woo Yeon Lee, *Hanguk eui Sallim*; David Fedman, *Seed of Control*; Takemoto Taro, "A History of Tree Planting in Modern Japan: Resource Utilization and Environment Conservation," in *Handbook of Environmental History in* Japan, eds. Fujihara Tatsushi (Amsterdam: Amsterdam University Press, 2023); Nakashima Koji, *Teikoku Nihon to Shinrin* (Tokyo: Keiso Shobo, 2023).

reproduced trees through artificial reproduction and forced repression of timber and firewood demand.[242] The unstable equilibrium of "exploitation forestry" finally crumbled after the demise of the Japanese empire in 1945, leading to the fastest deforestation in the twentieth century as a result of it (See Chapter 1). In this regard, the postcolonial state's reaction to deforestation, including the ban on the collection of forest resources and the nationwide reforestation, marked a transition from colonial-era exploitation of forests to "protection forestry," the mode of forestry in which the resources of forest was protected as a source of the nation's water and topsoil.

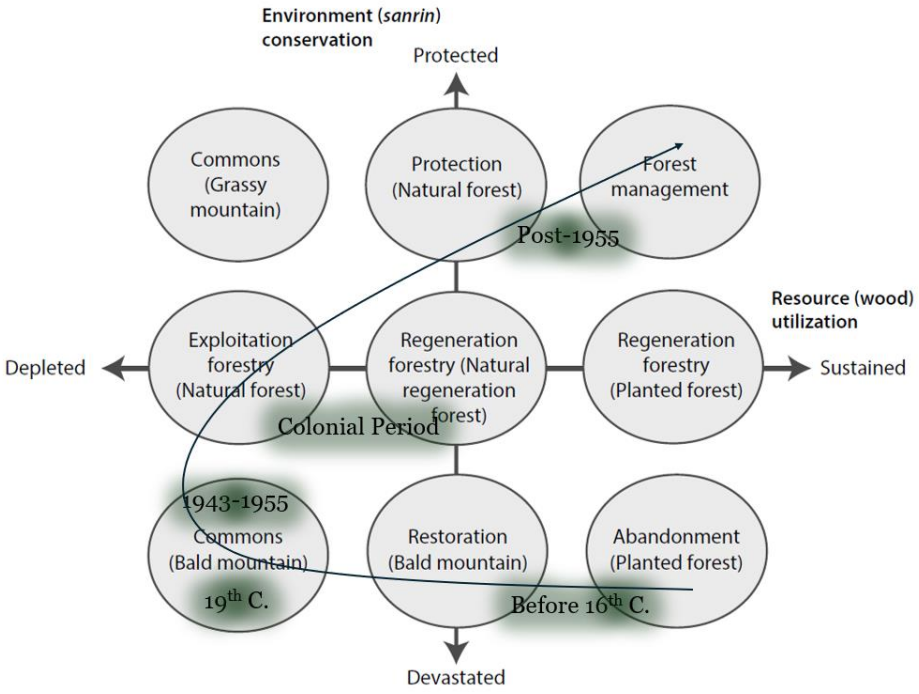

Figure 4.1. The curve of the historical transformation of Korea's forest management. Japanese historian Takemoto Taro designed nine models of forest management by resource utilization (x-axis) and environment conservation (y-axis). On Takemoto's model, I have overlaid the course of Korea's forest management since the sixteenth century, which resembles a tilted "C" shape. Takemoto Taro, "A History of Tree Planting in Modern Japan," 236.

[242] On forest exploitation during the colonial period in Korea, see David Fedman, *Seed of Control*, 119-174.

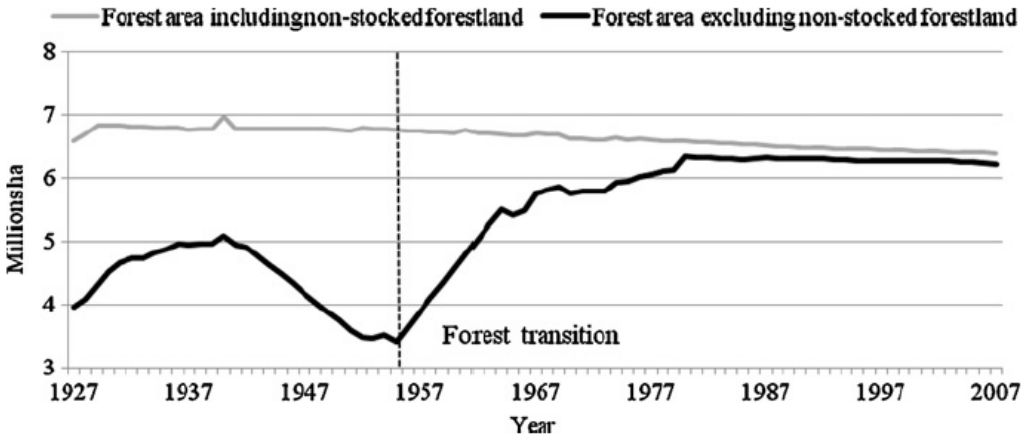

Figure 4.2. South Korea's Forest Stock Trend. This chart clearly shows the drastic upward trend in forest stock since 1955, implying that a massive reforestation offset annual losses from firewood cutting. This chart also suggests the early efficacy of energy transition from firewood to coal, sanctions on firewood distribution, and replacement effect of imports from Southeast Asia. Jae Soo Bae, Rin Won Joo, Yeon-Su. Kim, "Forest Transition in South Korea: Reality, Path and Drivers," *Land Use Policy* 29 (2012), 2000.

American foresters introduced "protection forestry" in South Korea out of a fear that unless South Korea accepted U.S. forestry tutelage, it would face environmental disasters such as the Dust Bowl or agricultural collapse experienced in non-Western civilizations. As I introduced in Chapter 1, citing Nick Cullather's book, the bleak view of neo-Malthusianism was utilized to justify their unsolicited presence of American scientists in the "Third-World" during the Cold War.[243] This chapter posits that American foresters justified their intervention in and engineering of the existing ecology of South Korea, by spreading the neo-Malthusian fear that South Korean agriculture would collapse if deforestation continued. The neo-Malthusian fear of deforestation and agricultural collapse consequently reinstated the colonial-era hierarchy between American

[243] On how the U.S. agrotechnological assistance in Asia was associated with its Cold War strategy in East Asia, see Nick Cullather, *The Hungry World*; Michael E. Latham, *The Right Kind of Revolution: Modernization, Development, and U.S. Foreign Policy from the Cold War to the Present* (Ithaca and London: Cornell University Press, 2011), *93-122*.

foresters and local governments, and local tree-planters, one that Richard Grove calls "Green Imperialism," the concept he coined to refer to how European efforts at environmental conservation rationalized the colonizers' rule over indigenous people.[244]

Although the "protection forestry" was first introduced by American foresters, South Korean government, foresters, and local society projected their own interests onto the new forestry management in the late 1950s, creating another example of trans-Pacific co-production of knowledge and governance. To illuminate how the interests of each actor were intersected, I highlight the VFA as the vehicle of reforestation in which the respective positions of each actor and their knowledge, technology, and labor became entangled. The VFA was an organization formerly established by GGK and revived by the South Korean government as postcolonial project. Established in 1933 to utilize the labor of villagers to monitor forests, the VFA was reorganized by the South Korean government after the Korean War with the support of American foresters who warned of an environmental crisis that could topple Syngman Rhee's fragile regime. As such, I foreground how American forest scientists and silviculturists advised the South Korean government to design a reforestation program that incentivized hamlets to participate and thereby rapidly reforest the mountains. In this way, this chapter illuminates how the legacies of Japanese colonial forestry organizations, American science and technology, and South Korean vernacular forestry knowledge and labor intersected to enable the advent of "protection forestry."

[244] Richard Grove points out that the British idea of environmentalism and the concept of nature conservation was derived from its colonial experience in West Indies and South Asia where early British colonists positioned themselves as the keepers of nature in what they perceived as "Eden" and "utopia." Richard H. Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1860* (Cambridge, UK: Cambridge University Press, 1995).

Considered in this way, the forest transition of the 1950s should be seen as a trial-and-error process informed by multiple factors and experiences in and across the Pacific, including the pre-World War II U.S. soil conservation campaign, the U.S. trans-Pacific trade network, the legacy of colonial forestry organizations, forestry science, and local economy. Postwar chaos, deforestation, and fragility of the postcolonial state created a situation wherein the postcolonial state had to address the interests of the relevant actors and steer reforestation in a direction that would somehow satisfy all constituents. Before the war, each actor—the U.S. and South Korean states, technocrats, and local farmers—had different interests and visions that inevitably conflicted with one another. For instance, before the Korean War, the South Korean and U.S. governments were poised to restrict local societies from collecting forest resources. This plan was challenged by the dissent of highland communities, as it threatened the traditional mode of production of the highlands, one that I call "organic relationship" in Chapter 1, in which forests were an integral part of the rural ecosystem as sources of fuel, fertilizer, foods, fodder, and timber. Faced with the threat of deforestation after the Korean War, state and local actors were forced to mediate their tensions and explore a course in which all parties could participate. Viewed in this way, I analyze the reforestation of the 1950s, characterized by the monoculture forestry conducted by VFA and incentive system, as a compromised outcome of intermediated conflicts and interests between state and local actors in the face of unprecedented environmental crises.

In addition to the American and South Korean actors mentioned above, I foreground "easy-to-grow, fast-growing, and hardy trees"—*Pinus rigida,* Manchurian alder, and Black locust—as important non-human "agents" that mediated the conflicting interests of the American empire, the postcolonial state, and local society. During the colonial period, Japanese foresters

introduced these foreign trees to the Korean Peninsula and planted them on fragile slopes to stabilize the soil. But these species were not widely planted by Japanese foresters because of their low quality as wood. After the end of colonial rule, South Korea began importing timber from the Philippines to offset domestic cutting. With the influx of Philippine timber, formerly valuable trees during the colonial period lost their value. On the other hand, the planting of fast-growing trees was encouraged by the U.S. and South Korean foresters. Fast-growing trees were also favored by local VFA units, as local society could receive more subsidies from the U.S. and South Korean governments by growing trees and sell them faster than the trees favored under colonial rule. Because all three parties favored fast-growing trees, the reforestation of the 1950s was characterized by mass-planting of a few fast-growing species. Consequently, this chapter shows how geopolitical events—the collapse of the empire and the Korean War—changed the heretofore value of trees in the local society and culminated in the largest ecological succession in the history of Korean highlands.

The post-Korean War reforestation also broke off the organic relationship between villagers and mountains once and for all, as it was replaced by an artificial ecosystem sustained by American funds and technology. The emergence of "protection forestry," in which locals played a crucial role, seems to suggest the growing agency of local society in the reforestation campaign in the 1950s. However, in the long-term environmental history of mountains, one could clearly see the agency of locals was subordinated to the control of the state in the 1950s, which dramatically increased its potency over the mountains with the construction of coal highways and trucks (see Chapter 3). Hence, from a long-term perspective, I interpret that reforestation of the 1950s was another Cold War (and Hot War) event that reorganized the preexisting relationship between highland dwellers and mountains, along with the mining

industry boom and the construction of infrastructure. In place of the "organic relations," as sections that follow suggest, an artificial forestry, in which forests served as the reservoir of water and fertile topsoil, in the context of neo-Malthusian "mountain nation" discourse. (see Chapter 1).

Messengers of Neo-Malthusian Revelation

In South Korea, postcolonial forestry management was first initiated by American foresters in 1946. A little-known historical fact about the U.S. military occupation of southern Korea (1945-48) is that American foresters were one of the first civilian government workers sent to South Korea. In an attempt to reverse the devastating deforestation of South Korean mountains, the U.S. government sent 12 foresters from the National Forest Service (USNFS), led by Stanley Wilson, a senior forester in the Southwest Bureau of the USNFS.[245] These American foresters believed that the deforestation of South Korea's mountains was so severe that it was the most pressing issue for the new South Korean government to address. Their commitment to the reforestation of South Korea stemmed from a European tradition of exploitation forestry that U.S. foresters had also adopted by the turn of the twentieth century. In their view, the dense forest was an indicator of a nation's power; as such, South Korea, they argued, must restore its forest for the future of its industrial and military capability. This intellectual tradition was not an unusual concept for many South Koreans, who had been exposed to Japanese "forest-loving"

[245] "The Forest Situation in South Korea and What Should be Done about It," October 2, 1950, Folder: Forestry in Korea 1947-50, RG 331, Entry UD 1833, Box 9153, USNA.

campaigns.[246] But what most South Koreans were unaware of was an event that turned American foresters into fighters against desertification: The Dust Bowl.

To combat the Dust Bowl that devastated agriculture in the Midwestern states, the U.S. government created the Soil Erosion Service (SES) in 1933 with a budget of $5 million.[247] The SES's first director, Hugh Bennett, argued that "soil erosion is the biggest problem confronting the farmers of the Nation," and "removal of forest growth, grass and shrubs and breaking the ground surface by cultivation, the trampling of livestock, etc." were driving the soil erosion "to a degree far beyond that taking place under average natural conditions."[248] Since deforestation was the main cause of soil erosion, Bennett urged the federal government to "reestablish and conserve the optimum vegetative cover" to retain moisture and bind topsoil.[249] Bennett's ecological strategy won the support of the U.S. government, and subsequently led the officials to delegate more responsibility to USNFS foresters. Before the Dust Bowl, for example, the primary responsibility of the Southwest Bureau of the USNFS was to issue permits to ranchers and check cattle numbers. After the Dust Bowl, Southwestern foresters were empowered to manage the reforestation project on their own, from policing excessive grazing to training the members of CCC and supervising their planting service.[250]

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[246] On the invocation of "forest-loving" spirit under colonial rule, see Fedman, *Seeds of Control*. On the labor mobilization for tree planting under colonial rule, see Choe Byong-Tek, "Ilje ha Jeonshi Chejigi (1937-1945) Imeop Dongwon chaek gwa Sallim Jawon Gongchul."

[247] Sarah T. Phillips, "Lesson from the Dust Bowl: Dryland Agriculture and Soil Erosion in the United States and South Africa, 1900-1950," *Environmental History* 4, no. 2 (1999): 256.

[248] H. H. Bennett and W. R. Chapline, *Soil Erosion a National Menace* (Washington: United States Government Printing Office, 1928) 1; 23.

[249] *Ibid*, 31.

[250] On the changing duties of USNFS before and after the dust bowl, see Edwin A. Tucker, *The Early Days: A Sourcebook of Southwestern Region History Book 1* (Albuquerque, NM: USDA Forest Service Southwestern Region, 1989). Stanley Wilson was also a forester who started his career in USNFS in New Mexico, after graduating Yale Forestry School in 1914. Tucker, *The Early Days*, 397-398. On the U.S. government's control of livestock grazing in Southwest America since the 1930s, see B. C. McClure, "Policies Related to Combating Desertification in the United States of America," *Land Degradation & Development* 9 (1998): 386.

In the 1940s, academic accounts on the threat of soil erosion and the importance of forestry took on a much more apocalyptic tone, coupled with new theories from archaeology and ancient historiography that explained how overpopulation and deforestation contributed to the demise of ancient civilizations. In their search for the answers to the sudden demise of great ancient civilizations, many archaeologists and historians in the early twentieth century primarily blamed the ancients' lack of ecological knowledge. Still in the 1940s, the samples of paleoclimatological data were too small and the impact of climate change was not well known. As such, excessive agriculture, grazing, and consequential deforestation were the most plausible theory to explain the sudden fall of civilizations. The scholarly tendency to blame the ignorance of the ancients was particularly prevalent in the accounts on the civilizations in the Middle East, India, the Pacific Islands, and Mesoamerica; mostly non-Western civilizations.[251]

Archaeological theories linking overpopulation, deforestation, and the collapse of agriculture in the non-Western world were widely cited by ecologists who presented apocalyptic revelations that overpopulation and deforestation could wreak. In 1948, ecologist William Vogt's best-selling book, *Road to Survival*, described the catastrophic consequences of soil erosion that could result from "deforestation, overgrazing, and bad farming."[252] If the United States continued to overlook the effects of soil erosion, he warned, Americans could face the fate of "the oblivion of Ur, of Timgad, of Ankor Wat, of the North Chinese, of the ancient Mayans."[253] Similarly, leftist writer Edward Hyams described how the warfare of the early Mesopotamian city-states destroyed their forests and led to massive soil erosion in the region. In a much more

[251] Some notable works on the collapse of ancient civilizations due to deforestation are, on Mesoamerica, see Orator Fuller Cook, *Milpa Agriculture: A Primitive Tropical System* (Washington: Government Printing Office, 1921); on Easter Island, see Thor Heyerdahl and Edwin N. Ferdon, Jr. eds. *Reports of the Norwegian Archaeological Expedition to Easter Island and The East Pacific Volume 1: Archaeology of Easter Island* (Chicago, New York, and San Francisco: Rand McNally & Company, 1961).
[252] William Vogt, *Road to Survival* (New York: W. Sloane Associates, 1948), 121.
[253] Vogt, *Ibid*, 151.

cynical tone, Hyams called the ancient Mesopotamians a "disease organism," along with the Mayans, who allegedly deforested their tropical forests without realizing they were sealing their own doom.[254] Despite their caveats aimed at the American and Western civilization, these popular accounts carried a racialized prejudice that Asian, Middle Eastern, and pre-Columbian American civilizations were deprived of advanced forestry and ecological knowledge.

In the post-World War II reconstruction missions around the world, American foresters invoked the racialized discourse of ecology to justify their management of non-Western forest lands. For example, in his book, *Conquest of the Land through Seven Thousand Years*, Walter Lowdermilk, the deputy director of the SCS, suggested that the collapse of early Middle Eastern civilizations was due to their ignorance of ecology and the importance of forestry.[255] Lowdermilk's book contrasted the fate of the Middle East with France's anti-desertification initiative, which he claimed had successfully curbed the expansion of sand dunes along the Atlantic coast, implying the need for the Western European mandate of forest management in the Middle East.[256] In fact, Lowdermilk later supported the foundation of Israel, and one of his justifications was that Israelis had demonstrated their compatibility in dealing with desertification, which the Palestinians had long struggled with but failed.[257] In a nutshell, Lowdermilk was an emblematic example of what Richard Grove calls "green imperialists" who justified postcolonial Western intervention on indigenous lands with a self-serving commitment to preservation.

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[254] Edward Hyams, *Soil and Civilization* (London: Thames and Hudson, 1952), 58; 94.
[255] W. C. Lowdermilk, *Conquest of the Land through Seven Thousand Years* (Washington: U.S. Government Printing Office, 1950), 2-13; 15-20.
[256] *Ibid*, 20-23.
[257] Lowdermilk also published a book, entitled, *Palestine: Land of Promise,* in which he advocated of Zionist movement. For more on the work of Walter Lowdermilk in Israel, see Robert Rook, ""The Eleventh Commandment" and A Land of Promise: Walter Clay Lowdermilk and the Middle East, 1937-1944," *Fort Hays Studies* 4, no. 3 (2007): 13-39.

SCS foresters in South Korea under American occupation were heavily influenced by a similar orientalist ecology. UNKRA forestry specialist J. Hugo Kraemer, for example, attributed the "low standard of living of China and India" to their destruction of forests, in a letter to another U.S. government official. In the same letter, he suggested that South Koreans needed the stewardship of U.S. foresters to achieve a high standard of living, saying: "the status of the welfare of a nation is directly related to the extent and condition of its forests."[258] Meanwhile, UNKRA's advisor in South Korea, Paul Zehngraff, similarly invoked the collapse of ancient civilizations, as did other SCS officials and environmental pessimists. As he wrote his 1950 report on the deforestation of South Korea's mountains:

> Effects of deforestation are well demonstrated in various parts of the ancient world: when the protective forest cover is removed the organic life, which has been created in the soil over centuries, quickly disappears due to exposure and leaching. When the controlling factors of forest cover removed, the climate is drastically changed. Temperature ranges become severe and sudden, precipitation becomes sporadic, and drought periods alternate with flash rains which erode the unprotected hill-sides, depositing the outwashed materials on productive fields and instreams, causing floods and severe losses. The water levels go down and agricultural production decreases. Winds whir up the dust, air composition is changed, the rate of certain diseases is sharply increased and the population subsists in poverty on commercial fertilizers and drugs. South Korea is rapidly approaching this stage of destruction.[259]

[258] J. H. Kraemer to R. S. McClure, "UNKRA Forestry Budget for FY-1954," March 25, 1953, Series 0526, Box 0187, File 0002, UN Archives.
[259] Paul Zehngraff to Chief, UNKRA, "Peat Production, Korea," November 5, 1951, Folder: South Korea (Manuscript), RG 331, Entry UD 1833, Box 9153, USNA.

Zehngraff's survey report was a rallying cry that justified the U.S. government's intervention in South Korean forestry, on the premise that South Koreans were incapable of averting an unprecedented environmental catastrophe of their own making. With this report, Zehngraff aimed to raise the public awareness about deforestation in South Korea. His survey report was a clear message to South Koreans to take immediate action against deforestation, in a similar tone to Vogt and Hyams's warning to the American and British public. Zehngraff's report was, in part, intended to be read by aid policy makers in the U.S. government. Drawing on the lessons learned from ancient history, Zehngraff's report urged the U.S. government to take immediate action; otherwise, it could soon face a serious security problem in East Asia with the collapse of South Korean agriculture and economy.

Transition to Preservation Forestry

In 1946, the U.S. tutelage over South Korean forestry began with naïve optimism that culminated in the fastest deforestation in Korea in the twentieth century. U.S. government officials shared the positive view that South Korean forests could be protected without taking such extreme measures as banning all types of forest exploitation. Even some American foresters believed that South Korea should soon strive for self-sufficiency in timber production. For example, in 1946, SCAP's scientific advisor, Percy E. Melis, wrote that the goal of Japanese erosion control in colonial Korea had been to maintain a balance between reproduction and timber demand, and that Japanese had been very successful.[260] Therefore, it was not unreasonable for Melis to believe that American foresters could also restore the balance by letting South Koreans plant more trees and by reviving some conservation measures of the

[260] "The Forestry Situation in Southern Korea," July 26, 1946, Folder: South Korea (Manuscript), RG 331, Entry UD 1833, Box 9153, USNA.

colonial period, despite some overcutting by South Koreans. In the near future, Melis and his colleagues expected that South Koreans could reproduce more forest area than they had lost after the Japanese surrender. By this estimate, the self-sufficiency in timber production was not an unrealistic goal for American officials in South Korea.

Contrary to Melis' optimism, however, deforestation went too far and worsened during U.S. military rule. The main reason was that the U.S. military government could not fill the vacuum in forestry agencies caused by the repatriation of Japanese foresters. For example, the total number of South Korean foresters at the Central Forestry Bureau of the military government was only 36, and only 25 of them were trained in forestry. Due to a shortage of personnel, one forester had to administer 50,000 hectares of forest, including all illegal logging cases that took place in their assigned forests.[261] The situation was even worse in remote highlands. In Gangwon Province, for example, one South Korean forester had to manage all forest areas of the entire province. His duty included civil affairs, planning of national forests, monitoring of illegal logging, and flood control and reforestation programs, all of which had previously been managed by 12 Japanese foresters.[262]

With no viable options at hand, the U.S. military government abandoned the timber self-sufficiency plan and sought to import timber to suppress domestic demand. In 1948 and 1949, the U.S. military government and the new South Korean government imported nearly two million pits of timber from the United States. In the same year, the ECA proposed the South Korean government import lauan wood from the Philippines, presumably to save on production and transportation costs. In early 1950, the first lauan wood arrived at the port of Busan.[263]

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[261] "Ibid."
[262] "Ibid."
[263] "The Forest Situation in South Korea and What Should be Done about It."

Although American and Philippine timber reduced the demand for local timber, there was still a much greater local demand for firewood, which could not be replaced by imported timber.

The U.S. government aid agencies in South Korea also looked for a "scientific" management of forest in order to tackle deforestation in South Korea. In 1950, ECA hired Paul Zehngraff, the American forester who had experience of forest management in American Midwest, as forestry consultant in South Korea to develop an anti-deforestation plan in South Korea. In June 1950, he submitted his first survey report for South Korea's deforested highlands, including a five-year forest conservation plan, aimed at overhauling what he viewed as exploitation forestry under colonial rule. In this report, Zehngraff made four recommendations. First, he suggested the development of alternative heating sources, including coal. In particular, he believed that domestic peat had the potential to replace demand for firewood. Second, he proposed increasing imports of wood to completely replace the domestic production of wood. Third, he called for a large-scale tree-planting program modeled after Japanese reforestation methods. Specifically, Zehngraff suggested to initiate a two-stage process of tree-planting program developed by Japanese foresters: first, to seed fast-growing trees directly on the ground to enrich the soil, and next, to replace these trees with more valuable trees for permanent use. Finally, Zehngraff proposed to train foresters thinning and selection techniques.[264] Zehngraff's plan was by far the most preservationist forest management plan among other American proposals. However, as Lisa Brady notes, Zehngraff's proposal did not go so far as to abandon exploitation forestry. The ultimate purpose of his forestry was still to harvest valuable trees.[265]

[264] Working Group Agriculture and Fisheries Sub-Committee to Program Planning Committee, "Program Planning, Forestry and Land Conservation," June 23, 1950, Series 0525, Box 0020, File 0011, UN Archives.
[265] Lisa Brady, "Sowing War, Reaping Peace," 354-355.

Zehngraff's proposal never had a chance to shine. By the time his proposal reached his supervisor's desk, the North Korean army had crossed the border and occupied Seoul in the summer of 1950. Three years of civil war left a far greater impact on the environment of South Korean mountains than the previous five years combined. As a result, state forestry management was suspended until the end of 1951. Many parts of forests were affected by the war as artillery shells scorched dry forests.[266] The fate of remaining forests was not as fortunate. During the winter, refugees who had lost their homes rushed into forests and cut down trees for firewood and timber to rebuild their homes. Demand for wood also came from the South Korean and U.S. armies, as their militaries also needed large amounts of wood to build numerous bridges for military operations.[267] Even early in the war, in October 1950, Zehngraff estimated that if this deforestation trend continued, South Korea's forest capital would be depleted in 18 years.[268]

In another 120-page report submitted to the U.S. government in October 1950, Zehngraff proposed a complete shift in forestry from what he called colonial "destroy and repair" forestry to "maintain and improve" forestry, aiming for the "Americanization" of Korean forest management. This proposal marked a significant moment in the history of South Korean forestry as the U.S. and South Korean government foresters would follow the advice Zehngraff to discard colonial "exploitation forestry" in decades to come. In this report, first, Zehngraff proposed a complete ban on the collection of firewood and litter (e.g., leaves), and a monitoring system to enforce it. According to him, litter had long served as fodder, natural fertilizer, and kindling in Korea. From an ecological perspective, however, Zehngraff believed that collecting litter was even worse than cutting firewood, as it degraded soil fertility and natural regeneration of trees.

[266] "Ibid," 355.
[267] "The Forest Situation in South Korea."
[268] "Ibid."

By banning the collection of all biomasses from forests, Zehngraff expected that South Korea could practice "preventive" forestry instead of "curative" forestry.

Next, Zehngraff suggested American-style forestry education for South Korean foresters, in order to accelerate the replacement of colonial perspective of forest management with "American" notion of preservation.[269] One of the problems he identified in South Korean forestry system was the low level of public awareness of ecology. In particular, he lamented that not many South Koreans were aware of the benefits of forests in agriculture and in combating desertification. He attributed low awareness of forest ecology to the legacy of Japanese exploitation forestry, which left people with the idea forests were basically resources for human exploitation. For this reason, Zehngraff proposed teaching English to South Korean foresters and sending some of them to the United States as a first step.[270] Once these foresters learned the benefits of preservation forestry in the United States, they would educate their fellow South Koreans and enlighten them to adopt the spirit of forest preservation. Zehngraff emphasized the importance of public forestry education because 70 percent of South Korea's total forest area was privately owned where the government's control was restricted; these forests need to be managed by enlightened civilians.

The proposal to shift to preservation forestry was endorsed by UNKRA's administrators. In 1953, UNKRA's forestry specialist, J. Hugo Kraemer, stated that South Korea should achieve five objectives in forestry: protection, return of vegetative cover, planting, education, and improvement of wood utilization practices.[271] All five goals were aimed at reforestation and complete preservation of forests, with no mention of exploitation in the short term. Kraemer's

[269] "Ibid."
[270] "Ibid."
[271] Kramer to McClure.

account marked an important departure from the U.S. proposals for forest exploitation before the Korean War. At the same time, UNKRA helped the South Korean government increase imports of foreign timber in anticipation of a high demand for wood for reconstruction after the war. As a result, by the mid-1950s, half of South Korea's timber consumption was supplied by tropical timber from Southeast Asia, particularly the Philippines.[272]

As Lisa Brady notes, U.S. plans for reforestation in South Korea were primarily driven by agricultural concerns.[273] But, when viewed from a trans-Pacific context, the vision of a reforested South Korea also derived from ecological knowledge produced from America's interwar experience; it also served for the U.S. Cold War security. Protecting South Korea's forests, therefore, meant protecting South Korea from collapsing like "Ur or Timgad" but also helping it survive as a U.S. outpost in the Cold War. Therefore, the preservation of South Korea's forests was a security imperative for the U.S., but also a mutual concern for non-Communist regimes of Southeast Asia, which were eager to export their timber to prevent a "domino effect" coming from the north. As such, in a broader perspective encompassing Southeast Asian rainforests, American foresters were not on a "preservation" mission, but rather they were crafting a new ecology for South Korean mountains that fit them into the changing geopolitics of the Cold War East Asia: the reservoir of soil and water for South Korean agriculture. At the same time, the Cold War geopolitics repositioned rainforests of Southeast Asia a reserve of timber to support the vulnerable agriculture and forests of their Northeast Asian allies. In the Philippines, lauan had suddenly become a strategic resource for the U.S. East Asian

[272] Hanguk Imjeong Yeongu Hoe, *Chisan Nokhwa 30nyeon Sa* (Seoul: Hanguk Imjeong Yeongu Hoe, 1975), 103; 612.
[273] Brady, "Sowing War, Reaping Peace," 357.

strategy. Similarly, the trees for South Korea's reforestation had to be selected to fit into the Cold War ecology of the South Korean mountains that American foresters was reshaping.

The Artificial Selection

Despite their long experience in forest restoration, American foresters were not ready to launch a full-scale reforestation program after the Korean War. The delay was largely due to their lack of knowledge about Korean trees, soils, climate, and its ecology, most of which had not been available in English sources. Even worse, the vast majority of forestry statistics, sample, map, and other precious data accumulated under colonial rule were destroyed during the North Korean occupation of Seoul in 1950.[274] One of the few remaining resources was vernacular knowledge acquirable through oral communication with South Korean foresters. However, communication between American and South Korean foresters was highly limited due to the language barrier.[275] Given the paucity of the forestry knowledge in Korea, U.S. foresters first initiated several field trips to South Korean mountains, as well as the project to recollect the scattered colonial data throughout the South Korea, as a preliminary step to decide what species to plant and how many and where to plant them.

Zehngraff's survey report in 1950 was the first American attempt to taxonomize South Korea's tree species using colonial forest records. Before writing this survey, he was able to translate the work of the Japanese forest scientist Kojima on Korean tree species.[276] Based on Kojima's account, Zehngraff classified local trees according to three criterion: commercial value,

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[274] *Chisan Nokhwa 30nyeon Sa,* 146.
[275] "The Forest Situation in South Korea." On American foresters' evaluation of South Korean foresters' English skills, see "Project Completion Report," Completion Date September 15, 1960, Folder: 17290 Forestry Development (c), RG 469, Entry 480, Box 5, USNA.
[276] Kojima's first name was not specified in this document. For Kojima's work, see "Forestry in Korea," May 19, 1947, Folder: Forestry in Korea 1947-50, RG 331, Entry UD 1833, Box 9153, USNA.

soil-binding ability, and where to grow and how fast they grow.[277] Many of the trees he considered to be of high value were alien trees brought by the Japanese for commercial purposes during the colonial period. For example, oaks and Japanese cedars (*Cryptomeria japonica*) were popular trees under colonial rule for their versatile uses. These trees were not only useful materials in the shipbuilding industry, but had also been the main ingredient of charcoal production, which many Japanese settlers used for heating. In addition, fir and Olgan larch (*Larix olgensis*) had been popular trees for their use in the pulp and lumber industry. Under a new regime of preservation forestry, however, these once-popular trees lost their value and gave way to trees with high soil-binding capacity and fast-growing tree species. Zehngraff mentioned that black locust (*Robina pseudoacacia*, K: *akashia*, J: *niseakashia*) had the best binding capacity, but he also noted that this tree was finicky, as it did not grow well in overly barren or dry soil or at high altitudes. He also specially noted Japanese larch (*Larix kaempferi*, J: *karamatsu*) and *Pinus rigida*, the pine tree native to the United States, for their rapid growth.

As part of survey mission, UNKRA also provided financial support to South Korea's first-generation of forest scientists and foresters for their research on soil conditions, species and ecology. Lee Tsangbok, the renowned plant taxonomist, was one of the first recipients of UNKRA funding. According to Lee, Kraemer gave him a grant to help him restore lost Japanese sources and finish his taxonomy book, *Keys to Korean Woody Plants*.[278] Another recipient was forest geneticist Hyun Sin Kyu, who later became known as the "godfather of forestry (*imhak eui daebu*) in South Korea." With financial support from the U.S. government, Hyun flew to California in 1951 and was able to study the genetics of *Pinus rigida* at the U.S. Forest Service

[277] "The Forest Situation in South Korea."
[278] Tchangbok Lee, *Keys to Korean Woody Plants* (1954, copy at the Library of College of Agriculture and Biology, Seoul National University), 1.

Research and Development Institute in Placerville, CA, until his return in 1953.[279] U.S. financial support also extended to South Korea's National Forestry Laboratory (NFL, *jungang imeop shiheomjang*) and the College of Agriculture at Seoul National University.[280] With this support, South Korean forest scientists and foresters were able to gather scattered colonial knowledge and assisted the South Korean government's selection of species and sites for reforestation plan to come.

As scientists accumulated more data on South Korean trees, forest scientists narrowed the list of candidate species for reforestation to five trees: black locust, *Pinus rigida,* Manchurian alder (*Alnus hirsute,* K: *san ori namu*), *Lespedeza thunbergii* (K: *ssari namu*), and Sawtooth Oak (*Quercus acutissima,* K: *sangsuri namu*). Among them, U.S. and South Korean foresters favored the black locust, *Pinus rigida,* and Manchurian alder because of their faster growing speeds than the other two.[281] South Korean forest scientists even went so far as to improve the genetics of these trees. Hyun Sin Kyu's experiment with hybrid *Pinus rigida* was a good example. When he returned from the United States in 1953, Hyun brought a sample of a hybrid between *Pinus rigida* and *Pinus taeda*, another native American species known for its fast-growing nature. Hyun later stated that he hoped to contribute to the reforestation of South Korea with his fast-growing hybrid.[282]

Under colonial rule, these three species were mainly used for temporary terrace plantings (J: *sabō kōji,* K: *sabang gongsa*) on denuded mountain slopes. Japanese silviculturists also

[279] On Hyun's research in the United States, see Sun You Jeong, "Hyeon Singyu's Rigiteda Sonamu Yeongu [Sin Kyu Hyun's Research on Hybrid Pine *Rigitaeda*]," *Hanguk Gwahak Sa Hakhoe Ji* 27, no. 2 (2005): 27-60.
[280] For instance, UNKRA's forestry consultant, Frank H. Kaufert, visited Seoul National University and checked the curriculum and laboratory facilities. See Frank H. Kaufert, "Report and Recommendations on the Department of Forestry, College of Agriculture, Seoul National University," November 1956. Box 65, Folder 01, University of Minnesota Libraries, University Archives. (umedia.lib.umn.edu/item/p16022coll375:6084).
[281] *Chisan Nokhwa 30nyeon Sa,* 198.
[282] Sun, "Hyeon Singyu's Rigiteda Sonamu Yeongu," 33.

highly valued these trees for their rapid soil-binding ability, large roots, and high sprouting capacity.[283] However, these trees had some critical disadvantages that made Japanese foresters reluctant to plant them widely and permanently. First, black locust had rarely been planted since the 1930s because Japanese foresters found that it did not grow well at high altitudes and disrupted the growth of nearby pines.[284] *Pinus rigida*, on the other hand, also had a critical downside: its natural reproduction rate was extremely slow, requiring human intervention for rapid reproduction.[285] In addition, *Pinus rigida* was known as a low-quality wood, which was one reason that Japanese foresters preferred other high-quality conifers, such as Japanese cypress (J: *hinoki*), Japanese redwood (J: *sugi*, K: *sam namu*), Japanese larch, black pine (*Pinus thunbergia*, J: *kuromatsu*, K: *gomsol*), or Korea-native *Pinus densiflora* (J: *chōsenmatsu*, K: *jeoksong*).

In the context of the post-Korean War deforestation, the importation of Philippine timber, and the increased need for soil conservation, American and South Korean foresters found more value in fast-growing but low-quality trees. During the post-Korean War reforestation campaign, the low quality and commercial value of black locust, *Pinus rigida*, and Manchurian alder were offset by their hardy, fast-growing nature and high adaptability to most soils and altitudes. The fast-growing nature and high adaptability of these trees were well suited to a monoculture program to plant two to three species intensively in deforested areas, regardless of the soil environment, climate, and elevation. Among them, black locust was considered a good tree for deforested land near villages, as it could provide a variety of by-products as well, such as

[283] Fushiya Iichi, *Chisuigaku kōgi* (Tokyo: Nihon Nōrinsha, 1950), 134-39.
[284] Chōsen Kōbu Ringyō Shikenjō Shuppan Kyōkai, *Senman Jitsuyō Ringyō Binran* (Tokyo: Yōkendō, 1940), 876-877; 884.
[285] Frank H. Kaufert, "Report and Recommendations." 13.

branches for fuel, and leaves for firewood, fodder, and organic fertilizer.[286] *Pinus rigida* and Manchurian alder were, on the other hand, favored in remote denuded highlands where the risk of landslides was high. It was because of their high soil-binding power, but also to the fear that black locust would not adapt to high altitudes.[287] In the meantime, with the threat of desertification looming, high-grade woods such as Japanese cypress were rarely considered for reforestation because of their slow growth.

Although monocultures of a few species were favored by many government foresters in South Korea and the United States, some foresters argued that an ecological forestry in which a variety of trees were planted together could be more effective in combating deforestation. In 1954, UNKRA sent another field mission led by the British forest specialist Herbert Howard to review the methodology of the South Korean reforestation program. Howard was a trained and experienced forester who had a distinguished career in anti-deforestation projects in colonial India. After field research in South Korea, he proposed to divide new South Korean forests into three "working circles." In the first circle that he called "protection working circle," Howard proposed that this forest zone be left free of human intervention and allowed to regenerate on its own. If the South Korean government could limit human access to this circle, except for occasional thinning work by qualified foresters, Howard believed that the forest in this zone would flourish again, especially with *Pinus densiflora,* the native Korean tree he found to have a vigorous regenerative ability. On the second circle, entitled "timber working circle," Howard recommended planting commercial trees for future use. Finally, he proposed establishing what he called a "fuel working circle," an exclusive zone for fuelwood harvest near villages, and allowed farmers to plant fast-growing and fuel-efficient trees in this circle, such as black locust.

[286] "Ibid," 64.
[287] Hara Masaru, *Sabō Zōrin* (Tokyo: Asakura Shōten, 1950), 188.

By offering farmers a space for firewood planting and harvest, Howard argued, the first and second circles could be protected from overlogging of farmers seeking firewood.[288]

From an ecological perspective, Howard's report opposed the U.S. and South Korean government's plan for monoculture of a few selected species. While not denying the need to plant fast-growing trees, Howard argued that fostering an ecology in which a variety of trees grow together would increase the survival rate of fast-growing trees in the long run. For example, in creating a "protection circle," Howard argued that foresters "should aim at producing a crop principally of pine with always a good mixture of broad-leaved trees, getting a mixture of, say, 30 percent broad-leaved."[289] Howard also emphasized the role of trained foresters in maintaining the ecology of the forest. He commented that trained foresters should meticulously manage the growth of each tree by regularly coppicing them to maximize the potential growth of the trees. For instance, in the fuel forests, Howard stated that foresters should not monoculture black locust, but aim for a polyculture of black locust and other potential fuel trees, such as *Morus alba*, along with other common trees, with regular coppicing and clear felling every 10 years.[290]

In fact, many South Korean and American foresters understood the benefits of polyculture. The director of forestry bureau of Gyeonggi Province, Lee Hakju, for instance, stated that monoculture of pine trees could further acidify South Korea's already acidic soil, making it harder for other plants to survive. In addition, monoculture of a single species could make the entire forest vulnerable to potential defoliation caused by pests.[291] However, the U.S.

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[288] Food and Agriculture Organization of the United Nations and United Nations Korean Reconstruction Agency, *Rehabilitation and development of agriculture, forestry, and fisheries in South Korea; report prepared for the United Nations Korean Reconstruction Agency* (New York: Columbia University Press, 1954), 349-357.
[289] *Ibid*, 350.
[290] *Ibid*, 352.
[291] Lee Hakju, "Sallim i wae Hwangpye deoyeo Ganeunga?" *Yungnim*, no. 6 (1956): 47.

and South Korean governments did not have enough foresters to implement Howard's advice. For instance, to foster a zonal ecology as proposed by Howard, the South Korean government would have to meticulously monitor the forest with trained foresters for 10 or more years. This was an impossible task for a short-staffed UNKRA and the South Korean government, which was already struggling to keep up with its current workload. The shortage of trained foresters was the main reason that the post-Korean War reforestation program ended up being a monoculture of a few fast-growing species that could be easily planted and maintained by local people with no background in forestry.

Fordist Monoculture and Grassroots Democracy

Since its inception in 1947 as an interim government, even before Zehngraff's proposal for reforestation and followed American intervention in reforestation programs, South Korean government attempted to reforest its forest on its own several times. In 1947, the South Korean Interim Government (K: *namjoseon gwado jeongbu*: the provisional government under the U.S. military government) launched a 10-year reforestation plan in which the government temporarily hired refugees from North Korea to plant trees on barren slopes.[292] The South Korean government's hiring of temporary workers, particularly refugees, to plant trees continued during the Korean War, and the South Korean government distributed American flour in lieu of wages.[293] Most of these planting programs resulted in failure. Government officials who designed and rolled out the plan had minimal knowledge of forestry and were unaware of the importance of matching appropriate environmental conditions to each tree species. An ignorance of forestry was similarly found among lay workers who improperly planted trees with less regard

[292] *Chisan Nokhwa 30nyeon Sa,* 195.
[293] *Ibid,* 254.

for suitable soil and terrain. In addition, the absence of after-care was critical to the survival of the planted trees and culminated in the death of many trees. Another challenge was the logistics of seedlings. Some foresters had noted the disappointing condition of many seedlings at reforestation sites, some of which had apparently rotted before being transported.[294] Given poor road conditions in rural highlands, coupled with the extreme shortage of trucks, it was not uncommon for seedlings to die on their way to remote highlands. For these reasons, it was an imperative for the South Korean government to establish an organization that could distribute healthy seedlings in a timely manner and maintain forests after planting.

U.S. foresters posited that the voluntary participation of local society in reforestation, based on American grassroots democracy, would be able to solve the logistical problems of reforestation, calling it "good forestry," as opposed to "bad forestry" practiced by the forced participation of locals. Zehngraff's report, for example, argued that "enlightened" locals should play a central role in nurturing, planting, and distributing trees in South Korea. Zehngraff's idea was based on his conviction that in a "republic," a successful public program should be premised on grassroots support.[295] Zehngraff cited the case of post-World War II Japan, where successful public education by American foresters taught the Japanese people about how a well-preserved forest could prevent draughts and floods, and how the public education convinced the Japanese people of the need for forest preservation.[296] Similarly, Zehngraff believed that U.S. government agencies could help South Korean foresters teach their people the benefits of "good forestry." Once the wisdom of "good forestry" was widely acknowledged, Zehngraff believed that South Korea would be ready to organize a "democratic" institution in which local South Koreans could

[294] *Ibid,* 195.
[295] "The Forest Situation in South Korea."
[296] "Ibid."

serve as vanguards of reforestation, acting as seedling growers, planters, distributors, and forest wardens. Zehngraff suggested that Boy and Girl Scouts and 4-H could be models for "democratic" organizations in which young South Koreans could learn "what they can, and must, do to help" reforestation.[297] As such, Zehngraff's proposal was emblematic of the black-and-white view of American foresters that U.S.-based organizations were training grounds for democracy and self-help spirit, as opposed to the colonial system of local education and participation.

Instead of introducing American youth organizations, the South Korean government decided was to revive a colonial-era grassroots organization, the VFA, despite the opposition from many South Korean politicians who remembered its "undemocratic" operation during the colonial period. Under colonial rule, the GGK assigned each VFA unit to a nearby forest, typically a private forest where villagers had collected firewood. The duty of VFA units was to patrol and protect the forest from illegal logging activities.[298] This service was a mandatory one and, in a sense, *de facto* corvée for forest landlords. The unpopular VFA service was disbanded with the end of colonial rule. But in 1951, the South Korean government set out to revive the VFA as an instrument to combat deforestation, revealing its intention to use colonial corvée for reforestation. Not surprisingly, the government faced strong opposition from many South Korean lawmakers who described VFA as an "undemocratic" organization, who would have shared Zehngraff's view on colonial forest management. In response, the Rhee regime argued that the new VFA would be a "democratic" organization in which locals would autonomously manage the private and national forests of their hometown.[299] Finally, in September 1951, the South

[297] "Ibid."
[298] *Chisan Nokhwa 30nyeon Sa,* 68.
[299] On how lawmakers opposed to the revival of VFA and how the South Korean government reacted, see National Assembly of the Republic of Korea, 2 Congressional Record 11 (September 1, 1951).

Korean government overcame opposition as the National Assembly finally ratified the government's proposal for the revival of the VFA, and passed a law, entitled, "Temporary Forest Protection Law (*sallim boho imshi jochi beop*)." This law stipulated that local VFA units would be the main body responsible for the establishment, management, and control of illegal logging in a forest designated by the Minister of Agriculture and Forestry. With this law, as the historian Choe Byong-Tek wrote, the South Korean government effectively revived the colonial corvée. In a more transnational perspective, the revival of VFA meant that there was an autonomous space for the South Korean government to navigate its own paths of reforestation, aside from the direction of American foresters.[300]

With the legal authority granted by the new forestry law, the South Korean government reestablished VFA units in virtually every village in South Korea, accelerating the creation of its own local participation system in forest management. In 1952, even during the war, the number of established VFA units was estimated at 21,574. According to a U.S. source, the membership of VFA also soared, reaching 2.25 million in 1957, making it the largest civic organization in South Korea.[301] Each VFA unit served as an outlet through which the postcolonial government disseminated forest knowledge and educated about the urgency of forest preservation. For instance, according to a "coursebook" (*gangseumnok*) used to educate VFA members in Chungnam Province in 1954, several government foresters visited small hamlets in the province and taught various forestry topics. They included why forests were important for agriculture and what the nation's future would be if South Koreans did not take action—topics that U.S.

[300] Choe Byong-Tek, "Haebang Jikgu-1960nyeondae cho Sallimgye Sellip Noneui eui Jeongae wa Geui Seonggyek," *Sahak Yeongu*, no. 90 (2008): 310-311.
[301] Central Forestry Association, *Village Forestry Association in Korea* (1959, copy at the National Agricultural Library, USDA), 5.

foresters had been writing to warn South Koreans before the Korean War.[302] South Korean government foresters also introduced multiple efforts of the South Korean government to tackle deforestation, spreading the "green propaganda" of the Rhee regime.[303]

South Korean government foresters also served as a medium for disseminating the latest forestry knowledge translated from English to the people in remote hamlets, including very recent changes in forestry policy. For instance, in 1953, UNKRA published a booklet, entitled, *Imeop Gwa Gaeryang Agungi* [Forestry and Improved Fireplace], for the purpose of group education in VFA units. In this book, American foresters recommended planting a variety of trees suitable for different soil conditions. For example, the booklet listed willow (*beodeul namu*), aspen, walnut, *Fraxinus rhynchophylla* (*mulpure namu*), Manchurian alder, black locust, and *Pinus rigida* as trees for wetland, while recommending Chinese cork oak (*Quercus variabilis*, K: *gulchamnamu*), *Lespedeza thunbergii* (K: *ssari namu*), Manchurian alder, black locust, and *Pinus rigida* on dry land.[304] This booklet also advised the use of locally grown seeds instead of seedlings from other provinces.[305] On the other hand, in 1954, the "coursebook" recommended monoculture of four fast-growing trees—black locust, *Pinus rigida, Lespedeza thunbergii,* and Sawtooth oak—regardless of climate, ecology, and soil conditions.[306] This change shows that VFA education immediately reflected the most recent changes in forestry policy.

Satisfied with the progress of VFA's preservation campaign and education, U.S. aid agencies assumed that the South Korean government was now ready to launch a nationwide tree

[302] Chungcheongnamdo, *Sallimgye Unyeong Jido Gangseumnok* (1954, copy at the National Library of Korea), 1-2; 25.
[303] *Ibid,* 37-38.
[304] *Imeop Gwa Gaeryang Agungi* (1953, copy at the National Library of Korea), 27-33.
[305] *Ibid,* 48.
[306] *Sallimgye Unyeong Jido Gangseumnok*, 45-47.

planting and distribution program. In 1955, ICA approved the financial support for the South Korean government's nationwide reforestation program, in which the South Korean government would procure seedlings from local VFA nurseries and distribute them to other VFA units in deforested areas.[307] The budget for the seedling procurement program was funded by ICA and other U.S. government agencies.

The first step of this program was to identify VFA units that volunteered to establish a communal nursery and fund them with American aid. To encourage the participation of local VFA units, the South Korean government stated that VFA units could make extra money by selling seedlings to the government. VFA units also had the freedom to choose tree species to plant in their nursery, with seeds supplied by the government. In addition, the South Korean government leased state-owned land to VFA units that did not have land to build a nursery and provided technical assistance for planting. In the Spring of 1955, VFA units that volunteered for the nursery program began planting their first seedlings in their communal nurseries, which the South Korean government soon distributed to other VFA units that needed seedlings for reforestation. Although reforestation in 1955 fell short of the goal set by the U.S. and South Korean governments, it tackled the largest area since 1945, in keeping with Bae Jae Soo's estimate.[308]

Because the South Korean government was unable to oversee all planting and reforestation activities across the country, smooth communication between the national government and local VFA units as well as leadership and forestry knowledge of each unit leader were keys to the success of the program. Although annual quota of reforestation was set by the central forestry bureau in Seoul, the species and the number of trees were decided by VFA unit

[307] *Chisan Nokhwa 30nyeon Sa,* 91.
[308] *Ibid,* 204.

leaders and local government foresters. The role of the government was limited to monitoring the seed planting and distribution of tree seedlings. For this reason, one government forester stated that foresters must communicate well with local unit leaders, writing, "The goal of reforestation could only be achieved when the spirit of directors of the Forestry Bureau who designed the program...permeates into the fingertips of VFA unit members."[309] To this end, government foresters regularly visited VFA villages to meet with unit leaders and listen to the voices of the grassroots. In these meetings, VFA unit leaders had the opportunity to express the hardships of reforestation work. In some cases, unit leaders requested materials for forestry education, such as reforestation propaganda pamphlets or forestry campaign films for group viewing.[310] Indeed, unit leaders had to regularly educate villagers on the advantages of forestry and preservation. Otherwise, unit leaders could not secure the local support needed for communal labor. For example, one VFA unit leader testified in an interview that he had been assaulted by several young villagers who were angry about his ban on collecting firewood.[311]

Fortunately for the U.S. and South Korean governments, the participation rate of VFA units was high. It was because many small mountains hamlets, which were under extreme economic deprivation after the Korean War, were attracted by the financial gains that could be made from communal nurseries. With the extra income from the communal nursery, money trickled down from U.S. aid agencies, some villages set up a communal savings account and bought farm equipment, livestock or even communal farmland.[312] These few successful cases became known to neighboring villages, leading to more VFA units entering the nursery business

[309] Ji Yongha, "Jorim Jido wa Jorimji," *Yungnim*, no. 7 (1957): 7.
[310] "Namhan Imeop mit Sallimgye Unyeong Siltae Shichal Bogoseo (4)," *Yungnim*, no. 8 (1958): 69.
[311] "Sallimgye Unyeong eui Hyeon Shiljeong gwa Geumhu Daechaek," *Yungnim*, no. 10 (1958): 50.
[312] Kim Suwan, "Bi, Imeop Shichaldan Naebang! Chehan Chilil ganeui Shical Gyeongwi wa Geu Euieui," *Yungnim*, no. 8 (1958): 28.

in subsequent years. Since many VFA units were inexperienced in nursery planting and lacked forestry skills, these units naturally chose to cultivate easy-to-grow and fast-growing trees. As more VFA units joined to grow few popular trees, the South Korean government was able to lower the cost of seedling purchase and manage the growth of the trees much more easily.

Table 4.1: VFA Production of Seedlings (ea.)

Year	Seedlings (ea.)
1954	20,927,000
1955	47,200,000
1956	74,768,000
1957	88,122,000
1958	166,500,000

Source: Central Forestry Association, *Village Forestry Association in Korea* (1959, copy at the National Agricultural Library, USDA), 16.

Additional income from communal nursery, however, was not available to the VFA units tasked with planting trees in deforested areas. The profit from a tree planted on deforested private land was split between the VFA unit and the landowner at a ratio of seven to three ratios, a similar ratio in a colonial landowner-tenant contract, effectively positioning VFA tree-planters as tenant-planters similar to those under colonial rule. During the colonial period, most peasants collected fuelwood from a nearby landlord's forests with a permit from the colonial government. Customary use of nearby forest was called *iriai* (K: *iphoegwon*). However, *iriai* was not a free right; local farmers were forced to do extra labor for their landlords at the cost of *iriai* rights, even as the colonial government's crackdown on firewood collection had become much

draconian after the invasion of China in 1937.[313] The South Korean government knew that their VFA-collective tree-planting initiative was rooted on unfair Japanese *iriai* custom and forced labor. For instance, a government statistic in 1959 estimated that up to 53 percent of tree-planting labor in private forests was unpaid.[314]

Despite criticisms of the colonial legacy in the plan, the South Korean government pushed ahead with this plan, because it could not find any other labor source than mountaineers of local VFA units. In fact, the biggest obstacle for reforestation was the unwillingness of private landlords, who accounted for approximately 72 percent of total forest ownership. The lukewarm reaction of landlords, mostly of whom were absentee landlords, stemmed from their reluctance to hire labor to reforest on their own.[315] The mobilization of VFA units to private forests and incentives offered to them for their service was, hence, virtually the only possible option for the South Korean government to reforest private forests. Most of VFA units accepted this with a sense of acquiescence because they also understood that planting trees in their landlords' forests was the only sustainable way to obtain firewood amid ongoing deforestation and the government crackdown. Naturally, these units preferred fast-growing trees to secure incentives from the landlords as soon as possible, plus easy transplanting and higher probability of survival of these trees.

The most prominent environmental impact of the VFA-led reforestation program was the dominance of a few fast-growing trees. The popularity of fast-growing trees came from their high demand, as many planters preferred fast-growing trees for their adaptability and remarkable survival rate. For instance, *Pinus rigida* had an average 90 percent of survival rate in

[313] Fedman, "Wartime Forestry," 340.
[314] Yun Jaeho, "Sabang Saeop eui Jeonmang," *Yungnim* no. 1 (1959), 18.
[315] "Reforestation in the Republic of Korea," September 30, 1957, Folder: Agriculture – Forestry 1957, Ref. no. CTA0001977, Republic of Korea Government Archives (Collection of Imported USNA Document).

reforestation sites.[316] It was an astonishing record, given that these trees had to travel long distances and were implanted by inexperienced laymen. If a VFA unit decided to grow a variety of trees—as recommended by the British forester Howard—it would have required extra care even during the busy farming season, in addition to extra knowledge to grow that tree. On the other hand, fast-growing trees fit into the busy agricultural schedule of rural society, as farmers could grow and sell fast-growing trees in early spring and return to rice farming for the rest of season. As a result, for six years between 1955 and 1960, black locust, Manchurian alder, and *Pinus rigida* dominated local nurseries. According to a record of communal nurseries in Hwaseong County (Gyeonggi Province) in 1956, VFA units planted 26,000 seedlings of *Pinus rigida* and 3,400 of black locust. The same record shows that the villagers of Yongin County (Gyeonggi Province) planted 10,800 seedlings of *Pinus rigida* and 3,000 of black locust.[317] In the meantime, villagers in Goyang County (Gyeonggi Province) planted 20,000 Pinus rigida seedlings exclusively in the same year.[318] As per another government record in the same county, the dominance of *Pinus rigida* and Manchurian alder continued up until 1960. The same was true in the provinces in the south. In Jangseong County (Jeonnam Province), 80 percent of trees planted were Manchurian alder and 20 percent of them were *Pinus rigida*.[319] In Jeonnam Province, there was even a pattern of new VFA units in nursery business imitating the model of neighboring units planting fast-growing trees.[320] According to the government foresters who accumulated this data, black locust was planted primarily for fuel, while Manchurian alder and

[316] "Namhan Imeop mit Sallimgye Unyeong Siltae Shichal Bogoseo (1)," *Yungnim*, no. 7 (1957): 69.
[317] "Ibid," 69-70.
[318] "Ibid," 71.
[319] "Namhan Imeop mit Sallimgye Unyeong Siltae Shichal Bogoseo (4)," *Yungnim*, no. 8 (1958): 68-69.
[320] Jeollanamdo Nongjeong guk Sallim gwa, "4292 nyeon Chungi Jorimyong Myomok Deukmyo Yejeong Bon Su," 1959, Folder: Yeollyorim Seoljeong Gwangye Cheol (I), Ref. no. BA0042153, Republic of Korea Government Archives.

Pinus rigida were mainly planted for sale, suggesting the latter two species would have been transported to deforested highlands.

South Korean forest scientists and U.S. aid agencies strived to corroborate the efficacy of monoculture in scientific terms. For example, in 1959, NFL forest scientists published an experiment comparing the soil-binding efficiency of polyculture forest and monoculture forest. In this experiment supported by ICA, South Korean scientists planted different types of sample trees on 18 tilted trays and simulated rainfall. After six years of experiments, these scientists concluded that monoculture forest of *Pinus rigida* showed the best performance of soil binding. Contrary to common wisdom, the polyculture forest—the favorite of British forester Howard—was less effective than *Pinus rigida* forest, in terms of soil binding.[321] This type of experiment convinced the U.S. and South Korean government officials of the benefits of monoculture and doubled the U.S. aid to reforestation from $200,000 in 1955 to $563,000 in 1957.[322]

Not long after, the monoculture of a few species caused several side effects. One issue was the overplanting of trees. For example, there were some reported cases in which villagers planted Manchurian alder in a grassland on the orders of government officials, though the land had been evaluated as unsuitable for trees by foresters. The forester, who reported several similar cases, added that it was a disastrous decision to plant Manchurian alder because it rarely survived in grasslands.[323] Another problem was the overproduction of fast-growing trees. Some government officials refused to plant slow-growing trees under any circumstances. Hyun Sin Kyu, for example, recounted a case in which an ignorant government official planted fast-growing trees on a plot of land, despite a forester's recommendation that slow-growing oak

[321] Imeop Shiheomjang, *4291 nyeondo Shiheom Yeongu Saeop Bogoseo* (1958, copy at the National Institute of Forest Science Library), 8-12.
[322] "Summary of Foreign Aid for Erosion Control," *Yungnim* no. 10 (1958): 73.
[323] Hyun Sin Kyu, "Ingong Jorim eui Jemunje," *Yungnim* no. 6, 4-5.

would be the best choice for the land given its soil.[324] Another problem was pests. As mono-cultured forests expanded exponentially, South Korean forests soon became extremely vulnerable to pest epidemics. One example was the spread of *Thecodiplosis japonensis*, the deadly insect that could kill infested pines with a high probability. Hyun explained that the epidemic of *Thecodiplosis japonensis* was an inevitable result of monoculture, and the best way to prevent its spread was planting other trees together, which the South Korean government and VFA units could not accept.[325] Instead, the South Korean government mobilized VFA members and their families, especially school children, to catch the caterpillars in the *Pinus ridiga* forest (Figure 4.3) The caterpillar extermination campaign, which lasted until the late 1970s, was another example of how the labor of many South Korean villagers artificially sustained the survival of the artificial ecosystem.

[324] "Ibid," 5.
[325] "Ibid," 5.

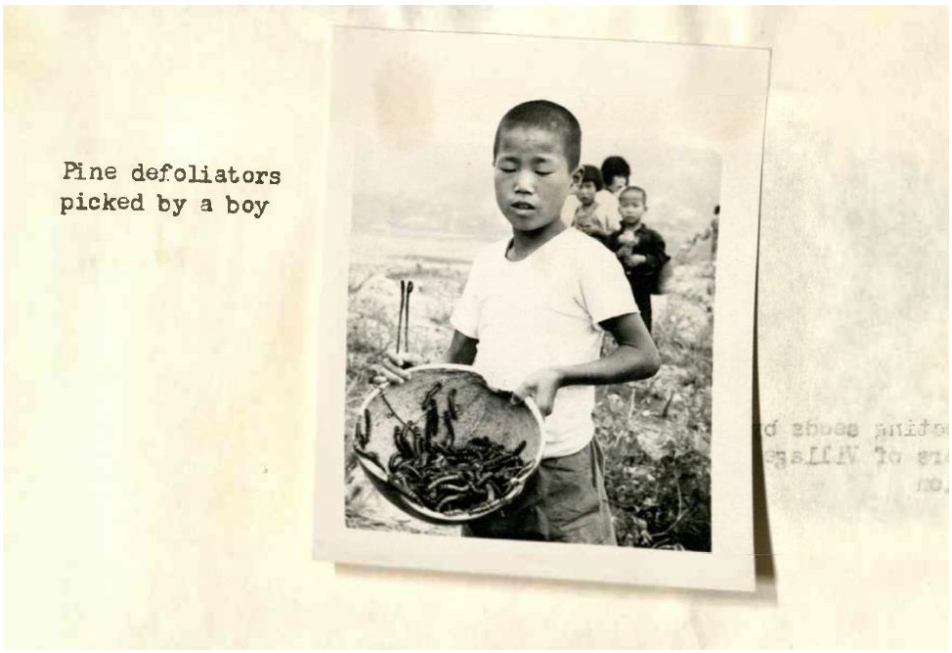

Figure 4.3. "Pine defoliators picked by a boy." In rural South Korea, it was not uncommon that teachers gave students homework to catch caterpillars. Central Forestry Association, *Village Forestry Association in Korea* (1959, copy at the National Agricultural Library, USDA).

Despite several ecological issues, uneven distribution of profits and unfair labor practices, including child labor, and the revival of colonial legacies of land ownership, American advisors wanted to propagandize the achievement of VFA as "grassroots democracy," though it was even originated from colonial legacy and was not grounded in reality. Some U.S. officials even praised VFA as a fruit of American efforts to spread grassroots democracy. In 1956, for example, the UNKRA's forestry advisor to South Korea, Frank Kaufert, described VFA as "democracy in action" and praised how grassroots efforts were reforesting mountains at a remarkable pace.[326] Another American advisor expressed his impression on VFA after observing

[326] Frank H. Kaufert, "Report and Recommendations," November 1956. Box 65, Folder 01, University of Minnesota Libraries, University Archives, 68.

what he portrayed as "democratic" decision-making at a VFA unit, writing: "project is to be implemented, maintained and managed by people...people can come in at free will and anytime shall be provided so that people's desire shall be reflected to the project."[327] As historians Daniel Immerwahr and David Ekbladh astutely observe, U.S. postwar aid agencies emphasized the importance of grassroots participation and community building in overseas development programs, in an effort to differentiate their assistance from Soviet-style top-down and authoritarian development.[328] In this context, U.S. development theorists in the 1950s held up the TVA as a model of development for foreign nations, not only for America's top-notch technology, but also as a model development that showcased Rooseveltian grassroots democracy, in which arguably rural Americans built a community of hard-working people to overcome the natural obstacles of Appalachia and the Great Depression. In this sense, the assessment of American advisors reflects that they took what they wanted to see from their observations of VFA. Tweaking Daniel Immerwahr's expression, calling VFA a democratic organization was one of the ways to hide the "Green Imperialism" of the United States under the guise of grassroots democracy and volunteerism.

Conclusion

Reforestation in the 1950s was a key environmental event that repositioned South Korean mountains as a reserve of water and soil, along with coal mining and the construction of coal highways. Statistically, the trend of desertification stopped in 1956, as the area of deforested land

[327] Both Immerwahr and Ekbladh agree that TVA's community building program was one of the models that U.S. postwar overseas aid workers wanted to implement, particularly in Asia. For more on U.S. community building programs, see Daniel Immerwahr, *Thinking Small*; David Ekbladh, *Great American Mission*.
[328] Immerwahr entitled another book, *How to Hide an Empire*, in order to emphasize that the territorial expansion and colonialism over Pacific territories had been downplayed in the mainstream U.S. historiography. David Immerwahr, *How to Hide an Empire: A History of the Greater United States* (New York: Farrar, Straus and Giroux, 2019).

peaked at 686,000 hectares in 1956 and declined sharply by 35 percent to 449,000 hectares in 1961.[329] These statistics show that the VFA-led reforestation at least reversed the trend of deforestation and accelerated the upward trend of forest stock in South Korean highlands. This was in contrast to the popular belief that the reforestation of South Korean mountains was Park Chung Hee's personal achievement.

But the impact of reforestation was not limited to the geographical and environmental transition. People in the highland hamlets were also gradually incorporated into the state's forestry apparatus as grassroot agents of reforestation, which American foresters praised as "democracy at work." This rhetoric of democracy should be seen as a symptomatic observation of American and South Korean state powers infiltrating into remote hamlets of highlands. In the next decades, the authoritarian regime reinforced control over VFA and other similar village organizations to mobilize more villagers to reforestation sites. In the midst of security crisis provoked by the infiltration of North Korean commandos from the east coast in 1968, the Park regime even used VFA as an apparatus for neighborhood watch. What American foresters saw in the late 1950s might have been a sprout of a grassroot democracy, but it could not successfully grow up under an authoritarian regime and its artificial ecosystem that destroyed the organic relations between highlanders and forests.

[329] Hanguk Haengjeong Hakhoe, *Hanguk eui Chisan Nokhwa Seonggong Sarye Bunseok* (Daejeon: Hankuk Haengjeong Hakhoe, 2009), 16.

Chapter 5

Nation's Sacred Mountain:

The Making of Mt. Jiri National Park, 1961-1972

> For the benefit and enjoyment of the people.
>
> —Roosevelt Arch, Yellowstone National Park
>
> Here, whence springs the spirit of Koreans.
>
> —Carvings on the summit marker of Mt. Jiri

Mt. Jiri National Park is one of the most preserved mountains in South Korea. Since its opening in 1967 as South Korea's first national park, National Park Service of South Korea (hereafter, KNPS) have worked to restore Mt. Jiri's once-destroyed forests and biodiversity. According to the official history of Mt. Jiri National Park, the present preservation campaign began in the early 1960s through the concerted efforts of local preservationists and South Korean and American natural scientists. Mt. Jiri's first preservation movement was orchestrated by Woo Jongsu, an educated gentleman from Gurye County (Jeonnam Province), an upland township near Mt. Jiri, after the Korean War. During the mid-1950s, Woo gathered a group of locals who shared his concern about overlogging and founded the Jiri Alpine Club, of which he became the first president. In 1961, Woo and the other preservationists from Gurye met the field research team of Ewha Women's University, headed by Kim Heon Kyu, a professor of applied biology. Kim suggested to Woo that they organize a petition movement for a national park with the assistance of William Hart, the internationally renowned national park consultant for the International Union for Conservation of Nature and Natural Resources (IUCN). Hart visited Mt. Jiri in 1963 with Woo as his guide, and according to the official history, praised Mt. Jiri after the trip: "The peaks in the Mt. Jiri area are of grandeur shapes, the scenery is splendid. … Mt. Jiri is

definitely an excellent site for a national park that meets international standards." Encouraged by Hart's praise, the South Korean government reviewed the petition from Gurye and in 1967 finally selected Mt. Jiri as the site for South Korea's first national park.[330]

Figure 5.1. Demolished site of the former Simwon Township in Mt. Jiri National Park. This village was demolished after swidden cultivators in this village agreed to evict their homes, as part of the preservation program of KNPS. Photographs taken by the author on November 10, 2022.

This chapter revisits the origins of the preservation campaign and movement for a national park around Mt. Jiri, which I analyze at the intersection of local symbolism, developmental aspirations, and trans-Pacific efforts for biodiversity. In this chapter, I situate the

[330] "Guklip Gongwon Gongdan Yeoksa Akaibeu [National Park Service History Archive]," South Korean National Park Service History Archive Website, South Korean National Park Service, April 12, 2023, http://www.knps.or.kr/history/exhibition/view?eidx=101#:~:text=1963%EB%85%84%20EC%9E%AC%EA%B1%B4%EA%B5%AD%EB%AF%BC%EC%9A%B4%EB%8F%99,%EA%B5%AD%EB%A6%BD%EA%B3%B5%EC%9B%90%EC%9C%BC%EB%A1%9C%20%EC%A7%80%EC%A0%95%EB%90%98%EC%97%88%EB%8B%A4.

nature preservation campaign at Mt. Jiri as another expression of the highland development project under the Park regime, as opposed to official narrative. By examining surveys and proposals for developing natural resources and plantation sites around Mt. Jiri in the early 1960s, this chapter claims that the original plan for Mt. Jiri was to develop this mountain as an industrial center or an alpine plantation modeled after the Taebaek Highlands. Until 1965, the national park had been proposed as a subsidiary project to protect endangered species around the small meadow of the mountain, and it was even designed to coexist with developmental megaprojects, including hydroelectric dams, dairy farms, plantations, and others related to mineral extraction and industrialization. This chapter suggests that the Park regime presented the national park plan as compensation to local society after the regime's promise to modernize Mt. Jiri turned out to be unfeasible. In so doing, I argue that preservation was not a binary concept at odds with development in the engineering of Mt. Jiri; rather, preservation was part of mountain engineering, one that resonated with populist nationalism and bottom-up aspirations for the modernization of the local communities around Mt. Jiri.

The local movement for developing Mt. Jiri coincided with the mountain development boom during the Park Chung Hee era. Early in the 1950s and early 1960s, South Korea's highlands underwent surveys for development and reforestation as seen in Chapters 2, 3, and 4. In particular, Taebaek Highland had become the nation's bonanza as well as its industrial center by the early 1960s, as a result of the developmental regimes' initiative to engineer mountains. The success story of Taebaek Highlands, often referred to by the mass media as "South Korea's Ruhr Valley," was an inspiration for many underdeveloped highland communities across South Korea. In 1966, for instance, local communities in Yeongyang County in Gyeongbuk Province also experienced a mining mania after an American geological survey team announced that they

might have found the one of the world's largest copper deposits beneath this underdeveloped region, but which turned out to be unprofitable. The local community's strong aspiration of for the development of Mt. Jiri that this chapter showcases could be understood in this historical context in which communal mountains were re-imagined as communal bonanza.

In this chapter, I first reposition the local inhabitants of Mt. Jiri as active participants in the national land development project (*gukto gaebal saeop*) by seeking to protect their forest lands as part of it. I argue that local leaders of Mt. Jiri presented their own vision of modernity to the developmental state and actively negotiated with the government officials to develop the best plan to stop the destructive overlogging of their forests. Traditionally, local communities around Mt. Jiri had accumulated wealth from rich timber of the mountain, making the mountain a symbol of local identity. The deforestation of the 1950s brought a sense of crisis to local society because they feared that their source of wealth could be lost permanently, not to mention their identity. In this sense, the local movement for a national park should be seen as a movement to reclaim communal resources. In other words, their efforts to join the state's developmental and preservation initiatives was, therefore, an effort to overcome the marginalization of their community in the face of the state's development program.

Second, I foreground the populist politics of the developmental regime as another key driver in the formulation of the plan for a national park. As historian Russell Burge aptly points out in the context or urban reforms, numerous development plans of the Park Chung Hee regime (1961-1979) were proposed and shaped partly in response to bottom-up desires for modernization, rather than them being unilaterally planned and directed from above.[331] In order to project a promised vision of modernity to locals, the Park regime occasionally relied on the

[331] Russell Burge, "The Promised Republic: Developmental Society and the Making of Modern Seoul, 1961-1979." PhD diss., Stanford University, 2019, 12-15.

"scientific" knowledge of expert groups when drafting development plans. The second section of this chapter describes how Mt. Jiri National Park was designed by the Park Chung Hee's developmental regime in response to grassroots visions of modernity and in collaboration with expert groups from various disciplines. As such, this chapter frames the developmental initiatives of Mt. Jiri as a compromise between a bottom-up drive for local modernization and a top-down promised modernity, exemplified by ambitious mining and plantation projects that the regime labelled as the "opening of the last frontier of South Korea."

Lastly, this chapter focuses on tensions between preservationists—namely, natural scientists belonging to the IUCN—and developmentalists—in particular, developmental advisors of U.S. foreign aid agencies. As the historian of science Jaehwan Hyun suggests, IUCN advisors' support for Mt. Jiri National Park was part of a larger postcolonial effort to bring the fauna and flora of South Korea and other postcolonial states under the gaze of Euro-American scientific knowledge.[332] Moreover, it is noteworthy that the IUCN's concept of a national park reverberated with U.S. class and racial politics. As William Cronon and Karl Jacoby note, the purpose of early U.S. national park movements was to transform an undevelopable "bad" wilderness possessed by the uneducated class and indigenous people into spaces where educated and wealthy white citizens could appreciate nature.[333] This chapter reveals a surprising parallel between the ways in which early preservationist in the United States and IUCN's park consultants viewed nature.

[332] Jaehwan Hyun, "Negotiating Conservation and Competition: National Parks and Victory Over Communism Diplomacy in South Korea," *The British Journal for the History of Science* (2023): 2, https://doi.org/10.1017/S0007087423000316.
[333] Cronon, "The Trouble with Wilderness," 21-25; Karl Jacoby, *Crimes against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation* (Berkeley: University of California Press, 2001), 2-4.

Indeed, the IUCN and U.S. foreign aid agencies shared similar views about the wilderness of Mt. Jiri. American economists working in aid agencies recognized that turning the forests of Mt. Jiri into a recreational park would be a money-making opportunity. Natural scientists of the IUCN grudgingly abided by the developmentalist plan of American economists because they found at Mt. Jiri was not splendid enough to be a national park to be preserved. As Cronon notes, in the mindset of the American upper-class, national parks were viewed as "sublime" wilderness spaces that would imbue nationalistic awe among educated visitors. Theoretically, if a wilderness was not sublime, then it was unworthy of preservation efforts. Drawing on Arturo Escobar's notion of a "development discourse," I argue that American skepticism about Mt. Jiri ruled out indigenous historicity in South Korea's national park project and led U.S. government agencies and the IUCN to endorse the plan for a recreational park at Mt. Jiri[334].

Nevertheless, the Park regime's park planners did not blindly follow Western development discourse. Although the mindset of the Ministry of Construction aligned with the linear developmentalism that Escobar criticizes, South Koreanpark planners sought to fill the national park with nationalist symbols. Emulating U.S. conservationists who imbued America's "sublime" landscapes with romantic nationalism in the early twentieth century, park planners rediscovered nationalist signifiers in Mt. Jiri and presented it as a space where the nation's working class could be "recreated" with the rediscovered historical symbols of the park.

Deforested Pride

[334] Arturo Escobar, *Encountering Development: The Making and Unmaking of the Third World* (Princeton: Princeton University Press, 1995), 6-9.

Until the mid-twentieth century, Mt. Jiri's small townships around the intermountain alluvial plains functioned as marketplaces where lowlanders and highlanders exchanged rice and forest products, the most popular and valuable of which was wood, especially pine. *Pinus densiflora* was one of the most prevalent florae in the middle and upper reaches of Mt. Jiri.[335] Traditionally, Koreans used the trunks of the red pine as construction materials and firewood.[336] Due to the usefulness of red pine, pine plantations, typically established by local landlords, were important sources of income since the nineteenth century.[337]

The Japanese annexation of 1910 accelerated the local economy's exploitation of forests, as urbanization and population growth in colonial Korea triggered a greater demand for lumber. Improved transportation also contributed to a logging boom, with railroads connecting remote communities around Mt. Jiri to urban centers. Kim Hongjun, a local timber merchant in the 1930s, recounted how he first purchased timber from loggers in the deep valleys of Mt. Jiri and transported it to Gurye along the Seomjin River. Kim's lumber was then loaded onto the freight trains of Japanese lumber traders at Gurye Station and distributed to trading firms in major cities throughout Korea. Although Kim Hongjun identified himself politically as right-wing, he ran a joint lumber business in the 1930s with a renowned communist in Gurye, Seon Donggi.[338] As Kim's account shows, lumber traders around Mt. Jiri were able to take advantage of its well-preserved forests during the colonial period.

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[335] Chōsen Sōtokufu, *Chiisan Shokubutsu Chōsa Hōkokusho* [The Survey Report on Florae of Mt. Jiri] (Seoul: Chōsen Sōtokufu, 1915), 2.
[336] John Lee, "Protect the Pines," 61; 224.
[337] Yoojin Kim, "Gurye Omidong Munhwa Yussiga Ilgie Natanan Geundae Jeonhwangi Sanrimgyeongyeong Yeongu - Si-eon gwa Gi-eo Reul Jungsimeuro [A Study on Forest Management in the Modern Transition Period in the Diary of Yu Family in Omi-dong, Gurye -Focusing on "Sieon" and "Gear"]," *Muhyung Yusan [Invisible Heritages]* 13 (2022): 298-302.
[338] Hongjun Kim, *Jirisan Sonamuro Salda: Minjokjuuija, Jisong Kim Hong-jun* [Living as a Mt. Jiri's Man: The Nationalist Jisong Kim Hong-Jun] (Seoul: Hanguk Girok Yeonguso, 2015), 57-61.

The transformation of the economic structure was not the only change that Mt. Jiri's society experienced. Increased exposure to the outside world situated local identity within a nationalist epistemology. Beginning in the 1920s, wealthy families in Gurye sent their children to urban centers in Korea and Japan for advanced education. After finishing schooling and pursuing careers in the "outside" world, some belonging to this younger generation returned home and connected their hometown with intellectual communities they had met across the Japanese Empire. These intellectuals, including Seon Donggi, and his uncle, Seon Taeseop, thus maintained both local and cosmopolitan identities. For his part, Seon Donggi was a renowned communist who once became a member of the Japanese Trade Union Confederation (*nippon rōdō kumiai sō rengō kai*) after studying at Nihon University in Tokyo.[339] His uncle, Seon Taeseop, was also a local leftist who contributed to the national daily *Chosun Ilbo*, becoming renowned for his critic against right-wing nationalists for cooperating with the colonial government.[340] The emergence of an educated and cosmopolitan group in Gurye led to an epistemological shift in communities around Mt. Jiri, one that expanded the locals' worldview beyond their small towns to encompass an imagined geography of the nation and even beyond.

The new spatiality of Mt. Jiri helped this young generation of Gurye to reconcile deepening ideological differences between right- and left-wing cliques by invoking an unbreakable local identity symbolized by Mt. Jiri. In the early 1930s, ideological tensions between local elites in Gurye had deepened following the dissolution of Shinganhoe, or New Korea Society, the first nationwide united front against Japanese colonialism, as radical leftists

[339] Gurye Gun Ji Pyeonchan Wiwonhoe, *Gurye Gun Ji* [The Chorography of Gurye County] (Gurye: Gurye Gun Ji Pyeonchan Wiwonhoe, 2005), 483.
[340] Choi Jeonggi, *Bundan e Buditchyeo Seureojin Minjokjuuija: Seon Taeseopui Salmgwa Jugeumeul Jungsimeuro* [The Nationalist whose life was thwarted by the Division of the Nation: Seon Taesop, His Life and Death] (Seoul: Seonin, 2013), 95.

opposed right-wing nationalists for their dovish stance on Japanese colonialism. When Gurye's leaders decided to seek reconciliation between the two groups, they looked to Mt. Jiri, the highest peak on the southern half of the Korean peninsula. For those who embraced the nationalist and cosmopolitan geography, Mt. Jiri was no longer a big mountain in their hometown, but a geographical metonym representing the place of Gurye in Korea and the world. Recognizing the symbolic importance of Mt. Jiri, some of Gurye's young leaders organized a local gentlemen's club called Geumnanhoe (The Golden Orchid Club) in 1936 and held several outdoor activities around Mt. Jiri, such as soccer and hiking. Comprised of anti-Japanese nationalists, Geumnanhoe members sought to organize a united front in Gurye against Japanese authorities. For instance, the lumber trader Kim Hongjun was one right-wing figure who despised communists but later participated in outdoor activities organized by Geumnanhoe.[341] Group hiking trips strengthened solidarity among elite men in Gurye. One of these hiking trips in 1936 was recorded by Seo Chun, a journalist working for the *Chosun Ilbo*, who was invited to join a trek to Mt. Jiri.[342] Mt. Jiri was undoubtedly chosen as the site of reconciliation in these hiking trips, not only for being the highest peak in the southern half of the Korean Peninsula, but also because it symbolized a shared local identity, one capable of transcending political differences.

Thereafter, the hiking trip to Mt. Jiri gradually gained fame across the country, with even some journalists from nationalist newspapers in Seoul joining the tour and publishing articles about their trip to the mountain. In 1938, three members of Geumnanhoe, including Seon

[341] Kim Hongjun, *Jirisan*, 56. In his autobiography, Kim Hongjun noted that he even suspended the joint business with Seon Donggi after he realized that Seon was a communist. Though it was highly unlikely that Kim did not know that Seon was a communist given Seon's distinguished career as an international communist, it is also plausible that Kim blamed the ideological difference for the break-up of the joint business.
[342] Choi Jeonggi, *Bundan*, 106-07.

Taeseop, in addition to two other locals from Gurye, guided a trekking trip on Mt. Jiri, organized by *Chosun Ilbo*.[343] After this trip, one article published in *Chosun Ilbo* in 1938 first coined the honorific nickname for Mt. Jiri, "Southern Korea's sacred mountain (*namseon eui yeongsan*)."[344] This nickname perhaps best captured the nationalist imagination, local identity, and pride that Gurye natives evoked while climbing Mt. Jiri together.

However, fifteen years of wartime economy and subsequent political mayhem severely damaged the rich environment of Mt. Jiri. In the mid-1950s, Mt. Jiri became an important supplier of timber in South Korea. Woo Jongsu and his colleagues testified to the striking scale of deforestation after 1945, reporting that nearly a thousand loggers went into some of the thickest woodlands in Mt. Jiri and recklessly cut down trees.[345] Even the military was involved in overlogging on Mt. Jiri, capitalizing on its assets, such as U.S. Army's "Jimmy" trucks, as well as its ability to evade government oversight. In extremely inhospitable conditions atop Mt. Jiri, GMC CCKW trucks proved to be an effective instrument for logging activities, contributing to an exponential increase in timber production on Mt. Jiri.[346] Using military trucks, South Korean logistics officers cut down trees themselves or earned an extra income by lending trucks to illegal loggers.[347]

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[343] *Ibid*, 107; 110.
[344] "Jirisan Tamheomgi 39: Jirisan Haengjeoil 2" [Mt. Jiri Expedition Report 39: Trails of Mt. Jiri 2], *Chosun Ilbo*, September 16, 1938.
[345] Donggyu Moon and Chanmo Park, *Jirisan gwa Gurye Yeonhaban* [Mt. Jiri and Gurye Hiking Club] (Jinju: Gyeongsangdaehakgyo Gyeongnam Munhwa Yeonguwon, 2017), 90.
[346] Moon and Park, 125. Also, as the historian Yim Songja points out, the military's heavy involvement in the logging industry was due to not having sufficient funds to feed conscripts during the counterinsurgency campaign around Mt. Jiri. Yim Song-ja, "Jirisan Dobeol Sageon gwa Sallim Jeongchaek eui Byeonhwa" [Mt. Jiri's Illegal Logging and the Transformation of Forestry Policy], *Inmun Gwahak [The Journal of the Humanities]* 64, no. 0 (2017): 114.
[347] Sangmi Han and Gichun Song, "1950-Nyeondae Gun-ui Ireunba 'Husaeng Saeop'ui Han Danmyeon Gunsamangsagojingwang-wiwonhoe Jinjeongsageon Josa Jaryo-reul Jungsim-euro" ["The Korean Military's So-called 'Welfare Project' in the 1950s"], *Beopgwa Sahoe* [Korean Journal of Law and Society] 71: 56.

Even worse was the emergence of a labor subcontracting system that drew local peasants into the illegal logging economy. According to reports from Hapcheon police, many of those who were detained for illegal logging were farmers, stating that they only logged for local lumber dealers during the off season.[348] During the winter, lumber brokers rented out the right to log trees in certain lots to impoverished farmers, which the farmers must pay off by cutting down trees. In many cases, these farmers had no choice but to cut down as many trees as possible to pay off their debts. As the logging business flourished and lumber became the only profitable resource, Mt. Jiri's economy experienced a vicious cycle that perpetuated illegal logging and deforestation.

Local leadership was aware of the malaise surrounding illegal logging and viewed it as a cause for deforestation and underdevelopment. At the same time, locals found hope in rumors about developmental plans leaked to the media and which referred to hydropower projects and mining exploration. Since 1945, American economists and engineers affiliated with the ECA had been surveying gorges near the Seomjin River as a preliminary step to build a hydropower dam, which, they hoped, would promote mineral exploration and industry on the Mt. Jiri highlands.[349] Although postponed several times, the dam and mining projects stimulated the modernist dreams of the locals that their hometown of Mt. Jiri could be reborn as the center of industrialization in South Korea. Gradually, rumors circulating in the media that Mt. Jiri was the "last frontier" of untapped underground resources became common among locals.

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[348] "Hapcheon Police Logging Crackdown Report," 3888; 3890; 3947; 3948. I found these police investigation reports in a second-hand bookstore near Gurye in 2021 and made a copy of them thanks to the generosity of Mr. Kim Jonghun, the owner of the bookstore. Unfortunately, the dates of publication and investigation were not given, but it seems that it was published no later than 1965. Despite the ambiguity of the date of publication, the investigation was undoubtedly conducted by the Hapcheon police station. Due to the uncertainty of the author and date of this collection, this chapter refers to it as "Hapcheon Police Logging Crackdown Report." The copies of Hapcheon Police Report are currently in the possession of the author.

[349] Economic Cooperation Agency to Bureau of Reclamation at Denver, 1949, Agency History Files, RG 291, Entry 417, Box 25, USNA.

Although the rumors of untapped bonanzas in Mt. Jiri were not unrealistic, plans for mining failed to bear fruit due to guerrilla warfare that lasted until 1955. Since the communist uprising (Yeosun Rebellion) in 1949, which swept across mountain hamlets in the southern foothills of Mt. Jiri, ravines were fortified by leftist guerillas and North Korean Army stragglers who fled to the mountain to escape the South Korean Army crackdowns. In 1955, the government in Seoul finally declared an end to the counterinsurgency campaign and lifted the no-trespassing order on Mt. Jiri.[350] One of the first things that some locals did after the sanctions were lifted was to restore abandoned trails and update the map for possible geological or agricultural survey teams to visit. It was around this time that Woo Jongsu organized the Mt. Jiri Alpine Club, which he proclaimed to be the heir to Geumnanhoe. Woo Jongsu's unexpected encounter with Kim Heon Kyu and students from Ewha Womans University on a field research trip occurred soon afterward during the spring of 1963.

"Last Frontier"

The four years from 1962 to 1965 were a monumental period in the history of Mt. Jiri, during which time four mega-research teams with developmental visions came to study Mt. Jiri, including the Ministry of Construction and the UN Civil Assistance Command (UNCAC). The purpose of these research teams was to create a database of all exploitable resources around Mt. Jiri and to propose the best development plan. Each research team, which was overseen by regional and local governments in South Korea as well as U.S. agencies, was comprised of government workers and scholars from various disciplines. These researchers were able to

[350] Moon and Park, *Jirisan*, 107.

explore the mountain with the support of Woo and fellow Alpine Club members, all of whom believed that developing the mountain was the best way to stop overlogging.

Many of the survey reports focused on building a "food colony" on Mt. Jiri in response to official's concerns about overpopulation and food shortages. The first notable proposal for a plantation came from local students. In two national development plan competitions held in 1961 and 1962, local high school students and a schoolteacher, respectively, submitted plans to transform the vast highland of Mt. Jiri into green ranches and potato plantations befitting the alpine environment.[351] In a similar vein, geologist Park Nosik stated in the first published survey report in 1963 that South Korea's food security was a severe problem and thus "upland development is the near-best solution to break the cycle of poverty resulting from the impoverishment of agriculture."[352] In the same survey, the journalist Lee Gwangu argued that the cultivation of South Korean mountains, which account for 70 percent of the total area, should be accelerated in order to increase food production.[353] In another report from Gyungnam Province, Governor Lee Gyesoon solemnly declared that Mt. Jiri would be the frontier in a national quest for food self-sufficiency, implying that Mt. Jiri's underdeveloped land could save the nation from overpopulation.[354]

While plans for agricultural plantations prevailed, some geologists also surveyed the geology of Mt. Jiri to investigate a long-standing rumor that Mt. Jiri contained the largest anthracite reserves in South Korea. From 1962, several geologists had joined in survey missions,

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[351] Woo Duseong, interview with author, December 8, 2021, Gurye, South Korea (recording file in possession of the author).
[352] Jirisan Jiyeok Gaebal Josa Yeongu Wiwonhoe [The Committee of Mt. Jiri Development Research. Hereafter, JJGW,], *Jirisan Jiyeok Gaebal e Gwanhan Josabogoseo* [The Survey Report of the Mt. Jiri Development] (Unknown place of publication: Jirisan Jiyeok Gaebal Josa Yeongu Wiwonhoe, 1963), copy in Seoul National University, 51.
[353] *Ibid*, i.
[354] Gyeongsangnamdo Jirisan Gaebal Daechaek Weewonhoe [The Gyeongnam Committee for the Development of Mt. Jiri. Hereafter, GJG], *Jirisan Jigu Gaebal Josa Bogoseo* (Gyeongnam: GJG, 1963), i.

and explored the traces of coal and other precious metals around the vast hinterland of Mt. Jiri. In this survey, South Korean bureaucrats and scholars decided where and how to survey, whereas the role of Americans was minimal. In a sense, Mt. Jiri geological survey marked the first mining survey mission planned and conducted by South Korean mining engineers and geologists, implicating the growing influence of South Korean engineers in place of Americans in the previous decade.

The modernist vision that South Korean engineers and scholars presented in reports on Mt. Jiri was also a response to grassroots aspirations for development. During its first four years, the Park regime ambitiously launched several programs in each region to demonstrate its strong commitment to modernization, especially in underdeveloped rural areas. The state-run National Rehabilitation Movement (NRM: *jaegeon gukmin undong*) and its provincial branches, the Regional Committees (*hyangto wiwonhoe*), played a pivotal role in the regime's development projects. At the Regional Committees, local leaders could present their visions of development to state officials. During the Mt. Jiri surveys, members of the Regional Committee joined research teams and submitted various developmental proposals.[355] For instance, former Geumnanhoe member Mun Changhoe was the chairman of the NRM Regional Committee, working closely with the former lumber trader Kim Hongjun for the "Development of Mt. Jiri."[356] The spectrum of these bottom-up developmental plans was broad, ranging from the creation of a mining complex to colossal pastures inspired by Switzerland's *Alpwirtschaft* model, an alpine

[355] For instance, the aforementioned journalist, Lee Gwangu, was the chief of the state-controlled nationwide mobilization unit, National Movement Command (NMC: *Gukmin Undong Bonbu*). NMC had nationwide branches, aiming to "invoke anti-communism" and to correct "archaic customs of South Koreans all across the nation." One of the key purposes of this organization was to promote the "development of local townships (*hyangto*)," as stipulated by the law (*jaegeon gukmin undong e gwanhan beopryul* [The Act on the National Rehabilitation Movement], 1962). At least two cadres of NMC's local organs at Gurye, Ryu Deokcheon and Kang Manchun, served in the executive board of the Mt. Jiri survey team of 1963.
[356] Moon and Park, *Jirisan*, 169-70.

pastoralism characterized by seasonal movement of livestock between the valley pastures in the winter and the high alpine meadows in the summer.

The initial task of the survey teams was to select the most suitable crops for the climate, terrain, and native fauna and flora of each region of Mt. Jiri. Soil scientists recommended which crops to cultivate and, by studying soil conditions, where crops should be planted. In the meantime, a group of botanists investigated native medicinal plants on Mt. Jiri and listed commercial crops that could be grown. Entomologists surveyed native vermin that, they feared, might harm domesticated animals and livestock, suggesting possible pest control solutions. Social and agricultural scientists also visited mountain hamlets and examined living conditions, modes of production, and "work morale" in an attempt to assess how much of the labor force could be mobilized from local society once a plantation was established. In effect, the research surveys of 1963 and 1964 functioned as preemptive research for the South Korean "colonization" of the mountain and its people.[357]

After several months of investigation, the 1963 report concluded that dairy farms, hop, and beets could be well suited to Mt. Jiri's climate, soil, and ecosystem.[358] The report also advised the government to build multiple cattle drives to connect hamlets of swidden farmers and loggers, which would help the "rehabilitation (*jahwal*)" of mountain dwellers by transforming them into cattle herders.[359] In a similar vein, the 1964 report proposed a plan to establish what it called "frontier farms (*gaecheokji nongeop*)" for tea plantations and ranches.[360] If realized, the "food colony" model would become an ideal example in which the modernist aspirations of locals and the populist politics of a developmental regime converged.

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[357] JJGW, *Jirisan Jiyeok,* 146; 229-251; 274; 349-362; 367-79.
[358] *Ibid,* 626; 649-651
[359] *Ibid,* 475.
[360] GJG, *Jirisan Jigu,* 78; 108-09.

However, subsequent findings were enough to make locals and the regime alike pessimistic. After three years of geological surveys, mining exploration teams reported that, contrary to rumors since the 1950s, no such underground resource existed. Until 1964, geologists estimated a large anthracite deposit in the eastern part of Mt. Jiri.[361] The same report expressed hope that these coal reserves would solve the fuel shortage in the southeastern metropolis of South Korea, thereby turning Mt. Jiri into a coal industry complex like the Taebaek Highlands. However, the final report from the Ministry of Construction in 1965 did not even mention the anthracite in the mineral section, suggesting that the presence of coal reserves was minimal or non-existent. Instead, the Ministry of Construction announced another exploration of nickel, graphite, and quartz, among others, and planned to mine those minerals using the rich hydropower of Mt. Jiri. Yet, in the final report of the Ministry of Construction, geologists concluded that the only economically viable mineral was kaolin. South Korean geologists proposed the construction of a small industrial complex to process kaolin for export to Japan, but the scale of the mining project had already been greatly reduced from the original outline.[362]

In addition, the tone of the "food colony" proponents became increasingly gloomy. In the final investigation report in 1965, the Ministry of Construction concluded that plantation and dairy farm plans were not economically viable either. Agriculturalists and soil scientists admitted that they could not find a sufficient place on Mt. Jiri to make a profitable dairy farm after four years of research. Similarly, plantation plans for specialty crops such as tea and hop were also abandoned or significantly reduced to smaller potato farms on vales due to inadequate climate and soil conditions. The 1965 report concluded by declaring that industrialization or the "Swiss of South Korea" was simply an illusion.

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[361] *Jirisan Jigu Gaebal Josa Bogoseo*, 29.
[362] Ministry of Construction (South Korea), *Jirisan Jiyeok Jonghap Gaebal Geyhoek Josa Bogoseo*, 1965, 185-87.

Among these pessimistic survey reports, the one written by Kim Heon Kyu—the Ewha professor who befriended Woo Jongsu on the field trip in 1963—stood out as an expression of American-style preservation and a nationalist pathos. Kim's survey was unique for having considered the endangered native alpine musk deer herds, which he referred to as "the native species of our country." With these deer in mind, Kim expressed the need for a national park like those found in "advanced countries." He also sentimentally stated that he felt "shame" and "agony" over the fact that the native fauna of Mt. Jiri had not been studied by South Korean scientists.[363] The threatened biodiversity was an alarming indicator to Kim that South Korea was not even close to the level of "advanced countries."[364] The Mt. Jiri National Park, first proposed by Kim in this report, was a nationalist effort to keep up with the preservationism of "advanced countries."

After Kim Heon Kyu's proposal, the regime began to consider the national park as one possible course of development. However, the idea for a national park was distinct from the American notion of nature reserves. The national park proposal in the 1963 report was akin to what American park planners would have called a "recreational park," where visitors could enjoy hiking, winter sports, and boat cruising; in fact, there was no mention of protecting of nature. This park, which South Korean planners called "people's vacation park (*gukmin hyuga chon*)," was also oddly designed to coexist with Swiss-inspired plantations and dairy farms.[365] The message embedded in this hybrid park-plantation plan was obvious: researchers, local leaders, and the state could not and would not abandon the promise of development. Although few would

[363] *Ibid,* 274.
[364] Interestingly, the IUCN's first world conference on national parks held in Seattle in 1961—in which Kim Heon Kyu participated two years ago—similarly conveyed that the progress of civilization cannot be evaluated only by in "materialistic terms." "International Union for Conservation of Nature and Natural Resources," July 1962, IUCN (ICNP) First National Conference on National Parks Files, Box 10, Harold Coolidge Jr. Paper, [Hereafter National Park Files] Harvard University Archives, MA, USA. [Hereafter, HUA].
[365] GJG, *Jirisan Jigu,* 573.

have considered the co-existence of farmland and a recreational park plausible, the state still needed to reassure locals that the national park was another avenue for modernization.

The survey of 1965 finally acknowledged that a national park was an attractive alternative to plantations. At the same time, the report downplayed the prospect of plantation and dairy farm plans due to inadequate natural conditions around Mt. Jiri. The proposals for tea and hop were also abandoned or significantly downsized due to hostile climate and soil conditions.[366] As an alternative, this report highlighted the national park plan and greatly expanded the size of the proposed park zone (see Fig. 2). Meanwhile, the promise of local development was deeply embedded in the park. Indeed, the key elements of the new park plan were recreational facilities planned outside of the park zone. According to this plan, the Ministry of Construction aimed to build hotels, amusement parks, golf courses, ski resorts, and a stadium in Gurye, promising to transform this underdeveloped town into the center of alpine tourism.[367]

[366] Geonseolbu [Ministry of Construction], *Jirisan Jiyeok Jonghap Gaebal Gyehoek Josabogoseo* [The Mt. Jiri Regional Development Planning Survey Report] (Seoul: Ministry of Construction, 1965), 154-55.
[367] *Ibid*, 200-01.

Figure 5.2. Proposed Area for Mt. Jiri National Park (yellow area). Geonseolbu, *Jirisan Jiyeok Jonghap Gaebal Gyehoek Josabogoseo,* 1965, i

The Mt. Jiri National Park proposal had to be the regime's last promise of modernization to the locals, which had been postponed many times hitherto. Another failure of the promised development in Mt. Jiri would severely undermine the Park regime's ability to ensure its

legitimacy. As Burge astutely recognizes, much of the civil unrest during the 1960s and 1970s stemmed from tensions between the state and the grassroots, as the latter was infuriated by the former's empty promise of modernity that, in the end, turned out to be a pipe dream.[368] In this context, park planners designed unrealistic images of modern buildings and resorts for Mt. Jiri, which resembled the design of alpine resorts in Switzerland (Figure 5.3).

As this was the first national park project in South Korea, the regime had to quickly find an example of a country that had successfully built and managed national parks to use it as a model to ensure that Mt. Jiri could be opened on time. Unsurprisingly, that model country was the United States. At the same time, nationalist technocrats in the Park government set out to find an appropriate theme for this national park. As the following section shows, it was during this period that such forgotten local ideas as "sacred mountain" were rediscovered.

[368] Burge, "Promised Republic," 15.

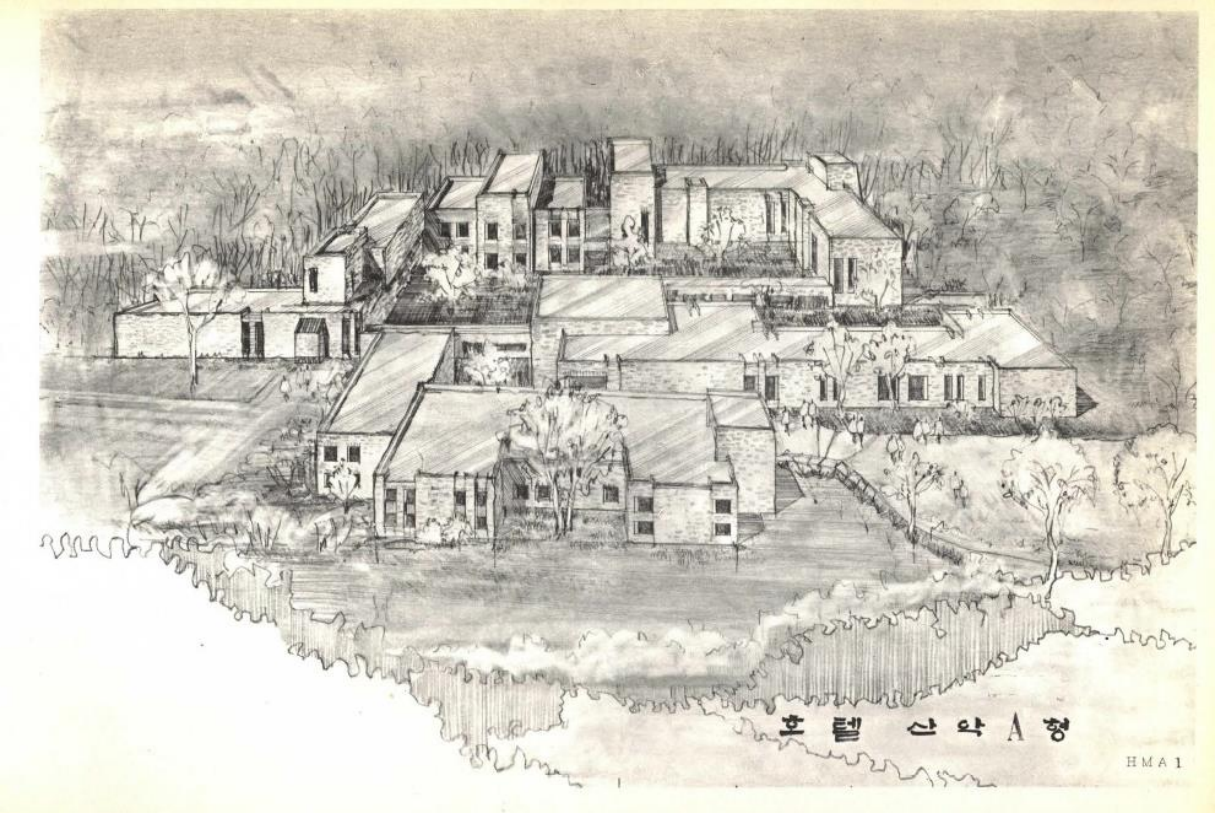

Figure 5.3. Proposed design of "Hotel A" model for national parks. Ministry of Construction, *Gukripgongwon Siseolmul Gibon Seolgyedo,* 1973, 79

The Sacred Mountain

In 1964, a year before the report from the Ministry of Construction was released, a scandalous incident on Mt. Jiri caught the attention of South Koreans. That August, all major newspapers reported that an investigation was underway into an unprecedented, massive, and illegal logging operation on Mt. Jiri. According to the media, Namseon Lumber Inc., one of the nation's top lumber producers and traders, was behind the logging operation. It was sponsored by top officials of the Park government and high-profile names in the ruling Republican Party (*gonghwadang*).[369] This scandal called into question the regime's commitment to forest

[369] Yim Song-ja, *"Jirisan Dobeol,"* 121-22.

management—exposing the government as a mere profiteer, one no different from unenlightened lumberjacks whom it moralized against and penalized.

As Mt. Jiri suddenly became an arena for proving whether the regime's commitment to development was genuine, Park and his ministers reacted quickly by launching an aerial field inspection of Mt. Jiri with a group of journalists in September 1964.[370] Upon his return, Park publicly ordered the Ministry of Construction to organize a special institution to supervise the development program in Mt. Jiri. By that time, the national park was the only development project left on the table. But the plan itself was brief and its viability was questionable, leading the Ministry to consult with several U.S. agencies that had expressed interest in South Korea's national park project.

There were two American groups that had been advising South Korea on national park planning since the late 1950s. The first group was the IUCN's Pacific Board members, who were mostly natural scientists striving to disseminate park planning methodologies. The other group was comprised of the international tourism departments of the U.S. economic aid agencies in South Korea, USOM and ICA. These two agencies had already connected South Korean government personnel with U.S. government park managers since the late 1950s. Though both groups shared a commitment to the establishment of national parks in South Korea, the goals of each party differed significantly.

IUCN's advice was aimed at establishing what Jaehwan Hyun calls "ecological diplomacy," which involved adopting Switzerland's national park model to protect the wildlife habitats from the developmentalism of "Third-World" nation-states. IUCN's consulting efforts were designed to revive the colonial network of conservationism that protected game animals in

[370] "Bakdaetongryeong Ilhaeng Jirisan Jigu Shichal [President Park's Field Inspection over Mt. Jiri]," *Kyunghyang Shinmun*, September 7, 1964."

colonies before World War II.[371] Therefore, IUCN's national park consulting focused on separating wildlife from human development and educating "unenlightened" citizens—mostly upper-class males—on how to appreciate nature.[372] IUCN's national park extension program reflected the shift in thinking about nature that was taking place in many new nation-states. In South Korea, for example, new national parks should help it incorporated into the U.S.-led academic network and thereby bringing South Korean nature under the gaze of Euro-American epistemology. The visit of William Hart, the head advisor of IUCN's national park department, to Mt. Jiri in 1962 was part of this postcolonial transition.[373]

By contrast, USOM and ICA saw the national park as an opportunity to promote the tourism industry. In the late 1960s, the main goal of these agencies was to improve South Korea's foreign exchange inflow, thereby reducing the government's economic reliance on the United States. Officials in U.S. aid agencies believed that the burgeoning tourism industry and South Korea's initiative to build a recreational park would help them achieve these goals.[374] The international tourism boom of the early 1960s and the rosy prospects thereafter supported ICA's ambitions for building recreational parks for American tourists. In 1961, the U.S. Department of Commerce and the Pacific Asia Travel Association (PATA) jointly commissioned Checchi and Co. Consulting, an American consulting firm, to conduct a study on the outlook of the tourism industry in Asia-Pacific countries. In this study, Checchi Consulting applied the economist Paul A. Samuelson's multiplier theory to tourism and found that every $1 spent by a tourist generates

[371] Hyun, "Victory over Communism."
[372] The separation of human development and nature was well manifested on the list of recommendations announced at first conference of national parks held in Seattle, 1961. "Recommendations Adopted by the First World Conference on National Parks," National Park Files, HUA.
[373] A letter from William Hart to Harold J. Coolidge, July 16, 1963, Park Systems Planning Surveys File, Box 12, Harold Coolidge Jr. Paper, HUA.
[374] For instance, the tourism department of USOM requested an assistance from USNPS to promote the tourism in South Korea for domestic tourists and foreign expatriates in South Korea early in 1959. (Gordon W. Bradley to USNPS, October 8, 1959, Asia Correspond File, RG 79, Entry P11, Box 2173, NA.).

a ripple effect of $3.27 in national economic activity.[375] With luxury tourist facilities furnished by 1968, the report concluded, South Korea could emerge as a stopover destination for American tourists travelling to Hawai'i, Tokyo, and Hong Kong, hence allowing South Korea to capitalize on the multiplier effect with a relatively small investment.[376]

Over the next few years, Checchi's report became a bible for the tourism industry in South Korea and influenced the direction of the South Korea's tourism policy. Checchi's report provided "scientific" assurance that tourism was a "golden goose" for the economy, bringing in the "easy money" spent by tourists as well as money generated by a ripple effect. The influence of Checchi's report can be seen in the 1965 survey of Mt. Jiri, which cited Checchi's report and the multiplier effect, and stated that the new national park would target foreign tourists and American GIs.[377] Moreover, in 1966, the Ministry of Construction published an advanced research report on the national park that expanded the original plan to include a sprawling resort with a museum, zoo, fishing villages, swimming pools, tennis courts, golf courses, and cable car towers, sending a clear signal that the ministry was targeting affluent tourists and their money.[378] The government was reassured by a follow-up study commissioned by the USAID in 1966 (written by the American tourism consultant Morton D. Kauffman) that advised the South Korean government to build luxury resorts on mountains where foreigners were likely to spend money.[379]

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[375] Harry G. Clement, *The Future of Tourism in the Pacific and Far East: A Report Prepared by Checchi and Company Under Contract with the United States Department of Commerce and Co-sponsored by the Pacific Area Travel Association* (Washington D.C.: U.S. Department of Commerce, 1961), 24-25.
[376] Telegram from AID, December 7, 1961, Korea Subject Files Series, RG 286, Entry 3820, Box 68, NA.
[377] Geonseolbu, *Jirisan Jiyeok Jonghap Gaebal*, 196-97.
[378] Geonseolbu, *Jirisan Jiyeok Jonghap Gaebal*, 233-35.
[379] Morton D. Kaufman, *Hanguk Gwangwang Saeop Josa Bogoseo* [Korea Tourism Industry Survey Report] (Seoul: Gyotongbu [Ministry of Transportation], 1967),

However, in 1967, the Ministry of Construction had to admit that its original profit model was based on overly optimistic predictions about foreign tourists. In a study published in March 1967, the ministry predicted that foreign tourists to Mt. Jiri would likely account for less than 20 percent of all visitors. Even worse, the same study revealed that students had accounted for 60 percent of domestic visitors in the past, followed by government workers and farmers—those with the least spending power, in other words.[380] With such a bleak forecast for the international resort model, the ministry removed golf courses and ski resorts from the plan and tried to adjust it for domestic visitors traveling on a budget.[381] At the conclusion of its study, the Ministry stated that it would now explore ways to attract more domestic visitors, particularly students, to maximize the multiplier effect.[382] However, given their low purchasing power, the ministry admitted that it would need to attract as many student visitors as possible to offset the lost multiplier effect.

During the short period of time between the Ministry of Construction's report and the park's scheduled opening in late 1967, the regime struggled to find an alternative park planning model to replace the scrapped international resort plan. One of the alternative options was to establish a nature reserve over the entire area of Mt. Jiri, an idea the IUCN's natural scientists had strongly favored since 1961. In 1964, William Hart wrote in a letter to the President of IUCN, Harold Coolidge Jr., that the Mt. Jiri survey report was "Typical of … the (*sic*) area development administration," criticizing South Korea's park planning. But in the same letter, Hart also predicted that the Seoul government would eventually seek the assistance of a

[380] Geonseolbu, *Gukripgongwon Gibon Gyehoek mit Gibon Seolgye* [The Rudimentary Planning and Design of National Parks] (Seoul: Ministry of Construction, 1973), 317-19.
[381] *Ibid*, 363.
[382] *Ibid*, 352-53.

"qualified recreation planner," namely IUCN.[383] Indeed, two years later, in September 1966, Coolidge Jr. made an official visit to the Presidential Palace at the request of the South Korean government, which was urgently seeking a park planning expert. There, Coolidge Jr. introduced Dr. George Ruhle, the national park planning specialist affiliated with IUCN, to the South Korean government.[384]

George Ruhle was renowned for his outspoken nature, never shying away from offering blunt advice. Based on his strict naturalist standard of a "wilderness," he found that South Korean nature possessed little value for a national park. For two years and three months, Ruhle traveled across South Korea's wildlife habitats and nature reserves with the support of the Park regime. In 1968, his efforts culminated in the publication of an intensive study of several candidate sites for the first national park of South Korea. Throughout the report, Ruhle insisted that a national park should represent a country aesthetically and scientifically, while also being a vast, well-preserved wilderness protected from human activities. From this perspective, Ruhle's report dismissed the grandeur and history of most of (South) Korea's mountains. Given the level of preservation and biodiversity across the country, Ruhle concluded that there was no place worthy of a national park except for Mt. Halla on Jeju Island and Mt. Seorak on the East Coast. As for Mt. Jiri, Ruhle stated that it could be reconsidered later, but suggested that the South Korean government might want to develop it into a recreational park—the same conclusion as Kauffman.[385] Here, Ruhle's American-centric view of nature oddly resonated with the

[383] William J. Hart to Harold J. Coolidge, April 20, 1964, International Relations Files 1964, Box 13, Harold Coolidge Jr. Paper, HUA.
[384] Harold J. Coolidge to Chung Hee Park, December 14, 1968, International Relations Files 1968, Box 28, Harold Coolidge Jr. Paper, HUA.
[385] George C. Ruhle, *Advisory Report on National Parks and Reserves for the Republic of Korea* (Bronx, NY: American Committee for International Wild Life Protection, 1968), 51-52; 67-68.

developmental economics of Kaufman, who, though he recognized their potential economic value, saw little historical or natural value in South Korea's mountains.

The IUCN's verdict seems to have provoked the regime to emphasize the rich history of the mountains even more than it had before. During the final months before the park's opening, the Park regime decided to artificially fill Mt. Jiri National Park with nationalist symbols reflecting the rediscovered signifier of this site as "the nation's sacred mountain." This push was evident in the language of the final reports of 1967, wherein the Ministry of Construction referred to high peaks as "spiritual peaks" (*yeongbong*) with distinctive names and marked out historical heritage sites connected to the anti-Japanese and anti-communist wars.[386] The editors of the report drew on legends, folklore, and most importantly the stories of battles against foreign aggression that were embedded in valleys, waterfalls, and trails of the region. As if proving the falsity of Ruhle's survey that stripped Mt. Jiri of its historicity, the final report of 1967 suddenly transformed the entire park into a sacred area where the spirits of the nation's ancients could be felt. In a similar vein, the report replaced "visitors (*bangmunja*)" with the term "pilgrims (*tambanggaek*)." The subtle change in the language suggested that visitors—mostly students—should come to Mt. Jiri as pilgrims to experience the nation's long history, which stretched back to time immemorial. Five years after the opening of the Mt. Jiri National Park, the Ministry of Construction officially defined the national park as the "place to pass on the national spirit (*minjok jeonggi*)" and to refresh the "spiritual life (*jeongsin saenghwal*)" of the people.[387]

Conclusion

[386] Geonseolbu, *Jirisan Gukripgongwon*, 234-39.
[387] Geonseolbu, *Gukripgongwon Gibon Gyehoek mit Gibon Seolgye* [The Rudimentary Planning and Design of National Parks] (Seoul: Ministry of Construction, 1973), 4.

The history of the making of Mt. Jiri National Park narrates how trans-Pacific interests and visions of local society's bottom-up aspirations for development, the developmental regime's promise of modernization, and American aid agencies and park planners were intersected in the context of the Cold War and mountain engineering. Although the initial prospect for the development of Mt. Jiri was thwarted after the publication of frustrating survey reports, the South Korean government and local society continued their efforts to engineer Mt. Jiri. The bottom-up aspirations of the local society put pressure on the Park regime, and ultimately led it to rediscover the forgotten symbolism of Mt. Jiri in the nationalist geography.

Meanwhile, the final outcome of the national park was heavily influenced by the tourism consultants hired by developmental minded U.S. government agencies. However, IUCN's park planners played a decisive role in introducing the notion of preservationism and American concept of national park to South Korea. The two American avenues of park planning—recreational park and nature preserve—, each proposed by U.S. government consultants and IUCN, suggests the tensions within the American advisory groups in the ways in which South Korean mountains were to be engineered in the 1960s. However, it is noteworthy that the final decision was made by the Park regime, and its outcome was somewhere in between a recreational park and a nature preserve: a nationalist park in preserved nature, designed for the recreation of working-class South Koreans. The efforts of regime's park planners to rediscover the nationalist symbols in the mountain were, in a sense, their own way to find the "nationalist awe" in Mt. Jiri, which George Ruhle dismissed.

The modern history of the development and preservation of Mt. Jiri has two important implications. First, nationalism was the driving force behind both development and preservation. Borrowing from the language of William Cronon, preservation was a vehicle of development

that attempted to transform a "bad wilderness" into the "good nature" of the nation. Second, given the early history of South Korea's national parks, the dichotomy between developmentalism and preservationism was not as strong as is often thought. If anything, development and preservation in the 1960s stemmed from the same motivation of local society: to retrieve rights over forests and protect them. Each was mixed with the other, their boundaries blurred. The untold history of early preservationism also suggests how the local experience and imaginations of modernity, the developmental regime's populist politics, and trans-Pacific preservation efforts shaped the concept of preservation in Cold War South Korea.

Chapter 6

Conclusion: End of Internal Frontierism

This study has examined the trans-Pacific movement to engineer South Korean mountains. Before the Korean War, (South) Korean mountains were part of an integrated ecosystem of highland communities and served as communal property. The onset of the Cold War and the outbreak of a Hot War (the Korean War) changed the geopolitical, ecological, and economic conditions around the South Korean mountains and transformed the traditional ways in which South Koreans perceived mountains. After the Korean War, the South Korean state aimed to create a domestic energy supply chain independent of the Japanese Empire by extracting the untapped coal reserves in its highlands. The state also sought to prevent the complete deforestation of highlands and the resulting agricultural breakdown by engineering highland ecology. Repositioning the mountains as reserves of energy and nature created opportunities for both the state and highland communities to achieve economic growth and improved living standards. As a result of mountain engineering, the population, resources, and ecology of the highlands were finally put under the gaze of the lowland state and reorganized by it. This dissertation argued that this unprecedented engineering of mountains was part of a globalized movement to subjugate and exploit untapped and unruly highlands of nation-states.

In Chapter 2, I argued that South Korea's Taebaek Highlands were initially developed as an American neocolonial mining enclave, as part of the U.S. trans-Pacific quest for strategic minerals. American engineers constructed a massive mining infrastructure in Sangdong, modeled after American highland mining facilities and created a mining enclave around the tungsten and coal mines. After the Korean War, the direct management by American engineers was gradually

transferred to South Korean technicians. I framed the South Korean takeover of the Sangdong's management as an event that marking the opening of South Korea's internal frontier.

In the early sections of Chapters 3 and 4, I recounted two major state-led interventions in the South Korean highlands in the late 1950s: the shift to an energy regime centered on highland anthracite, and the reforestation movement. In these chapters, I conceptualized the methods of mountain engineering as being co-produced by American scientific and technological knowledge, colonial legacies of state mobilization, and South Korean aspirations for improved living standards. In contrast to direct control of tungsten mines during the Korean War, American actors in this period assumed a more supportive role for the South Korean government, as the urgency of another Hot War on the Korean Peninsula had diminished. Instead, American engineers, scientists, and economic planners focused on addressing the environmental degradation caused by fuelwood heating and deforestation, lest it undermine Syngman Rhee's unstable regime.

As shown in the latter parts of Chapters 3 and 4, the late 1950s also saw the growing agency of South Korean technocrats and engineers, as they gradually took control over mountain engineering. In the last section of Chapter 3, I illustrated how Park Chung Hee's military junta "hijacked" the energy development and road construction programs, using the labor of illegally detained civilians to garner populist support for its illegitimate regime. Similarly, the last section of Chapter 4 highlighted how the Rhee regime adapted the American idea of "grassroots democracy" to the revived colonial corvée, using it as an instrument for reforestation. These two examples illustrate how South Korea's state actors modified American knowledge and methods of mountain engineering for their own purposes in the late 1950s and 1960s.

The evolution of Mt. Jiri's development and preservation campaign in the 1960s epitomizes the Park regime's efforts to apply co-produced techniques of mountain engineering. In response to a grassroots movement for the modernization of their hometown around Mt. Jiri, the regime sent out several survey missions. After these surveys failed, American agencies once again played a pivotal role by introducing South Koreans to the concept of American nature reserves and park planning techniques. South Korean park planners adopted American park planning skills but modified them for the making of their own national park. The rediscovery of Mt. Jiri as a "sacred mountain" was an example how South Korean park planners moderated American concept of the "nationalist awe" and grassroots aspiration.

Today, does the highland frontier of South Korea, once the epicenter of energy transition, resource extraction, and nature preservation, still exist? I think not many South Koreans would answer in the affirmative. The transformation of Sabuk, once the center of the coal mining industry in South Korea, into South Korea's only casino town, aptly illustrates the current situation of many highland communities. Once home to the largest private coal mine in Asia, Sabuk's prosperity gradually diminished as the Chon regime initiated what could be called the second fuel transition since the mid-1980s, this time shifting from coal to natural gas and electric heating. In 1989, the South Korean government imposed a draconian downsizing policy on coal miners called the "Rationalization of the Coal Industry [*seoktan saneop hamnihwa jeongchaek*]." Since then, the number of coal mines in Taebaek Highlands has been decreased from 168 to 8. This policy sparked one of the largest anti-government protests in the country since the end of the military junta in 1987. Sabuk's miners had traditionally been known for their militant unionism, which once erupted in 1980 when angry miners occupied the township to protest unfair labor treatment. The militant unionism among Sabuk's miners may have been forged in

the deep underground shaft, as suggested in Timothy Mitchell's note on the origins of the labor movement in English mining towns.[388] In 1995, after three years of protest, Sabuk's miners and their families finally reached an agreement with the South Korean government to build the country's first casino for domestic tourists in their town.[389]

As of 2024, Sabuk's casino, Gangwon Land, remains the only casino in the country where South Korean nationals can legally gamble. The town's heavy reliance on gambling money is expected to increase as the largest coal mine in Taebaek Highlands, Jangseong Mine, is scheduled to close in July 2024. Over the last thirty years, the local community of Sabuk has risen up against the South Korean government multiple times whenever it explored a place for another casino for domestic tourists. In 1999, for instance, Sabuk's protesters thwarted the government's plan for a second casino by occupying a coal railroad.[390] As Timothy Mitchell notes, occupying an energy transport route was one of the successful strategies of miners in a coal energy regime.[391] The gambling industry and the fight for casino gave a lifeline for the mining community of Sabuk. But on the flip side, the image of Sabuk has been degraded by some iconic dystopian photographs of the town circulated by the national media—a street full of pawn shops and rusty cars left by gambling addicts. From a trans-Pacific perspective, Sabuk's transformation to a "sin city" is strikingly similar to some American former company towns, such as those in Cochise County, Arizona or Cripple Creek, Colorado, which struggle to survive on gambling money from tribal casinos.

In fact, Sabuk's transformation into a gambling town was a fortunate case, given the recession and collapse of other highland communities in South Korea after the end of the Cold

[388] Timothy Mitchell, "Carbon Democracy," *Economy and Society* 38, no. 3 (2009): 404.
[389] "Tangwangchon Gowon Gwangwangji Talbaggum," *Kyunghyang Shinmun,* April 6, 1995.
[390] "Tujaeng eui 28 nyeon Sewol Pyegwangji Jumin "Dashi Georiro," *Yonhap News*, February 19, 2021.
[391] Mitchell, "Carbon Democracy," 403.

War. Sangdong's company town of Gurae-ri, for instance, experienced a dramatic downturn after China resumed its exports of tungsten to the non-Communist world in the mid-1980s. In 1994, the South Korean government sold the deficit-ridden KTMC to a South Korean real estate mogul, Geopyeong Inc. However, during the Asian financial crisis of 1998, Geopyeong filed for bankruptcy. Since then, the Sangdong Mine has been idle, and the approximately one thousand residents of the Sangdong company town—a fraction of the 30,000 who once populated it—have been looking for an investor. The case of Gurye, Mt. Jiri's gateway town, also tells another story of decline, though not as dramatic as Sangdong's; after the short heyday of domestic tourism in the 1970s and 1980s, the South Korean government lifted the international travel ban on its citizens, resulting in the decline of tourism industry in Mt. Jiri. While Mt. Jiri still retains a reputation as a challenging hiking destination, it no longer draws long-term visitors, particularly after the construction of highways to Gurye. As tourists spent less time in Mt. Jiri, the local tourism industry fell into recession since the mid-1990s. Today, Mt. Jiri and Gurye remain some of the most underdeveloped regions in South Korea.

South Korean mountains still serve as the nation's reserve of energy and resources, even after many promises of highland modernization turned out be a pipe dream. Under growing pressure to meet RE100, the global initiative to replace 100 percent of energy consumption with renewable energy, the South Korean government and businesses began looking for domestic alternative energy sources to replace fossil fuels. Green energy developers soon discovered that the eastern highlands of South Korea were some of the best locations for wind farms in the country. In 2022, wind turbines atop the highlands of Gangwon and Gyeongbuk provinces combined to produce 51% of the South Korea's total wind power, with Taebaek County alone

accounted for nearly 20%.[392] However, the installation of wind power has raised concerns among local environmentalists, as it inevitably destroys large swaths of forest at turbine construction sites.[393]

The most dramatic destruction of forests for "green energy" can be seen around areas reforested by VFA units, now operating under the new name, Forest Cooperative (*sallim johap*, SJ). Since the 1980s, SJ had evolved into a credit union, capitalizing on its more than 22,000 units spread across South Korean rural communities. In the 2010s, during the solar energy development boom fueled by the South Korean government, SJ expanded its business into solar energy development, seeking stable revenue from power generation using its accumulated capital from forest management. As a result of its investments, today, SJ is one of the largest operators of solar farms in rural South Korea, many of which have been built on forests planted by VFA units. On the surface, it seems ironic that achieving RE100 is contingent upon the destruction of forests by the very successor to VFA, once hailed as the grassroots organization that "greened" the country. However, in a sense, the destruction of forests for solar farms follows the trajectory of "mountain engineering;" Since the 1950s, forests have been separated from the rural ecosystem of South Korea and viewed as a means to develop underdeveloped communities and the nation. I would like to remind readers that forests in Mt. Jiri, Taebaek Highlands, and many other highlands that I did not even mention in the dissertation were cut down for mining projects, road construction, and recreational park projects amidst the most draconian reforestation campaigns in the midcentury. The destruction of reforested highlands for the higher returns to

[392] Gyeongbuk Gangwon, Jeonguk Pungnyeok Baljeon 50% Mollin Iyu nuen, *News Min*, September 6, 2022. https://www.newsmin.co.kr/news/77451/ (Accessed June 27, 2024)
[393] "'Chinhwangyeong Pungnyeok Baljeon Danji…Seolchi Hyeonjang eun 'Sallim Pagoe'," *YTN*, August 25, 2023.

local clients aligns with the Cold War engineering of the highlands, which was driven by the desire for profit through the exploitation of highland resources.

Another example of highland communities being sacrificed for South Korea's export-oriented heavy industry regime is the construction of several nuclear powerplants near hamlets on the east coasts, isolated by mountains. When industrialized countries faced pressure to move away from fossil fuels but found the potential production of renewable energy was too limited, atomic energy was seen as a good viable alternative. In South Korea, one-third of the nuclear reactors are located in the two small coastal towns surrounded by Taebaek mountain range—Shinhanul and Wolseong. These areas were apparently chosen for the nuclear plants because the steep mountains behind their hamlets isolate these communities from population centers in the country's western lowlands. Despite strong opposition to nuclear power from the local society, the South Korean government could not halt the reactors due to their high contribution to the energy supply for South Korea's corporate energy consumers, including semiconductor giants Samsung and SK Hynix and steelmaker Posco.[394] It is also noteworthy that these three South Korean conglomerates are the country's largest consumers of water, supplied by South Korean multipurpose dams built at the expense of submerged upland communities during the Park regime. The cases of Shinhanul, Wolseong, and submerged highland hamlets exemplify how the highlands have been and continue to be sacrificed in South Korea's energy regime, designed to exploit the geographical conditions of the highlands for the energy consumption of the lowlands.

Criticizing the South Korean government's current efforts to transition to renewable energy and its nuclear energy policy is beyond the scope of my research. Nor is it my intention to

[394] Kim Woochang and Yoon Sunjin, "Geudeul eun wae Sangyeo reul Ggeuneunga: Wolseong Wonjaryoek Baljeonso Choiinjop Jiyeok Jumindeul eui 'Neurin Pongnyeok' Deureonaegi," *Gusulsa Yeongu* 12, no. 2 (2021): 139-189.

argue that South Korea's mountain engineering has been off the right track of history or a failed endeavor. As a researcher who has traveled across the United States, South Korea, and Japan to write a trans-Pacific history, I may not be qualified to critique efforts to reduce carbon emissions. If I may present my humble opinion, I believe the push for renewable energy should continue, given the disastrous consequences of carbon emissions today. Nonetheless, using examples of highland engineering in the last century, I would like to raise awareness on two issues. First, new energy regimes in this century are likely to be founded on the premise that highlands produce energy and channel it to the lowlands. In this energy regime, highland communities will be more likely to be exposed to the potential side effects of energy production, while the lowlands take the advantages. Second, there are always potential consequences in building a new energy regime and altering ecosystems, even if driven by good intentions and scientific knowledge. My previous chapters have presented how the rosy prospects of a "greener" energy regime ended up causing the opposite effect. In the 1950s and 1960s, American and South Korean scientists and engineers assured that fuel transition to coal was the best solution for the environment and nature preservation. Today, this has culminated in a carbon energy regime that has made South Korea the seventh largest per capita carbon emitter in the world (2022).[395] If this research could be read as an analysis of the historical context of how human attempts to engineer nature to cope with environmental disasters led to further disruption in the nature, this is my intention. If one reads my research as a cautionary tale about the hubris of Cold War science and engineering that contributed to the current climate crisis, that is also my intension.

[395] Crippa, M., Guizzardi, D., Banja, M., Solazzo, E., Muntean, M., Schaaf, E., Pagani, F., Monforti-Ferrario, F., Olivier, J., Quadrelli, R., Risquez Martin, A., Taghavi-Moharamli, P., Grassi, G., Rossi, S., Jacome Felix Oom, D., Branco, A., San-Miguel-Ayanz, J. and Vignati, E., "CO2 emissions of all world countries - JRC/IEA/PBL 2022 Report," (2022): doi:10.2760/730164, JRC130363.

Lastly, I would like to conclude this research by stating that the bitter reality of broken dreams and decline that many highland communities face today was as much predestined as the inevitability of Immanuel Wallerstein's historical capitalism that I introduced in Chapter 1, and the making of an internal frontier as part of it. That the South Korean highlands were part of the trans-Pacific frontier movement means that empires, nation-states, and their capital and engineers can also move freely from one frontier to another in the Pacific if they find a more lucrative opportunity. Just as Utah Construction left mining towns in the American West for Sangdong Mine in 1951, a South Korea's coal miner, Samtan Mining Co., also expanded its business into Indonesia's coal mines and timber industry in the 1980s.[396] Not only was Samtan involved in logging in Southeast Asia's rainforests, but SJ—the successor of VFA—is participating in logging operations in Vietnam and Indonesia, capitalizing on its expertise in forest management and the financial capital it has accumulated. From a trans-Pacific perspective, one could say the frontierism of South Korea was originated from the American West and had moved away from its highlands to Southeast Asia, with trans-Pacific capital searching for resources and labor.

In this context, Sangdong, Taebaek, Sabuk, and all the other fallen mining towns, and demolished swidden villages and abandoned "frontier farms," hamlets submerged by dam construction, and rusty resort towns around Mt. Jiri are painful legacies of unknown Cold War that testifies how the dreams of local communities were overwhelmed by changing geopolitical and environmental conditions. From a trans-Pacific perspective, the rise and fall of South Korean highland communities parallel the coal mining towns of West Virginia, or the run-down towns of

[396] On Samtan's business in Indonesia, see Go, Sarang and Kim Byungdo, "Chushik Hoesa Samtan eui Indonesia Jinchul gwa Saeop Hwakjang [Samtan Inc.'s business expansion to Indonesia]," *Gyeongyeong Gyoyuk Yeongu* 22, no. 3 (2018): 123-41.

the Navajo Nation exposed to radioactive contamination during the uranium mania of the 1950s.[397] By interweaving the fragments of memory gathered from archival sources, this research attempted to recapture the hopeful mood that once gripped these highland towns and how, together, they formed a force that engineered South Korea's mountains. To commemorate this bygone excitement, I would like to close this dissertation with a remark from a local gentleman in Sangdong whom I interviewed. After sharing his childhood in the booming mining town of Gurae-ri, he told me this in a wooden warehouse in Sangdong, against a backdrop of patchwork of light and dark created by amber hues of the setting sun and the long shadows of a summer twilight:

> Our town is called Gurae-ri. It means, nine ups and downs will come and go. The fall of KTMC is only the first cycle. We have eight more cycles to go. We will rebuild the town strong this time. We will rise again.

[397] On the uranium contaimnationi of the mining towns in the Navajo Nation, see Traci Brynne Voyles, *Wastelanding: Legacies of Uranium Mining in Navajo Country* (Minneapolis, MN: University of Minnesota Press, 2015).

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