UNIVERSITÀ DEGLI STUDI DI TORINO

DIPARTIMENTO DI GIURISPRUDENZA

DOTTORATO DI RICERCA IN
"DIRITTI E ISTITUZIONI"

CICLO: XXXII

CABLE EMPIRES: THE CO-PRODUCTION OF EMPIRE, TECHNOLOGY, AND INTERNATIONAL LAW

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ANNI ACCADEMICI: 2016 – 2019

SETTORE SCIENTIFICO-DISCIPLINARE DI
AFFERENZA: IUS/13

ABSTRACT

Data, as one way of governing the world by rendering it legible, actionable, and subject to prototyping, has become a central concern in recent years for scholars, policy makers, and citizens alike. Yet in many accounts, digital technologies and data are purported to be objects and not sources of governance, immaterial, or without a long historical social construction. In contrast to these claims, this thesis shows that the material infrastructures underlying those technologies have a deep history connected with nineteenth-century imperialism, were socially constructed, and were shaped by international legal regimes that facilitated their development and proliferation, and which they in turn helped shape. This study aims to understand the relationship between technology and international law using insights from science and technology studies (STS) and material approaches to international law. More specifically, it explores the question of what kind(s) of agency and normativity technology has in relation to international law and global governance. It does so by exploring the large technological system of undersea cables, as the material infrastructures underlying data and information and communications technologies (ICTs).

Drawing on the work of Sheila Jasanoff, and specifically on the concept of co-production, this thesis makes the argument that technology's normative effects were not only enabled and constructed by international law, but they helped shape international law and its institutions through transforming knowledge about the world, thereby shaping ideas of how to best govern it. By linking distant territories together, the material infrastructures of undersea cables enabled significant transformations in international legal and political thought in the nineteenth and early twentieth century

through perceived time and space compressions and their 'global' geographies. In reshaping how people viewed the world, undersea cables helped shape normative infrastructures and projects consistent with those visions.

An often-overlooked aspect in histories of international law is the role of technology in helping structure the world we live in today. As technologies increasingly become both objects and sources of governance, historical and contemporary analyses of international law and global governance can benefit from the study of how technologies have reshaped understandings of the world and thereby shaped ideas of how to best govern it.

ACKNOWLEDGMENTS

support. I must also thank other friends that have been a part of my PhD experience, and without whom my experience in Turin would have certainly been less colorful, including Marco Giraudo, Alagie Jinkang, Silvia Martinelli, Emilia Niemiec, Umberto Nizza, Luigi Russi, and Aleksandar Stojanovic. While it is not possible to list all of the friends who have supported me throughout various parts of my PhD, I am very thankful to Livia Cocca, Naz Gun, John Haskell, Sarah Mak, Nema Milaninia, Marjan Montakhab, Gissou Nia, Carolina Orozco, Luisa Scarcella, Sean Singh, and Jamie Wong.

I deeply thank my Professor from UC Hastings, Ugo Mattei, for encouraging me to take a first step toward an academic career after several years of practicing commercial law in San Francisco by doing a Master of Laws at the International University College of Turin (IUC), a wonderful institution that supports interdisciplinary and heterodox approaches to Comparative Law, Economics, and Finance. His scholarship and his support have inspired me tremendously, and I am very grateful to him. I also thank Giuseppe Mastruzzo and Silvia Quazzo of IUC for their support, and for being warm and kind people who were always there to share in my successes and help me during my difficulties.

Finally, I must thank my family for their enduring love and support from the day I embarked on the PhD until the very end, always providing an ear to listen and consistent loving support and kindness. I thank Roham, Becky, Rodina, and Reza for their constant support. I also thank Arya, Nika, Maya, and Ava for all the joy they bring to my life. My deepest thanks go to my parents, Bahram and Parivash, for all of the sacrifices they have made in their lives as an immigrant family, for instilling a love of books and learning, and for their love and positive encouragement at all stages of my life. I could not have done my PhD without their support.

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INTRODUCTION

Data, as one way of governing the world[1] by rendering it legible,[2] actionable,[3] and subject to prototyping,[4] has become a central concern in recent years for scholars, policy makers, and citizens alike. In recent years, data-driven technologies have emerged in various expert vocabularies as a problem to do something about.[5] This is the case in international legal and global governance contexts as well, due to the transboundary aspects of data. Moreover, international law and global governance[6] are increasingly turning to technology such as data, algorithms, artificial intelligence, and autonomous weapons, in areas such as migration, conflict and security, disaster management, and addressing poverty and development. These technologies have raised a number of conceptual, normative, and policy questions in relation to international law relating to issues as diverse as state attribution, cybersecurity, conflict

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[1] Fleur E. Johns, *Data Mining as Global Governance*, in THE OXFORD HANDBOOK OF LAW, REGULATION AND TECHNOLOGY (Roger Brownsword, Eloise Scotford, & Karen Yeung eds., 2017); Fleur Johns, *Global governance through the pairing of list and algorithm*, 34 ENVIRON PLAN D 126–149 (2016).

[2] JAMES C. SCOTT, SEEING LIKE A STATE: HOW CERTAIN SCHEMES TO IMPROVE THE HUMAN CONDITION HAVE FAILED (1998).

[3] Sheila Jasanoff, *Virtual, visible, and actionable: Data assemblages and the sightlines of justice*, 4 BIG DATA & SOCIETY 1–15 (2017).

[4] Fleur Johns, *From Planning to Prototypes: New Ways of Seeing Like a State*, 82 THE MODERN LAW REVIEW 1–31 (2019).

[5] Foucault describes problematization as ways of analyzing and doing something about an object of inquiry which has been characterized as a problem. MICHEL FOUCAULT, MADNESS AND CIVILIZATION: A HISTORY OF INSANITY IN THE AGE OF REASON (1965). Specific forms of problematization can result in different solutions proposed to those objects which pose problems for politics. *See* Michel Foucault, *Polemics, Politics and Problematizations, Interview by P. Rabinow, May 1984 in* ESSENTIAL WORKS OF FOUCAULT, 1954-1984 VOL. 1 (1998).

[6] There is an enormous literature in international law on global governance, some of which will be briefly discussed in Chapter One.

of laws, and human rights. In these accounts, however, technology is often conceptualized as an object of governance rather than a source of governance, and in the case of data, is often conceptualized as "immaterial" and "aterritorial."

Alternative accounts grant that technology can act as a source of governance, but rarely take into account the long historical link between technology and global governance. These accounts tend to emphasize the new or exceptional quality to these developments,[7] rarely exploring the idea that this relationship between technology and global governance can be traced back historically to at least the nineteenth century. Taking such a view is ahistorical and also has a tendency to have naturalizing effects, leaving unquestioned the conditions of possibility for the proliferation of digital data and technological governance in our social lives today. In addition, while these accounts discuss the normative impact of technologies and technologically enabled governance, they rarely consider the reshaping of international law and international legal institutions that tends to go along with those technologies.

This thesis aims to fill this gap by considering the ways in which technology and international law are co-produced—in other words, how technology acts as both a source and object of governance in relation to international law and global governance. The main contribution of this thesis is to the field of international law and aims to understand sources of global normativity outside of the traditional doctrine of sources in international law and global governance literature. I draw on the work of Sheila Jasanoff, and specifically on the concept of co-production,[8] to make the argument that

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[7] This is especially the case in the context of "big data." *See, e.g.,* VIKTOR MAYER-SCHÖNBERGER & KENNETH CUKIER, BIG DATA: A REVOLUTION THAT WILL TRANSFORM HOW WE LIVE, WORK, AND THINK (2013); ROB KITCHIN, THE DATA REVOLUTION: BIG DATA, OPEN DATA, DATA INFRASTRUCTURES AND THEIR CONSEQUENCES (2014); LUCIANO FLORIDI, THE FOURTH REVOLUTION: HOW THE INFOSPHERE IS RESHAPING HUMAN REALITY (2014).
[8] STATES OF KNOWLEDGE: THE CO-PRODUCTION OF SCIENCE AND THE SOCIAL ORDER, (Sheila Jasanoff ed., 2004).

technology's normative effects were not only enabled and constructed by international law, but they helped shape international law and its institutions through transforming knowledge about the world, thereby shaping ideas of how to best govern it.

The thesis makes this argument by looking at undersea cables, the infrastructures underlying information and communications technologies (ICTs), and their relationship to international law in several contexts. Jasanoff's concept of co-production is particularly generative for grasping how technology both embeds and shapes social order through its relationship to constructing knowledge by disrupting the is-ought distinction. In other words, co-production as a conceptual lens provides a means to analyze the ways in which technologies shape, and are reflective of, how we see and understand the world (*is*) are linked to normative and social orders (*ought*).[9]

First, after a Chapter reviewing the relevant literature, the thesis will describe the historical aspects of the construction of undersea cable networks during the height of British imperialism in the mid to late nineteenth century, and how imperialist ambitions helped shape the routes where the cables were laid. In Chapter Three, the thesis discusses how cables helped shape a technological sensibility to codification projects starting in the latter half of the nineteenth century, when international law became a professionalized discipline. It then explores in Chapter Four how cables and the communications they enabled helped construct ideas about the 'nation' being all over the world. This enabled imagining global communities of people as objects of

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[9] Sheila Jasanoff, *The Idiom of Co-Production*, in STATES OF KNOWLEDGE: THE CO-PRODUCTION OF SCIENCE AND THE SOCIAL ORDER 1–12 (Sheila Jasanoff ed., 2004).

governance[10] for international law through time-space compressions,[11] as well as advancing the mission of promoting world peace in international organizations like the League of Nations through the exchange of information and communications. In Chapter Five, the thesis examines how cables both motivated the creation of new international legal regimes and institutions, and were shaped by international laws, like the Law of the Sea and claims of territorial sovereignty. The thesis will then conclude with some remarks on the significance of the contribution and some ideas for questions to explore in further research.

I. Research Problem

This thesis investigates the relationship between technology and the development of international law and global governance. An alternative and more specific question this thesis seeks to explore is, what kinds of agency and normativity does technology have in relation to international law and global governance?

The thesis argues that undersea cables helped shape ideas about the world, and thereby shaped ideas of how to best govern it in a process of co-production. International law and global governance are inextricably tied with technology, infrastructures,[12] and material objects.[13] As Headrick notes, "[n]ot only does every technology exist in a social context, all events and all social situations occur in a

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[10] On the transition to populations as an object of governance in modernity, *see* MICHEL FOUCAULT, SECURITY, TERRITORY, POPULATION: LECTURES AT THE COLLÈGE DE FRANCE 1977-1978 (Michel Senellart ed., Graham Burchell tran., 2009).

[11] Time-space compressions refer to social phenomena which alter relationships to time and space, often referring to technological developments and economic relations. *See* DAVID HARVEY, THE CONDITION OF POSTMODERNITY: AN ENQUIRY INTO THE ORIGINS OF CULTURAL CHANGE (1989).

[12] Benedict Kingsbury, *Infrastructure and InfraReg: On Rousing the International Law 'Wizards of Is,'* 8 CAMBRIDGE INTERNATIONAL LAW JOURNAL 171–186 (2019).

[13] INTERNATIONAL LAW'S OBJECTS, (Jessie Hohmann & Daniel Joyce eds., 2019).

technological context."[14] Yet, the co-production of international law and global governance with technology has not received as much attention, even in scholarship reflecting the turn to international legal history from critical viewpoints.[15] In many ways, histories of international law have overlooked the important role of technology in helping carry out the civilizing mission of international law, motivating new international legal frameworks and territorial claim-making, and their normative impact in enabling ideas of governing global communities or populations rather than just states. International law renews itself[16] in and through technology, objects, and infrastructures, mobilizing them in various projects to rebuild itself when they present dangers, harms, risks, and uncertainties. The research aims to better illuminate this relationship.

II. Justifications for Research

This study makes a modest methodological intervention that both historical and contemporary accounts of international law and global governance told through the lens of science and technology studies (STS) can better foreground the important role that technologies play in shaping knowledge about the world, and ideas of how to best govern it. It builds upon the work of other scholars developing the material turn in law and international law. Existing accounts of the relationship between histories of international law and technology often treat the technology as marginal rather than

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[14] DANIEL R. HEADRICK, THE TENTACLES OF PROGRESS: TECHNOLOGY TRANSFER IN THE AGE OF IMPERIALISM, 1850-1940 5 (1988).

[15] *See, e.g.*, MARTTI KOSKENNIEMI, THE GENTLE CIVILIZER OF NATIONS: THE RISE AND FALL OF INTERNATIONAL LAW 1870–1960 (2001); INTERNATIONAL LAW AND EMPIRE: HISTORICAL EXPLORATIONS, (Martti Koskenniemi, Walter Rech, & Manuel Jiménez Fonseca eds., 2017); Martti Koskenniemi, *Why History of International Law Today?*, 2004 RECHTSGESCHICHTE - LEGAL HISTORY 61–66 (2004); ANTONY ANGHIE, IMPERIALISM, SOVEREIGNTY AND THE MAKING OF INTERNATIONAL LAW (2005).

[16] David Kennedy, *When Renewal Repeats: Thinking Against the Box*, 32 N.Y.U. INT'L L. & POL. 335 (2000).

foregrounding it in the analysis. Histories of technology can also benefit from accounts that better incorporate the role of international law, as existing accounts also treat it as marginal rather than the highlight of analysis along with the technology at hand.

This approach in the context of international legal history might avoid some of the criticisms of linearity, upholding the progress narrative, Eurocentrism, periodization, and other critiques that have been made about even critical international legal histories, which "continue to be organised along the very lines set by the historical narratives which they seek to question and disrupt."[17] It can also highlight the private law relations that support state actions to go beyond the more traditional histories of international law focusing on statehood, war and peace, and diplomatic affairs.[18] Further, it can be a starting point for what Koskenniemi proposes in tracing the histories of current international institutions like the World Trade Organization (WTO) and the International Criminal Court (ICC), "histories that would connect these institutions to the much older trends about binding territorial communities to some logic or vocabulary beyond statehood."[19]

While this thesis does not trace histories of those specific institutions or focus solely on private law relations, it does link some current international institutional forms and governance practices to the histories of undersea cables. Undersea cables not only provided the impetus for new ways of governing the world, but also new ways of imagining linkages between territorial communities beyond statehood, as Koskenniemi suggests, as well as enabled imagining communities connected by means

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[17] Jean d'Aspremont, *Critical histories of international law and the repression of disciplinary imagination*, 7 LOND REV INT LAW 89–115 (2019); Martti Koskenniemi, *Expanding Histories of International Law*, 56 AMERICAN JOURNAL OF LEGAL HISTORY 104–112 (2016).

[18] Koskenniemi, *supra* note 16 at 109.

[19] *Id.* at 106.

other than territory. In an approach that might resemble co-production, he has also suggested connecting "the development of normative systems to macro-level economic and social developments. To what extent has the law influenced such developments, to what extent has it been influenced by them?"[20]

Thus, the thesis makes a contribution at the intersection of several lines of scholarship in international law. The first relates to international law, globalization, and global governance which decenters the territorially bounded state as the main source of authority in international law. The second relates to the relationship between technology and global governance. The third relates to the material turn in international law and the normativity of infrastructures, and how they can illuminate new ways of engaging with both the history, present, future of the discipline of international law, as well as new modes of critique. Each of these lines of scholarship, as well as the broader theoretical framework for the thesis, will be explored further in the next Chapter.

III. Methodology

The thesis uses a descriptive, sociolegal methodology. Its theoretical orientation is interdisciplinary, applying concepts from STS and the field of international law. It uses multidisciplinary sources from international law, STS, and social sciences. It relies on both primary sources, including arbitral cases, archival sources, historical manuscripts, institutional publications, and treaties, as well as secondary literature, including academic, historical, literary, and news sources. It also uses maps, reports, government correspondence, and images.

IV. Structure of Thesis

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[20] Koskenniemi, *supra* note 14 at 66.

Chapter One reviews the relevant literature at the intersections of global governance, technology, and the materiality of data. It explains how the thesis builds upon existing literature and fills an important gap that can help illuminate the relationship between technology and international law through a theoretical framework that incorporates concepts from STS and the material turn in social sciences and international law.

Chapter Two offers a historical account of the development of undersea cables. It discusses how they both reflected the social context in which they were developed and helped shape and transform political and economic relations. It describes the social construction of undersea cables, tracing their histories and how those histories affect our world today. The Chapter argues that the initial construction of undersea cables embedded racialized, Western visions of social progress in the context of imperialism. Yet, this vision erases the diverse knowledges and labor that were required to develop undersea cables and their insulating material, without which the undersea cable networks could not have been successfully constructed. The networks of undersea cables enabled spatial relations which reinforced global power dynamics and enabled new forms of politics and governance as well as economic activities. Undersea cables and the technologies they supported, such as the telegraph, enabled envisioning the future as a site which could be acted upon. They also enabled the British Empire to more effectively manage and govern the colonial Indian population from a distance. By decoupling communications from transportation, telegraphic communications through undersea cables reshaped politics and markets on a global level.

Chapter Three discusses how cables helped shape a technological sensibility to codification projects starting in the latter half of the nineteenth century, when

international law became a professionalized discipline. It does so by first discussing codification efforts in international law and how they reflected a positivist view of international law which promoted economic-positivism. It then discusses how David Dudley Field, a United Statesean lawyer and founding member of the *Institut de Droit International*, was inspired by his brother Cyrus Field's laying of the Atlantic Cable and how that informed his ideas on how to best govern the world. The Chapter argues that international law codification efforts reflect a technological sensibility in international law which presupposes a distinction between law and politics.

Chapter Four explores how cables and international organizations like the League of Nations helped construct ideas about the 'nation' being all over the world, and enabled imagining global communities of people as objects of governance for international law through time-space compressions. Cables and the communications they enabled were seen as essential elements in maintaining open communications throughout the world, becoming an integral part of the interwar period's aim of promoting peace throughout the world.

Chapter Five argues that undersea cables, as infrastructures connecting distant territories around the world, raised new questions for international law and motivated international legal reform projects and territorial claim-making. Cables and international law were co-produced, as the cables motivated new projects of governance, such as new international legal regimes and international organizations, and those international legal regimes in turn had effects on the construction of the cables. This Chapter tries to reorient how we view international law, by illustrating the significant role technology plays in territorial and international legal contestations, as well as in projects of reform and renewal.

Finally, the concluding Chapter draws the different arguments together and reflects on how understandings of cables co-constructed knowledge about the world and helped shape normative infrastructures consistent with those visions. It concludes by noting that an often-overlooked aspect in histories of international law is the role of technological systems in helping structure the world we live in today. As technologies increasingly become both objects and sources of governance, both historical and contemporary analyses of international law and global governance can benefit from the study of how large technological systems have reshaped understandings of the world and thereby shaped ideas of how to best govern it because it can help in rethinking the normativity of international law. The concluding Chapter will also discuss some potential starting points for areas of research building upon this thesis.

THE INTERSECTIONS OF GLOBAL GOVERNANCE, TECHNOLOGY, AND MATERIALITY: A REVIEW OF THE LITERATURE

I. Introduction

People think that data is in the cloud, but it's not. It's in the ocean.[1]

Ninety-nine percent of global data moves through undersea cables. Should their usage be interrupted for any reason, the entire global economy would be disrupted, as an estimated $10 trillion in financial transfers are dependent upon them.[2] Undersea cables, or as Surabhi Ranganathan terms them, the "out-of-sight arteries of globalization,"[3] are critical infrastructure for the digital economy and the movement of capital around the world. Undersea cables are what make global "flows" and exchanges of data as a commodity possible.[4] They have enabled the growth of the

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[1] Adam Satariano et al., *How the Internet Travels Across Oceans*, THE NEW YORK TIMES, March 10, 2019, https://www.nytimes.com/interactive/2019/03/10/technology/internet-cables-oceans.html, https://www.nytimes.com/interactive/2019/03/10/technology/internet-cables-oceans.html (last visited Mar 13, 2019).

[2] *See* DOUGLAS R. BURNETT & LIONEL CARTER, INTERNATIONAL SUBMARINE CABLES AND BIODIVERSITY OF AREAS BEYOND NATIONAL JURISDICTION: THE CLOUD BENEATH THE SEA 4 (2017).

[3] Surabhi Ranganathan, *The Out-of-Sight Arteries of Globalization*, VISUALIZING CLIMATE AND LOSS, http://histecon.fas.harvard.edu/climate-loss/lawofthesea/arteries.html (last visited Feb. 7, 2020).

[4] On international legal and policy-making writing emphasizing the value of "flows" of data, see Fleur E. Johns, *The Deluge*, 1 LONDON REV. INT'L L. 9, 16 (2013).

"global data economy," or the economy that trades in personal information,[5] by providing the material basis for corporations to profit from data collection and processing.[6]

In connecting distant territories around the world, cables often implicate international law. Yet much of the international legal literature on digital data in relation to territoriality asserts that it is something immaterial, intangible, unterritorial, or post-territorial.[7] While these conceptualizations illustrate some of the complexities that have arisen in trying to map digital data onto extant international legal frameworks, they might also have a blackboxing effect.[8] Imagining data as deterritorialized obscures its underlying histories, including the territorial politics, ecological extraction, labor, and forms of knowledge that went into constructing its underlying infrastructures. It also obscures the normativity of technology, and how it helps both embed and produce social orders.

Scholars in the field of STS have acknowledged that technology and non-human objects are capable of exercising agency in a variety of ways, as actants in actor-network assemblages.[9] On the other hand, granting agency to technology equivalent to that of

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[5] *Id.* at 10 (citing Nils Zurawski, *Local Practice and Global Data: Loyalty Cards, Social Practices and Consumer Surveillance*, 52 SOC. Q. 509, 513 (2011)).

[6] *See* Nicole Starosielski, *Introduction*, *in* SIGNAL TRAFFIC: CRITICAL STUDIES OF MEDIA INFRASTRUCTURES 1, 5–6 (Lisa Parks & Nicole Starosielski eds., 2015).

[7] *See, e.g.*, Jennifer Daskal, *The Un-Territoriality of Data*, 125 YALE L.J. 326 (2015); Kristen E. Eichensehr, *Data Extraterritoriality*, 95 TEX. L. REV. 145 (2017); William J. Drake, *Territoriality and Intangibility: Transborder Data Flows and National Sovereignty*, *in* BEYOND NATIONAL SOVEREIGNTY: INTERNATIONAL COMMUNICATION IN THE 1990S 259 (Kaarle Noerdenstreng & Herbert I. Schiller eds., 1993); Paul De Hert & Johannes Thumfart, *The Microsoft Ireland Case and the Cyberspace Sovereignty Trilemma. Post-Territorial Technologies and Companies Question Territorial State Sovereignty and Regulatory State Monopolies*, 4 (Brussels Privacy Hub Working Paper No. 11, 2018).

[8] Blackboxing is a concept in social science that refers to the ways in which a technology's invisibility or opaqueness can be attributed to its success. *See, e.g.*, BRUNO LATOUR, PANDORA'S HOPE: ESSAYS ON THE REALITY OF SCIENCE STUDIES 304 (1999).

[9] BRUNO LATOUR, REASSEMBLING THE SOCIAL: AN INTRODUCTION TO ACTOR-NETWORK-THEORY (2005).

humans is a problematic way of thinking about technology that is at once deterministic and limits thinking on how humans can exercise agency with regard to technology.[10]

Important questions remain as to what extent technology exercises any form of agency in international law, and whether answers to this question can open up new avenues of critique of international law. As technology has largely been overlooked in international legal scholarship as having normative power and effects, and as technology is increasingly used in global governance, these questions have now become more urgent. In using the word power in this thesis, I am following the seminal work of Barnett and Duvall, to broadly refer to the institutional (indirect power over others "through diffuse relations of interaction") and productive (the "socially diffuse production of subjectivity in systems of meaning and signification") power that technology exercises via-a-vis international law and global governance.[11]

In light of current technological transformations of global governance, international legal scholars ought to take into account the normativity of technology and how it exercises agency, but do so in a way that does not fall into the trap of attributing technology with too much agency and exclude the role of humans and elements of social life from the picture. This thesis aims to address this gap in the literature by bridging histories of international law with histories of technology to raise new questions about the interaction between law, technology, and social order with an aim to provide an alternative way of challenging traditional conceptions of global normativity in international legal scholarship.

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[10] STATES OF KNOWLEDGE: THE CO-PRODUCTION OF SCIENCE AND THE SOCIAL ORDER, (Sheila Jasanoff ed., 2004).

[11] *See* Michael Barnett & Raymond Duvall, *Power in International Politics*, 59 INTERNATIONAL ORGANIZATION 39, 43 (2005). According to them, "[p]ower is central to global governance" and operates in "multiple and interconnected ways". *Id.* at 57.

This Chapter will review the relevant literature relating to global governance and technology, the materiality of data, and undersea cables and their relationship to international law to show how this thesis addresses their shortcomings and gaps. Due to the interdisciplinary quality of the research project, this thesis aims to intervene in several lines of scholarship that cross disciplinary boundaries, but primarily focuses on international law and social sciences. More specifically, and as described further in this Chapter, the thesis derives its theoretical framework from the fields of STS and international law and builds on the literature relating to the material turn in international law.

II. Mapping the Debates

A. Global Governance and the Decoupling of Sovereignty and Authority from Territory

Long before scholars of globalization in international relations and international law were discussing the decoupling of sovereignty and authority from the territorially bounded state starting around the 1990s, Carl Schmitt described how the postwar period was marked by a move away from the Eurocentric, Westphalian spatial order that had existed until the twentieth century. Every new epoch is characterized by a new *nomos*, or a new way of apportioning space. In his words:

> *[N]omos* is a matter of the fundamental process of apportioning space that is essential to every historical epoch . . . . […] Every new age and every new epoch in the coexistence of peoples, empires, and countries, of rulers and power formations of every sort, is founded on new spatial divisions, new enclosures, and new spatial orders of the earth.[12]

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[12] CARL SCHMITT, THE NOMOS OF THE EARTH IN THE INTERNATIONAL LAW OF JUS PUBLICUM EUROPAEUM 78–79 (G. L. Ulmen tran., 2006).

Additionally, he noted the ways in which understandings of the world shaped how to best govern it through international law. Without a "global consciousness," there were no common political orientations at the global level.[13] He continues:

> [N]o sooner had the contours of the earth emerged as a real globe – not just sensed as myth, but apprehensible as fact and measurable as space – than there arose a wholly new and hitherto unimaginable problem: the spatial ordering of the earth in terms of international law. The new global image, resulting from the circumnavigation of the earth and the great discoveries of the 15th and 16th centuries, required a new spatial order. Thus began the epoch of modern international law that lasted until the 20th century.[14]

In other words, visualizing the world as a globe meant the need to produce a new spatial order, and corresponding international legal order, consistent with that vision.

Moreover, Schmitt recognized that Britain's maritime power from the sixteenth to the nineteenth centuries enabled it to become a "potentially global power" by creating a spatial revolution (*Raumrevolution*) as it escaped the confines of land powers which were essentially limited.[15] The juxtaposition of limited land powers with unlimited sea powers entailed a stark challenge to the classical international legal order based on formal sovereign equality. Further, technology and narratives around technology played a significant role in Schmitt's idea of a spatial revolution. According to Simons:

> [W]hen Schmitt observed that the Dutch could sail across the ocean around 1600 without the aid of a rudder thanks to the invention of new types of ships and sailing techniques, he associated the spatial revolution with technological innovations. At the same time, however, he wrote, technological progress was also responsible for man's loss of

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[13] *Id.* at 50.

[14] *Id.* at 86.

[15] Martti Koskenniemi, *Carl Schmitt and International Law*, *in* OXFORD HANDBOOK OF CARL SCHMITT , 601–02 (Jens Meierhenrich & Oliver Simons eds., 2017).

his original affinity with the sea. (…). Although technology exposed mankind to new elements, the emergence of a new spatial consciousness was unthinkable without an interpretation of that technology. (…) [E]ach world-historical epoch corresponded with a unique way of perceiving the world.[16]

Thus, technology's role in shaping world-views contributed significantly to the spatial revolutions Schmitt described. Moreover, in his last text on international law, Schmitt argued that "a superlegality of progress was being used to construct an economic and technological world order beyond the territorial state."[17]

In more recent decades, scholars in international relations and international law have been increasingly discussing globalization's effects on the diffusion of normative orders, authority, and rulemaking with global effects in a variety of institutions and actors that go beyond the traditional idea of authority and law as solely originating from sovereigns exercising independent, exclusive control over territory.[18] One of the effects of globalization on international law has been described as a process of

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[16] Oliver Simons, *Carl Schmitt's Spatial Rhetoric, in* OXFORD HANDBOOK OF CARL SCHMITT , 780–81 (Jens Meierhenrich & Oliver Simons eds., 2017).

[17] Koskenniemi, *supra* note 15 at 606 (citing Carl Schmitt, "The Legal World Revolution," 72 Telos 76-81 [1987]).

[18] Several international law cases and advisory opinions uphold the principle of sovereignty as traditionally understood in customary international law as the exclusive, independent right to exercise authority over a territory. *See, e.g.,* Permanent Court of Arbitration, *Island of Palmas Case (Netherlands v. United States of America)*, Award of 4 April 1928, in Reports of International Arbitral Awards, vol. XI, p. 838 (sovereignty corresponds to independence between states); *Customs Regime Between Germany and Austria, Advisory Opinion*, 5 Sept. 1931, Series A/B No. 41, at 12. (holding that sovereignty is the exercise of the "sole right of decision in all matters economic, political, financial or other"); *Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America)*, Merits, Judgment [1986] ICJ Rep. 14 (upholding the customary international law norm of non-intervention into another state's exercise of its rights as a sovereign, which also implies its rights within its territory).

deterritorialization[19] and increased fragmentation.[20] Part of this phenomenon can be described as fragmentation at the institutional level, for example the proliferation of international institutions and organizations in the post-war period. Another part is the increased specialization in the discipline of international law, which has resulted in fragmentation of legal regimes constituting "self-contained regimes"[21] or sub-disciplines, which may at times conflict or contradict one another.

Yet, as Oddenino argues, despite the changes in normative orders and redistribution of power that resulted from globalization, law and territory are still inextricably bound with one another, with the development of each coinciding with the development of the other.[22] Law helps give meaning to territory and territory helps shape meanings of law. Indeed, borders and territorial disputes continue to be a major concern in international affairs and international legal disputes, but territory and the geography of statehood is not the central basis for understanding world affairs or international law.[23]

Moreover, the concepts of deterritorialization, aterritorial, and extraterritorial hold distinct meanings, despite their interchangeable use.[24] Indeed, even while the internet and data are described as "aterritorial," this is not representative of the ways

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[19] Catherine Brölmann, *Deterritorialization in International Law: Moving Away from the Divide Between National and International Law*, *in* NEW PERSPECTIVES ON THE DIVIDE BETWEEN NATIONAL AND INTERNATIONAL LAW 84–109 (Janne E. Nijman & André Nollkaemper eds., 2007); Enrico Milano, *The Deterritorialization of International Law*, 2 ESIL REFLECTIONS (2013).

[20] Martti Koskenniemi & Päivi Leino, *Fragmentation of International Law? Postmodern Anxieties*, 15 LEIDEN JOURNAL OF INTERNATIONAL LAW 553–579 (2002).

[21] Bruno Simma, *Self-Contained Regimes*, 16 NETHERLANDS YEARBOOK OF INTERNATIONAL LAW 111–136 (1985).

[22] Alberto Oddenino, *Law and Territory Happily Ever After: Some Reflections on Globalization and International Law*, 276/I PUBBLICAZIONI DELLA FACOLTÀ DI GIURISPRUDENZA, UNIVERSITÀ DI CATANIA 115–135 (2015).

[23] Daniel Bethlehem, *The End of Geography: The Changing Nature of the International System and the Challenge to International Law*, 25 EUROPEAN JOURNAL OF INTERNATIONAL LAW 9–24 (2014).

[24] Oddenino, *supra* note 22.

in which they are subject to claims by national and regional authorities.[25] This can be seen not only in the ways in which regulatory authorities "reterritorialize" data for the purposes of exercising jurisdiction, but also in the ways in which supranational regulations on data, the internet, and telecommunications more broadly fail to achieve consensus and tend to result in fragmentation. The 2012 World Conference on International Telecommunications (WCIT-12) was one such example.[26] Nevertheless, these conceptualizations point to the increasingly functional approach to norm setting processes, where territory is no longer the central basis for exercising authority.[27]

The polycentric normative orders existing within the international system has also been theorized by legal scholars under the framework of "legal pluralism."[28] While law and norm-making were initially thought to originate from states, scholars have noted that it has increasingly moved into the hands of private and nonstate actors. Using Ehrlich's concept of "living law",[29] Teubner argues that "global law" is not derived from nation states and international institutions, but rather the "social peripheries" in a highly contradictory and fragmented process.[30] "Legal pluralism" is a theory of the co-extensiveness of the multiple normative and legal orders, which

[25] *Id.*

[26] Alberto Oddenino, *Diritti individuali, sicurezza informatica e accesso alla conoscenza in rete: la revisione delle International Telecommunication Regulations dell'ITU (Individual Rights, Cybersecurity and Access to Knowledge on the Internet: The Revision of ITU International Telecommunication Regulations)*, 7 DIRITTI UMANI E DIRITTO INTERNAZIONALE 532–539 (2013); David P. Fidler, *Internet Governance and International Law: The Controversy Concerning Revision of the International Telecommunication Regulations*, 17 ASIL INSIGHTS (2013), /insights/volume/17/issue/6/internet-governance-and-international-law-controversy-concerning-revision (last visited Mar 5, 2020).

[27] Oddenino, *supra* note 22.

[28] PAUL SCHIFF BERMAN, GLOBAL LEGAL PLURALISM: A JURISPRUDENCE OF LAW BEYOND BORDERS (2012); Peer Zumbansen, *Transnational Legal Pluralism*, 1 TRANSNAT'L LEGAL THEORY 141–190 (2010).

[29] EUGEN EHRLICH, FUNDAMENTAL PRINCIPLES OF THE SOCIOLOGY OF LAW (1913).

[30] Gunther Teubner, *Global Bukowina: Legal Pluralism in the World Society*, *in* GLOBAL LAW WITHOUT A STATE , 3–7 (Gunther Teubner ed., 1997).

acknowledges the importance of law-making by non-state actors.[31] The transnational economy, for example, illustrates Teubner's idea of "global law without a state."[32] One problem identified with the increasing plurality of normative orders is how to attribute responsibility to those who exercise power, and how to determine vis-à-vis whom they owe responsibility. Given the decentering of the state in these accounts of law and norm-making processes outside of the traditional, Westphalian, state-centric account dominant in classical public international law, the answers to these questions become increasingly complex.[33] The relational nature of power, the multiplicity of its manifestations, and how society structures those relations are all linked, and each have different meanings for the different dimensions of responsibility.[34] In the context of issues of global concern, international law can also legitimize and justify power escaping responsibility.[35]

Many of these approaches to informal exercises of authority and norm-making outside of the confines of a territorially-bounded state authority fall under the broader framework of "global governance." One of the most influential definitions of "global governance," is as follows:

> Governance is the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and co-operative action may be taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal arrangements that people and institutions either have

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[31] *Id.* at 7.

[32] Robert Wai, *Private v Private: Transnational Private Law and Contestation in Global Economic Governance*, *in* PRIVATE INTERNATIONAL LAW AND GLOBAL GOVERNANCE , 41 (Horatia Muir Watt & Diego P. Fernández Arroyo eds., 2014).

[33] André Nollkaemper, *Power and Responsibility*, 276/I PUBBLICAZIONI DELLA FACOLTÀ DI GIURISPRUDENZA, UNIVERSITÀ DI CATANIA 19–44 (2015); Oddenino, *supra* note 22.

[34] Nollkaemper, *supra* note 33.

[35] *Id.*

agreed to or perceive to be in their interest. (…). At the global level, governance has been viewed primarily as intergovernmental relationships, but it must now be understood as also involving non-governmental organizations (NGOs), citizens' movements, multinational corporations, and the global capital market. Interacting with these are global mass media of dramatically enlarged influence.[36]

There is an enormous scholarship in international law on global governance and a variety of approaches, including global constitutionalism, global administrative law,[37] transnational law,[38] private international law,[39] and soft law,[40] each of which attempt to theorize exercises of power and authority and the creation of transnational normative orders that are not adequately captured by a state-based framework of governance prevalent in traditional public international law. Yet, with a few exceptions in international legal scholarship discussed in this Chapter, these theories do not adequately take into account the normative effects of technology, both historically and today. Taking this relationship into better account might help provide new modes of critique on international law as a managerial, technical project of global governance.[41]

The decoupling of the concept of sovereignty and authority from territoriality and territorially enclosed borders is not new, despite many accounts otherwise in the context of globalization.[42] Agnew, for example, criticizes the idea that territorial

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[36] COMMISSION ON GLOBAL GOVERNANCE, OUR GLOBAL NEIGHBOURHOOD 2 (2015).

[37] Benedict Kingsbury, Nico Krisch & Richard B. Stewart, *The Emergence of Global Administrative Law*, 68 LAW AND CONTEMPORARY PROBLEMS 15 (2005).

[38] Peer Zumbansen, *Defining the Space of Transnational Law: Legal Theory, Global Governance, and Legal Pluralism*, 21.2 TRANSNATIONAL LAW AND CONTEMPORARY PROBLEMS 305–336 (2012).

[39] PRIVATE INTERNATIONAL LAW AND GLOBAL GOVERNANCE, (Horatia Muir Watt & Diego P. Fernández Arroyo eds., 2014).

[40] Anna di Robilant, *Genealogies of Soft Law*, 54 AM J COMP LAW 499–554 (2006).

[41] M. Koskenniemi, *The Politics of International Law—20 Years Later*, 20 EUROPEAN JOURNAL OF INTERNATIONAL LAW 7 (2009).

[42] JOHN AGNEW, GLOBALIZATION AND SOVEREIGNTY: BEYOND THE TERRITORIAL TRAP (Second ed. 2017).

sovereignty and globalization are either/or binaries. As Agnew describes, "the dominant image of globalization is the replacement of a presumably territorialized world by one of networks and flows that know no borders other than those that define the earth as such."[43] Agnew's theory of sovereignty is one of multiple sovereignties, wherein sovereignty is conceived of as not necessarily coupled with the state or territoriality. This broad conception can better account for the dynamics of global power[44] and avoid assuming state-territoriality as the central locus of power, or what he terms the "territorial trap."[45]

Building on this idea of the "territorial trap" which has remained a dominant way of thought in international law, Rajkovic argues that modern cartography shaped how spaces of authority have been conceptualized in international law.[46] This is problematic because "increasingly non-territorialized configurations of persons, goods, threats, harms and wealth provoke doubt over the extent to which geographic reality remains by nature, and not artifice, territorial."[47] Despite this, he argues against the idea of deterritorialization, or the teleological end of territory, as commonly theorized.[48] Instead, he uses the term "reterritorialization" to reconceptualize space in international law, which acknowledges "how territory has never been constituted by an absolute and fixed materiality, but more accurately involving an evolving assemblage and materialization of things, actors and ideas . . . territorial boundaries have been always, to varying degrees, in temporal flux."[49] Rajkovic recognizes the

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[43] *Id.* at Preface, VIII.

[44] *Id.* at 30.

[45] *Id.* at 30–31.

[46] Nikolas M. Rajkovic, *The Visual Conquest of International Law: Brute Boundaries, the Map, and the Legacy of Cartogenesis*, 31 LEIDEN JOURNAL OF INTERNATIONAL LAW 267–288 (2018).

[47] *Id.* at 268.

[48] *Id.* at 273.

[49] *Id.* at 275.

materialization of things, actors, and ideas that constitute territory in fluid rather than fixed ways. At the same time, he shows how technological objects like cartographic maps helped shape knowledge of the world by visualizing it according to territorially bounded spaces of authority, which were then used to determine how international law could best govern the world, through fixed territorial spatialities.

International law not only adopted modern cartography as a foundation for spatial ordering of the world, but itself served as a form of mapping the world. As Mickelson describes, international law's mapping of areas beyond the control of states, through the doctrines of *terra nullius*, *res communis*, and the common heritage of mankind, had the effect of "legitimating the exercise of military, political, and economic power" as well as reflected understandings of nature that became foundational to international law.[50]

Other scholars in international law have also engaged with the idea of materialization of sovereignty and authority, or the physical dimensions of what constitutes claims of sovereignty, where sovereignty is understood as a practice of jurisdiction.[51] Here, the physical dimension of sovereignty is not understood solely through the lens of land or territory, but also the exercise of jurisdiction on and through people, material objects, physical spaces, and institutions.

B. Technology and Global Governance

In recent international law literature, there has been considerable attention paid to how to govern new technological developments, such as big data, autonomous

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[50] Karin Mickelson, *The Maps of International Law: Perceptions of Nature in the Classification of Territory*, 27 LEIDEN JOURNAL OF INTERNATIONAL LAW 621–639 (2014).

[51] Sundhya Pahuja, *Laws of Encounter: A Jurisdictional Account of International Law*, 1 LONDON REVIEW OF INTERNATIONAL LAW 63–98 (2013).

weapons and algorithmic warfare,[52] and cyber operations.[53] In addition to raising issues

of ethics, privacy, data protection, and autonomy,[54] these developments have raised

conceptual and doctrinal challenges particular to international law because they do not

seem to fit squarely within traditional international law frameworks, such as state

attribution, territoriality, and sovereignty. In many of these debates, the argumentative

pattern is to "extend" existing international legal frameworks to these technological

developments.[55] Alternatively, the scholarship discusses their benefits and potential

for international law and global governance, such as promoting democratic

participation and international human rights.[56]

There has also been an increasing attention paid to governance *by* technology.[57]

This debate can take several forms. One is looking at how technology is increasingly

being used in global governance, in areas such as the use of indicators in human rights

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[52] MAX LILJEFORS, GREGOR NOLL & DANIEL STEUER, WAR AND ALGORITHM (2019).

[53] TALLINN MANUAL 2.0 ON THE INTERNATIONAL LAW APPLICABLE TO CYBER OPERATIONS, (Michael N. Schmitt ed., Second ed. 2017).

[54] FRANK PASQUALE, THE BLACK BOX SOCIETY: THE SECRET ALGORITHMS THAT CONTROL MONEY AND INFORMATION (Reprint edition ed. 2015); BERNARD E. HARCOURT, EXPOSED: DESIRE AND DISOBEDIENCE IN THE DIGITAL AGE (2015); Stephen Humphreys, *Conscience in the Datasphere*, 6 HUMANITY: AN INTERNATIONAL JOURNAL OF HUMAN RIGHTS, HUMANITARIANISM, AND DEVELOPMENT 361 (2015); Paul De Hert & Vagelis Papakonstantinou, *Three Scenarios for International Governance of Data Privacy: Towards an International Data Privacy Organization, Preferably a UN Agency?*, 9 I/S: A JOURNAL OF LAW AND POLICY FOR THE INFORMATION SOCIETY 271 (2013); LEE ANDREW BYGRAVE, DATA PRIVACY LAW: AN INTERNATIONAL PERSPECTIVE (2014); danah boyd & Kate Crawford, *Critical Questions for Big Data*, 15 INFORMATION, COMMUNICATION & SOCIETY 662–679 (2012).

[55] Jean d'Aspremont, *Cyber Operations and International Law: An Interventionist Legal Thought*, 21 JOURNAL OF CONFLICT AND SECURITY LAW 575 (2016).

[56] Galit A Sarfaty, *Can Big Data Revolutionize International Human Rights Law?*, 39 U. PA. J. INT'L L. 73 (2017); Roslyn Fuller, *Structuring Big Data to Facilitate Democratic Participation in International Law*, 42 INTERNATIONAL JOURNAL OF LEGAL INFORMATION 504–516 (2014).

[57] Karen Yeung, *'Hypernudge': Big Data as a mode of regulation by design*, 20 INFORMATION, COMMUNICATION & SOCIETY 118–136 (2017).

and development,[58] lists in security,[59] drones in conflict,[60] and data and algorithms in humanitarian affairs.[61] In these accounts, technology is often used as a tool of global governance, effectuating global norms set by international actors such as international organizations and transnational corporations, engaging in new forms of decision-making and norm-making on the global plane, having distributive effects, or creating new forms of international legal expertise.

Another form of this debate is to focus on the global normative impacts of the technologies themselves, and how they challenge extant notions of normativity, subjectivity, sovereignty, and territoriality.[62] In this line of the debate, for example, scholars utilize concepts derived from STS to show the ways in which technologies are transforming normative orders and how governance operates.

Fleur Johns, for example, argues that "data territories" are creating new configurations of associations outside of the state-centric framework of international law.[63] Data might be comparable to physical territory, such as land and sea, "as a

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[58] GOVERNANCE BY INDICATORS: GLOBAL POWER THROUGH QUANTIFICATION AND RANKINGS, (Kevin Davis et al. eds., 2012).

[59] Gavin Sullivan, *Transnational Legal Assemblages and Global Security Law: Topologies and Temporalities of the List*, 5 TRANSNATIONAL LEGAL THEORY 81–127 (2014).

[60] Anna Leander, *Technological Agency in the Co-Constitution of Legal Expertise and the US Drone Program*, 26 LEIDEN JOURNAL OF INTERNATIONAL LAW 811–831 (2013).

[61] Fleur Johns, *Data, Detection, and the Redistribution of the Sensible in International Law*, 111 AMERICAN JOURNAL OF INTERNATIONAL LAW 57–103 (2017); PATRICK MEIER, DIGITAL HUMANITARIANS: HOW BIG DATA IS CHANGING THE FACE OF HUMANITARIAN RESPONSE (1 edition ed. 2015).

[62] Johns, *supra* note 61; Fleur E. Johns, *Data Territories: Changing Architectures of Association in International Law*, *in* NETHERLANDS YEARBOOK OF INTERNATIONAL LAW 2016: THE CHANGING NATURE OF TERRITORIALITY IN INTERNATIONAL LAW 107–129 (Martin Kuijer & Wouter Werner eds., 2016); Fleur E. Johns, *Data Mining as Global Governance*, *in* THE OXFORD HANDBOOK OF LAW, REGULATION AND TECHNOLOGY (Roger Brownsword, Eloise Scotford, & Karen Yeung eds., 2017); Fleur Johns, *Global Governance Through the Pairing of List and Algorithm*, 34 ENVIRONMENT AND PLANNING D: SOCIETY AND SPACE 126–149 (2016); Fleur Johns & Caroline Compton, *Data jurisdictions and rival regimes of algorithmic regulation*, REGULATION & GOVERNANCE (2019); Fleur Johns & Daniel Joyce, *Beyond Privacy: Is Prevailing Debate Too Analog for a Digital Age?*, 23 HUM. RTS. DEFENDER 24 (2014).

[63] Johns, *supra* note 62.

primary medium for the conduct of juridical global life and conflict."[64] It allocates and

distributes authority, claims, and decision-making powers in ways that are parallel to

the functions that territoriality has served traditionally in international law.[65] Data is

both challenging the notion of territoriality and running along lines similar to it,

performing similar functions, such as bound-making, distribution, and placement.[66] As

access to data may be the basis for allocating legal authority in the future, that access

is increasingly important in its distributional and exclusionary impacts.[67] Johns further

argues that the use of data by international organizations is not only transforming their

authority, but also enabling global governance "without the need for a legal subject"[68]

and creating a "redistribution of the power to establish and contest the condition of

the world" and "new modes of enfranchisement and disenfranchisement."[69]

Moreover, these "data territories" operate outside of the confines of the public/

private divide that has remained dominant in Western, liberal legal thought.[70] Data is

creating new spaces of association and new sets of juridical relations among and

between people, corporations, states, codes, data, and infrastructures outside of the

territorial model. Additionally, data performs a governance function both in the form

of a technique and "as a site for the assemblage and distribution of value and authority

in which the public (variously configured) has significant stakes."[71]

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[64] *Id.* at 107.

[65] *See generally, id.*

[66] Johns, *supra* note 62.

[67] *Id.*

[68] Gavin Sullivan, *"Taking on the Technicalities" of International Law – Practice, Description, Critique: A Response to Fleur Johns*, 111 AJIL UNBOUND 181–186, 182 (2017).

[69] Johns, *supra* note 61 at 100–101.

[70] Duncan Kennedy, *The Stages of the Decline of the Public/Private Distinction*, 130 UNIVERSITY OF PENNSYLVANIA LAW REVIEW 1349 (1982).

[71] Johns, *supra* note 62 at 3.

Using STS concepts, the thesis aims to look at what kinds of relations data creates.[72] It does so through examining its underlying infrastructure of undersea cables and their co-production of international law and social order. Further, since these debates on technological global governance seldomly account for the long historical trajectory of global governance *by* technology, this thesis aims to fill that gap by focusing on not only how technology performs governance and shapes knowledge and normativity in international law, but also the long histories of this relationship. Moreover, this thesis also aims to highlight areas where agency was exercised vis-a-vis undersea cables, whether in their construction, or by states, international lawyers, and international organizations, or ordinary people in order to show the spaces where agency can be exercised and not overplay the structuring element of technology and give it a deterministic quality. For that reason, the thesis will also consider the materiality of data in order to better account for the social aspects and effects of technology.

C. The Materiality of Data

In the social sciences, there has been some recognition of the importance of foregrounding the materiality of data in the study of technology and social relations. In the field of geography, for example, Pickren has highlighted the importance of examining infrastructures of computing in the denaturalization of socio-technical processes, to better understand social agency in shaping them, and the circulation of power they enable.[73] Additionally, Graham has studied the contradictory spatial

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[72] Johns, *supra* note 4.

[73] Graham Pickren, *'The global assemblage of digital flow': Critical data studies and the infrastructures of computing*, 42 PROGRESS IN HUMAN GEOGRAPHY 225–243 (2018).

imaginaries surrounding connectivity and economic development offered by cables in Kenya's business outsourcing sector in a contemporary context.[74]

Moreover, other scholars have highlighted the importance of analyzing the "socio-materiality" of big data through new methodological lenses for a better understanding of the different processes which structure how data moves and works in the world. Bates, Lin, and Goodale argue that:

> [I]n order to contribute to the development of alternative futures in which 'publics might be said to have greater agency and reflexivity vis-à-vis data power', it is important that critical 'Big Data' research gets 'under the hood' to grasp how local and situated 'Big Data' practices structure how data work in the world, and thus how particular practices, and their social consequences, might be ameliorated. There is therefore a growing need for methodological approaches that are able to capture detailed empirical understanding about 'Big Data' in practice, including how socio-material factors influence the constitution of data objects and shape how they move through space and time connecting different sites of practice across vast data infrastructures.[75]

These various accounts of materiality and technology or materiality and data in the social sciences overlook the important role of law in helping construct these processes, or they lack a strong historical dimension to better understand their social construction.

Moreover, international legal scholarship that conceptualizes data as intangible or immaterial renders it seemingly ubiquitous, evenly spread around the world, or nowhere in particular. This masks the unevenness of where data comes from and where it travels, who has access to and exercises control over data, and who uses them

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[74] Mark Graham, *Contradictory Connectivity: Spatial Imaginaries and Technomediated Positionalities in Kenya's Outsourcing Sector*, 47 ENVIRONMENT AND PLANNING A: ECONOMY AND SPACE 867–883 (2015).

[75] Jo Bates, Yu-Wei Lin & Paula Goodale, *Data journeys: Capturing the socio-material constitution of data objects and flows*, 3 BIG DATA & SOCIETY 1–12, 2 (2016) (internal citations omitted).

for what purposes. Data is not collected, distributed, or accessible equally or randomly. The paths data travels often depend on corporate decision-makers, regulatory environments, and the location of people, but are also determined by the material hardware—none of which have even configurations. Data flows, cloud computing, and wireless technologies are grounded in tangible cable systems,[76] the geographies of which affect the speeds at which media travels around the world, the unevenness of its availability in certain locations, and the places in which media content can be either intercepted for surveillance purposes or cut off entirely.[77]

Still, there are exceptions to the conceptualization of data as immaterial in international legal scholarship. In the only critical account in the field of international law, Humphreys describes data's materiality by focusing on its basic unit, the binary digit (bit).[78] He explains that data as a 'thing' has no independent existence, it only exists "in an embedded relation with a vast infrastructure of other objects: hardware, software, cables, 'clouds'".[79] While Humphreys briefly touches on cables in his discussion of the materiality of data, he does not delve deeply into their histories or social construction. Yet he recognizes their symbolic and literal reflection of power. As he describes it, "[t]he cable map is like the negative skeleton of global sovereign power: private bones for public flesh."[80] Even in this account, however, undersea cables only form a marginal part of the study of data and its materiality in relation to international law and its histories, which this thesis seeks to highlight.

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[76] Starosielski, *supra* note 6 at 53.

[77] *Id.* at 61–66.

[78] Stephen Humphreys, *Data: The Given*, *in* INTERNATIONAL LAW'S OBJECTS , 191 (Jessie Hohmann & Daniel Joyce eds., 2019).

[79] *Id.* at 191.

[80] *Id.* at 199.

III. Rendering Visible the Invisible Infrastructures of Undersea Cables

The ITU calls the international telecommunications network "the largest man-made artefact ever created."[81] A "telecommunication" according to the ITU is "[a]ny transmission, emission or reception of signs, signals, writing, images, and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems."[82] According to the Tallinn Manual, an international telecommunication is one which travels across state borders, through international waters, or international airspace.[83] Undersea cables form an integral part of the international telecommunications network. The Tallinn Manual's chapter on sovereignty discusses the physical layer as including the cables, and the logical layer as the data, thereby conceptualizing the signals and bits of data as separate from the underlying infrastructure of cables.[84]

The materiality of the cables do not just have data moving through them, but also act to produce information and knowledge about the world.[85] In doing so, they become the site of competing knowledges and visions of the world. They become the terrain of struggle over knowledge, where knowledge is the power to produce political, social, and economic outcomes. They also become the site of ontological and normative politics and contestation. But, being infrastructures, they are often invisible, often performing governance in the background of the spaces and places where we typically think governance happens.

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[81] INTERNATIONAL TELECOMMUNICATION UNION, ITU: THE VISION—COMMITTED TO CONNECTING THE WORLD 4 (2007).

[82] ITU Constitution, Annex, No. 1012. The Tallinn Manual clarifies that cyber transmissions over wire or optical fiber also fall under this definition. TALLINN MANUAL 2.0 ON THE INTERNATIONAL LAW APPLICABLE TO CYBER OPERATIONS, *supra* note 53 at 284–5.

[83] *Id.* at 285.

[84] *Id.* at 12.

[85] On the materiality of oil pipelines shaping a politics of information, *see* ANDREW BARRY, MATERIAL POLITICS: DISPUTES ALONG THE PIPELINE (2013).

Despite their significance in global trade, economic and financial transactions, security, the functioning of the internet, and enabling massive flows of information and data, undersea cables remain an underexplored area in a variety of academic disciplines.[86] Indeed, international legal scholarship has not discussed undersea cables at much length or from a more critical point of view. Most of the existing scholarship in international law tends to focus on applicable legal frameworks, potential areas of reform, and potential security and liability issues.[87] Davenport, for example, focuses on cybersecurity issues relating to the infrastructure underlying the internet, communication, and data flows, namely, undersea cables, and calls for an international treaty to cover the governance gaps and current piecemeal approaches.[88] This gap may

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[86] Exceptions include NICOLE STAROSIELSKI, THE UNDERSEA NETWORK (2015); Yochai Benkler, *From Consumers to Users: Shifting the Deeper Structures of Regulation Toward Sustainable Commons and User Access*, 52 FED. COMM. L. J. 561 (2000). Benkler, while not focusing on international law or undersea cables specifically, highlights the importance of the physical infrastructure, or what he terms the 'physical infrastructure layer' of the digitally networked environment, which is one of three layers he identifies (the others being the 'logical infrastructure layer,' or the software, and the 'content layer').

[87] *See, e.g.,* Tara Davenport, *Submarine Communications Cables and Law of the Sea: Problems in Law and Practice*, 43 OCEAN DEVELOPMENT & INTERNATIONAL LAW 201 (2012); SUBMARINE CABLES: THE HANDBOOK OF LAW AND POLICY, (Douglas R. Burnett, Robert Beckman, & Tara M. Davenport eds., 2013); Davenport, *supra* note; Yoshinobu Takei, *Law and Policy for International Submarine Cables: An Asia-Pacific Perspective*, 2 ASIAN JOURNAL OF INTERNATIONAL LAW 205–233 (2012); BURNETT AND CARTER, *supra* note 2; Markos Karavias, *Submarine Cables and Pipelines: The Protection of Investors Under International Law*, THE JOURNAL OF WORLD INVESTMENT & TRADE 860–889 (2018); Zoe Scanlon, *Addressing the Pitfalls of Exclusive Flag State Jurisdiction: Improving the Legal Regime for the Protection of Submarine Cables*, 48 JOURNAL OF MARITIME LAW & COMMERCE (2017); Lixian Loong Hantover, *The Cloud and the Deep Sea: How Cloud Storage Raises the Stakes for Undersea Cable Security and Liability*, 19 OCEAN AND COASTAL LAW JOURNAL 1–28 (2013); Thomas A. Mensah, *Submarine Cables and the International Law of the Sea, in* LAW OF THE SEA, FROM GROTIUS TO THE INTERNATIONAL TRIBUNAL FOR THE LAW OF THE SEA 725–749 (Lilian del Castillo ed., 2015); Roger S. Clark, *Some Aspects of the Concept of International Criminal Law: Suppression Conventions, Jurisdiction, Submarine Cables and the Lotus*, 22 CRIMINAL LAW FORUM 519–530 (2011); Ekaterina Anyanova, *Oceans apart: overview of the international law regime for submarine cables*, 4 INTERNATIONAL JOURNAL OF PRIVATE LAW 100 (2011); Youri Van Logchem, *Submarine Telecommunication Cables in Disputed Maritime Areas*, 45 OCEAN DEVELOPMENT & INTERNATIONAL LAW 107–122 (2014).

[88] Tara Davenport, *Submarine Cables, Cybersecurity and International Law: An Intersectional Analysis*, 24 CATH. U. J. L. & TECH. 57 (2015).

be due in part due to the cables' 'invisibility' in the deep seabed and conceptualizations of data as 'immaterial'. This type of representation reflects "a cultural imagination of dematerialization: immaterial information flows appear to make the environments they extend through fluid and matter less."[89]

Communication infrastructures and networks have been rendered invisible by a number of factors, some of which pertain to their spatialities, functionalities, and their associations with power and authority. Past infrastructures such as cables, networks, and electrical grids have been described as an "invisible city," a space which operates "below the threshold of ordinary observation."[90] Indeed, in the past, "large technical systems" were viewed as having limited social relevance, but this idea was challenged by Hughes, who viewed them as "complex sociotechnical organizations that emerged and developed in close coevolution with 'society at large.'"[91]

Star has claimed that infrastructure "is by definition invisible, part of the background of other kinds of work."[92] Yet we might argue that undersea cables are not invisible by accident, but rather are obscured from view through their being systematically overlooked as well as by their physical obscuration under water. As Starosielski describes, whether infrastructure is rendered invisible through repeated use, or is hidden away from the apparent visual field (whether hidden under ground, in industrial buildings, or under the sea), "invisibility has been naturalized as its

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[89] STAROSIELSKI, *supra* note 86 at 6.

[90] LEWIS MUMFORD, THE CITY IN HISTORY: ITS ORIGINS, ITS TRANSFORMATIONS, AND ITS PROSPECTS 563 (1961).

[91] Kurt Jacobsen, *Small Nation, International Submarine Telegraphy, and International Politics: The Great Northern Telegraph Company, 1869-1940, in* COMMUNICATIONS UNDER THE SEAS: THE EVOLVING CABLE NETWORK AND ITS IMPLICATIONS, 116 (Bernard Finn & Daqing Yang eds., 2009).

[92] Susan Leigh Star, *The Ethnography of Infrastructure*, 43 AMERICAN BEHAVIORAL SCIENTIST 377–391, 380 (1999).

dominant mode of visibility."[93]   Once one begins to examine undersea cables more closely, "one can see the hidden labor, economics, cultures, and politics that go into sustaining everyday intercontinental connections."[94]   Data and the infrastructures they depend on are a set of materialities that are firmly placed in space and built upon "earlier telegraph and telephone cables, power systems, lines of cultural migration, and trade routes."[95]   In considering their importance for security as well as commercial activity, one might say that undersea cables have been strategically obscured because "if the public doesn't know about the importance of undersea cables, they will not think to contest or disrupt them."[96]   Being placed at the bottom of the ocean renders them "less accessible and visible, thus protecting them from the turbulence of physical, social, and economic conflicts above."[97]   This was witnessed during the Boxer Rebellion in China, for example, where overland telegraph cables were targeted in order to cut access to communication between local diplomats and the British government.[98]   Thus, the undersea locations of the vast majority of these cables were strategic and intentional efforts at concealing them from view, to protect them from disruption and contestation.

According to Mitchell, "infrastructures can enable, transform, or inhibit ways of thinking and living collectively."[99]   Infrastructure and capital have shared a long history. From the steam engine, to railroads, oil and water pipelines, and highways, they have

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[93] Nicole Starosielski, *Warning: Do Not Dig': Negotiating the Visibility of Critical Infrastructures*, 11 JOURNAL OF VISUAL CULTURE 38–57, 39–40 (2012).

[94] STAROSIELSKI, *supra* note 86 at 2.

[95] *Id.* at 2.

[96] *Id.* at 4.

[97] *Id.* at 33.

[98] *Id.* at 33.

[99] Timothy Mitchell, *Introduction: Life of Infrastructure*, 34 COMPARATIVE STUDIES OF SOUTH ASIA, AFRICA AND THE MIDDLE EAST 437, 437 (2014).

helped shape social, political, and economic life in facilitating the movement of people, goods, and energy.[100] Large-scale networks of transportation, communication, and energy that developed in the latter half of the nineteenth century gave rise to, among other things, the giant managerial corporation, itself a new form of economic and political power.[101] As Mitchell explains, however, the main purpose of infrastructure is not to facilitate movement or flows of goods, people, communications, or things, but rather to facilitate the flow of finance, and the ability to extract from the future.[102] Modern technological infrastructures also shaped "the successive epochs of modernity."[103] The presence of old technological infrastructures can still be felt today in the lived worlds we inhabit, our social and economic relations, and our current technological infrastructures, even if they have taken on different shapes and iterations today.

Moreover, networks of large technological systems premised on an ideology of circulation, like networks of transportation and communications, are what Williams describes as forms of spatial discipline more diffuse than those described by Foucault.[104] Foucault's notion of spatial discipline assumes fixed boundaries—whether territories, bodies, or institutions.[105] But these networks of large technological systems, including undersea cables, for example, defy the spatial limitations of the territorially

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[100] *Id.* at 437.

[101] *Id.* at 437.

[102] Timothy Mitchell, *Infrastructures Work on Time*, E-FLUX - NEW SILK ROADS , https://www.e-flux.com/architecture/new-silk-roads/312596/infrastructures-work-on-time/ (last visited Feb 21, 2020).

[103] Mitchell, *supra* note 99 at 438.

[104] Rosalind Williams, *Cultural Origins and Environmental Implications of Large Technological Systems*, 6 SCIENCE IN CONTEXT 377–403, 395 (1993).

[105] Sheila Jasanoff, *Subjects of reason: goods, markets and competing imaginaries of global governance*, 4 LOND REV INT LAW 361–391, 364 (2016).

bounded nation-state. According to Williams, these networks became "networks of economic, political, and intellectual power."[106] In her words:

> [T]he pathways of modern life are also corridors of power, with power being understood in both its technological and political senses. By channeling the circulation of people, goods, and messages, they have transformed spatial relations by establishing lines of force that are privileged over the places and people left outside those lines.[107]

These networks create pathways which shape spatial ordering and thereby shape social relations and hierarchies.

Undersea cables, along with other material embodiments of technological systems, are infrastructures of power.[108] Their construction and use enables exercises of power and contestation—whether by states, corporations, international organizations, or individual people.[109] If we overlook them, we might miss not only asking questions regarding distributional stakes,[110] but also "essential aspects of aesthetics, justice, and change."[111]

Examining infrastructures requires looking beyond technological abstractions and metaphors to see how the hard materials of invention help perform governance functions, effectuate social norms,[112] embody or help maintain certain forms of

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[106] Williams, *supra* note 104 at 395.

[107] *Id.* at 395.

[108] On power, *see supra* note 11.

[109] On technologies as objects and sites of politics and contestation, *see* ANDREW BARRY, POLITICAL MACHINES: GOVERNING A TECHNOLOGICAL SOCIETY 9 (2001).

[110] Philip N. Howard, *Testing the Leap-Frog Hypothesis: The Impact of Existing Infrastructure and Telecommunications Policy on the Global Digital Divide*, 10 INFORMATION, COMMUNICATION & SOCIETY 133–157 (2007).

[111] Star, *supra* note 92 at 379.

[112] Bruno Latour, *Where are the Missing Masses? The Sociology of a Few Mundane Artifacts*, *in* SHAPING TECHNOLOGY / BUILDING SOCIETY: STUDIES IN SOCIOTECHNICAL CHANGE 225–258 (Wiebe E. Bijker & John Law eds., 1992).

political and social organization,[113] and are inextricably linked with "normative infrastructures," such as legal principles and public reason.[114] It also requires careful attention to co-production and their embedding of, and embeddedness within, social structures, legal institutions, histories, and other technologies.[115] Current literature on undersea cables does not address these issues in a systematic matter, especially in the field of international law.

IV. Theoretical Framework

1. Science and Technology Studies

This thesis is informed by several strands of scholarship in the field of STS. The first, falls broadly under the frameworks of history of technology and the social construction of technology. The second, falls under the framework of scholarship that relates to the relationship between technology and social order. More specifically, it uses the analytical concepts of co-production and sociotechnical imaginaries.

Discussions and scholarship on technology and society tend to lack a historical dimension or forget the important role that older technologies continue to play in our lives today.[116] Edgerton, for example, highlights the importance of old and mundane technologies in our everyday lives, ones which we tend not to notice, but which are widely used. This thesis builds on research on undersea cables and telegraph networks,

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[113] Langdon Winner, *Do Artifacts Have Politics?*, 109 DAEDALUS 121–136 (1980).

[114] Sheila Jasanoff, *Future Imperfect: Science, Technology, and the Imaginations of Modernity, in* DREAMSCAPES OF MODERNITY: SOCIOTECHNICAL IMAGINARIES AND THE FABRICATION OF POWER 1–33, 22 (Sheila Jasanoff & Sang-Hyun Kim eds., 2015).

[115] Sheila Jasanoff, *The Idiom of Co-Production, in* STATES OF KNOWLEDGE: THE CO-PRODUCTION OF SCIENCE AND THE SOCIAL ORDER 1–12 (Sheila Jasanoff ed., 2004).

[116] DAVID EDGERTON, THE SHOCK OF THE OLD: TECHNOLOGY AND GLOBAL HISTORY SINCE 1900 (2006).

including historical scholarship.[117] What the thesis adds to these existing studies is the extensive emphasis on their co-productive relationship with international law.

STS has also noted the important ties between technology and social orders in several ways. One such way is by looking at how technologies can shape the national and global dimensions of identity and community, and how they in turn can help shape technologies. Hecht, for example, describes how nuclear technologies were part of projects of building national and cultural identities in the post-war period in France.[118] These discussions were common during the 1990s in macro-level discussions of technology and society, what Edgerton terms as techno-nationalism and techno-globalism.[119] Techno-nationalism refers to the study of technology within a nation, and regards the success of a nation as dependent upon its success in funding, supporting, and developing technology. Techno-globalism refers to the view of technology as bringing the world closer together, as in "turning the world into a 'global village,'" referring to McLuhan's famous phrase.[120] In this view, the nation is only instrumental, and its disappearance is inevitable as a result of the increasingly global interactions enabled by innovation and new technologies.[121] The contemporary techno-globalist view when referring to the globalizing interconnections made possible by technology is particularly ahistorical, disregarding older technologies like the steam

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[117] DANIEL R. HEADRICK, THE INVISIBLE WEAPON: TELECOMMUNICATIONS AND INTERNATIONAL POLITICS, 1851-1945 (1991); DWAYNE R. WINSECK & ROBERT M. PIKE, COMMUNICATION AND EMPIRE: MEDIA, MARKETS, AND GLOBALIZATION, 1860–1930 (2007); STAROSIELSKI, *supra* note 86; SIMONE MÜLLER, WIRING THE WORLD: THE SOCIAL AND CULTURAL CREATION OF GLOBAL TELEGRAPH NETWORKS (2016).

[118] GABRIELLE HECHT, THE RADIANCE OF FRANCE: NUCLEAR POWER AND NATIONAL IDENTITY AFTER WORLD WAR II (1998).

[119] David E.H. Edgerton, *The Contradictions of Techno-Nationalism and Techno-Globalism: A Historical Perspective*, 1 NEW GLOBAL STUDIES Article 1, 1 (2007).

[120] MARSHALL MCLUHAN, UNDERSTANDING MEDIA: THE EXTENSIONS OF MAN (1964).

[121] Edgerton, *supra* note 119 at 1.

ship, the railway, and the telegraph.[122] Moreover, both techno-nationalism and techno-globalism tend to focus on the nation-state and the global as units of analysis, which can provide a limiting view of histories of technology. In contrast to these views, however, Edgerton claims that a variety of actors helped shape the use of technology beyond nations and states, such as politics, multinational firms, empire, and race, and these factors do not fit neatly within the national and global divide.[123]

Still other approaches to the history of technology emphasize technology in use, and how users shape technologies.[124] This falls under a broader approach within the field of STS called the social construction of technology (SCOT) approach.[125] This approach emphasizes also how different social groups perceive problems relating to technology and how they assess closure or stabilization in relation to that problem.[126] SCOT's interpretive flexibility highlights how meanings associated with artifacts are different depending on which social group is interpreting it. Kline and Pinch have critiqued the SCOT approach for focusing too much on the design stage of technologies rather than how users help shape technologies at later stages, and using a unidirectional lens on how users shape technology, rather than also examining "how the identities of social groups are reconstituted in the process."[127]

Moreover, the structure-agency debate in social science remains a prominent theme that has been taken up in STS scholarship relating to the social construction of

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[122] Edgerton, *supra* note 119; EDGERTON, *supra* note 116.

[123] Edgerton, *supra* note 119 at 1.

[124] EDGERTON, *supra* note 116.

[125] THE SOCIAL CONSTRUCTION OF TECHNOLOGICAL SYSTEMS: NEW DIRECTIONS IN THE SOCIOLOGY AND HISTORY OF TECHNOLOGY, (Wiebe E. Bijker, Thomas P. Hughes, & Trevor J. Pinch eds., Third ed. 1990).

[126] *Id.*

[127] Ronald Kline & Trevor Pinch, *Users as Agents of Technological Change: The Social Construction of the Automobile in the Rural United States*, 37 TECHNOLOGY AND CULTURE 763–795, 767 (1996).

technology,[128] actor-network theory,[129] and co-production,[130] among other analytical lenses. This thesis uses the analytical lens of co-production, and the closely related concept of sociotechnical imaginaries, to better understand the relationship between technology, international law, and the social.

Co-production is an idiom that refers to the idea that "the ways in which we know and represent the world (both nature and society) are inseparable from the ways in which we choose to live in it."[131] In this view, technology "both embeds and is embedded in social practices, identities, norms, conventions, discourses, instruments and institutions – in short, in all the building blocks of what we term the *social*."[132] Co-production is attuned to both the ways technologies shape knowledge and social order, and the ways in which knowledge and social order become embedded and embodied in technologies. Since co-production focuses on questions of power, knowledge, and governance, it is an especially valuable analytical concept in the context of international legal scholarship. It recognizes that the ways in which the world *is* understood often has effects on how people think it *ought* to be governed. In disrupting the is-ought distinction, it is a useful tool for bridging analyses of social order and governance with discourses, identities, institutions, epistemologies, normative frameworks, and material embodiments of invention.[133]

While the overarching analytical lens of the thesis is co-production, it also uses other analytical concepts from STS. Building on the concept of co-production, the

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[128] THE SOCIAL CONSTRUCTION OF TECHNOLOGICAL SYSTEMS, *supra* note 125.

[129] Michel Callon, *Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay*, 32 THE SOCIOLOGICAL REVIEW 196–233 (1984); LATOUR, *supra* note 9.

[130] Jasanoff, *supra* note 115.

[131] *Id.* at 2.

[132] *Id.* at 3.

[133] Sheila Jasanoff, *Ordering Knowledge, Ordering Society*, *in* STATES OF KNOWLEDGE: THE CO-PRODUCTION OF SCIENCE AND SOCIAL ORDER 13–45 (Sheila Jasanoff ed., 2004).

concept of sociotechnical imaginaries refers to "collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology."[134] Sociotechnical imaginaries "frame and represent alternative futures, link past and future times, enable or restrict actions in space, and naturalize ways of thinking about possible worlds."[135] Using methods of comparison, across countries, institutions, or across temporal or spatial scales, this concept illuminates the ways in which certain collective, publicly performed visions of the world come to dominate and exclude other competing visions through science and technology. The method of comparison helps illuminate what is at stake in different imaginaries, whose interests are being represented, what is being taken for granted, and how contestations can play out in different social and cultural contexts over the role of technology in society.

2. The Material Turn in Social Science and International Law

Hughes was the first scholar to illustrate the interaction between large technological systems and society through his magisterial study of electrical power systems.[136] According to Hughes, technological systems both shape and are shaped by society.[137] They include both physical and nonphysical artifacts:

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[134] Sheila Jasanoff, "Future Imperfect: Science, Technology, and the Imaginations of Modernity," *in* DREAMSCAPES OF MODERNITY: SOCIOTECHNICAL IMAGINARIES AND THE FABRICATION OF POWER, 4 (Sheila Jasanoff & Sang-Hyun Kim eds., 2015).

[135] Jasanoff, *supra* note 114 at 24.

[136] THOMAS PARKER HUGHES, NETWORKS OF POWER: ELECTRIFICATION IN WESTERN SOCIETY, 1880-1930 (1983).

[137] Thomas P. Hughes, *The Evolution of Large Technological Systems*, *in* THE SOCIAL CONSTRUCTION OF TECHNOLOGICAL SYSTEMS: NEW DIRECTIONS IN THE SOCIOLOGY AND HISTORY OF TECHNOLOGY , 51 (Wiebe E. Bijker et al. eds., Third ed. 1990). In this thesis, references to undersea cables and technology more generally should be interpreted as the "large technological systems" that Hughes refers to, in both their socially constructed and society shaping dimensions. *Id.*

Among the components in technological systems are physical artifacts . . . . Technological systems also include organizations, such as manufacturing firms, utility companies, and investment banks, and they incorporate components usually labeled scientific, such as books, articles, and university teaching and research programs. Legislative artifacts, such as regulatory laws, can also be part of technological systems. Because they are socially constructed and adapted in order to function in systems, natural resources, such as coal mines, also qualify as system artifacts.[138]

Other scholars have also noted how social, political, and normative orders get embodied in physical artifacts.[139] They have also described the ways in which materiality and material objects can affect forms of politics,[140] forms of governance, identity formation, and statecraft,[141] and ways of visualizing the world.[142] While not accepting the determinism of material artefacts in determining human behavior and social outcomes, materiality of technological artifacts or objects can play a significant role in shaping social behavior, and must therefore be taken into account in any discussion of technology's interaction with social and normative orders. Moreover, in contrast to the deterministic, one-way interaction of things producing social effects, co-production views technologies and society constantly shaping and reshaping one another. In this view, within the materiality are embedded social norms, which then

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[138] *Id.* at 51.

[139] Winner, *supra* note 113; Latour, *supra* note 112. Winner's account has been subsequently disputed. *See* Bernward Joerges, *Do Politics Have Artefacts?*, 29 SOCIAL STUDIES OF SCIENCE 411–431 (1999).

[140] TIMOTHY MITCHELL, CARBON DEMOCRACY: POLITICAL POWER IN THE AGE OF OIL (2013).

[141] JAMES C. SCOTT, SEEING LIKE A STATE: HOW CERTAIN SCHEMES TO IMPROVE THE HUMAN CONDITION HAVE FAILED (1998); BENEDICT ANDERSON, IMAGINED COMMUNITIES: REFLECTIONS ON THE ORIGIN AND SPREAD OF NATIONALISM (Revised ed. 2016).

[142] Rajkovic, *supra* note 46.

impact social orders. It does not attribute full agency to material objects on par with humans.[143]

International law has recently followed the social sciences in the material turn. Hohmann and Joyce, for example, express the hope that engaging with objects, materials, materiality, and their associated imagery rather than classic texts and normative frameworks "will enable new ways of thinking about, but also opportunities for contesting, resisting, and re-forming international law."[144] As they describe, "[i]n revealing the deep entanglements of international law and the material things around us, we can begin to understand how international law structures and disciplines its subjects—and sets the contours for the possibilities and limits of our lives—through objects."[145] International law's authority is also often founded on material objects.[146] The time is particularly ripe for this type of analysis in international law, they argue, as it faces disciplinary anxieties and ambivalences as it simultaneously turns to history and faces unknown digital futures.[147] In moving beyond solely examining texts in the discipline of international law, Hohmann and Joyce argue that "[t]hinking about things as well as texts can help us to consider the material effects of international legal discourse and to consider ways in which power and authority have attached to our discipline—as a means of both representing and thinking about the world or 'the international.'"[148]

Other legal scholars have noted the importance of examining everyday lived experiences and relationships with material objects in giving meaning to international

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[143] *See supra* note 13.

[144] INTERNATIONAL LAW'S OBJECTS, 2 (Jessie Hohmann & Daniel Joyce eds., 2019).

[145] *Id.* at 2.

[146] *Id.* at 2.

[147] *Id.* at 7.

[148] Jessie Hohmann & Daniel Joyce, *Material pasts and futures: international law's objects*, 7 LONDON REVIEW OF INTERNATIONAL LAW 283–292, 284 (2019).

law. Eslava and Pahuja, for example, have noted from a postcolonial perspective that international law is a "material project," "a practice that 'creates' and 'takes place' through the very materiality of the world."[149] In other words, the material world is what gives international law meaning and effect. And it is in and through the material world, mundane objects, and artifacts that international law unfolds.[150] As they note, international law, through its "creation or enclosure of spaces, administrative procedures and the use and constitution of particular bodies and objects," acquires "an effective presence in our everyday life."[151]

Yet, Hohmann argues, the distinction between passive object and the agentive subject is a weak one and our abilities to categorize and distinguish between things as belonging to one or another of those categories are often hampered by those qualities of things which are always unknowable[152] and these categorizations are resisted by the very politics of those artifacts.[153] As Latour has noted, the idea that objects or things can be actants with agency, creates possibilities to overcome constructed conceptual binaries, and abandon the idea that the natural and the social word are separate.[154] It challenges the idea that there are "distinct ontological zones" which create distinctions between humans and non-human actants, for example.[155] In this way, Latour's concepts have been particularly useful in helping international legal scholars rethink

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[149] Luis Eslava & Sundhya Pahuja, *Beyond the (Post)Colonial: TWAIL and the Everyday Life of International Law*, 45 JOURNAL OF LAW AND POLITICS IN AFRICA, ASIA AND LATIN AMERICA--VERFASSUNG UND RECHT IN UBERSEE 195, 203 (2012).

[150] *Id.* at 203.

[151] *Id.* at 214–15.

[152] Jessie Hohmann, *The Lives of Objects*, *in* INTERNATIONAL LAW'S OBJECTS 30–46, 31 (Jessie Hohmann & Daniel Joyce eds., 2019).

[153] *Id.* at 32.; Winner, *supra* note 113.

[154] LATOUR, *supra* note 9; BRUNO LATOUR, WE HAVE NEVER BEEN MODERN (Catherine Porter tran., 1993).

[155] LATOUR, *supra* note 154 at 10–11.

some of the common assumptions upon which international legal doctrines rest.[156] Nevertheless, this thesis goes beyond a Latourian conception of objects as actants with agency on par with humans.

Moreover, while critical legal scholars such as Kennedy and Koskenniemi have described international law and its practices as a series of argumentative practices, grammars, or structures,[157] Werner argues that "it would be a mistake to treat international law exclusively as a verbal, argumentative practice, revolving around rules and principles."[158] Rather, the field of international law "is not only structured by words but also by material objects often carrying long-established meanings and provoking a specific *feel* to international legal practices."[159]

Similar to the material turn is the infrastructural turn in international law. Kingsbury, for example, argues for "thinking infrastructurally" in international law.[160] He claims that new developments in the world, such as climate change, artificial intelligence (AI), and biotech, among other developments, are challenging international law.[161] Building on concepts from STS and ANT, he argues for considering how infrastructures, from the physical, to the informational, and the digital are having regulatory effects on a global scale.[162] They do so primarily by *enabling* rather than *doing*.[163] In "thinking infrastructurally," he claims, the discipline international law

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[156] Benedict Kingsbury, *Infrastructure and InfraReg: On Rousing the International Law 'Wizards of Is'*, 8 CAMBRIDGE INTERNATIONAL LAW JOURNAL 171–186, 174 (2019).

[157] DAVID KENNEDY, INTERNATIONAL LEGAL STRUCTURES (1987); MARTTI KOSKENNIEMI, FROM APOLOGY TO UTOPIA: THE STRUCTURE OF INTERNATIONAL LEGAL ARGUMENT (Reissue ed. 2006).

[158] Wouter Werner, *Framing Objects of International Law, in* INTERNATIONAL LAW'S OBJECTS 57–71, 57 (Jessie Hohmann & Daniel Joyce eds., 2019).

[159] *Id.* at 58.

[160] Kingsbury, *supra* note 156.

[161] *Id.*

[162] *Id.*

[163] *Id.* at 177.

can better address technological transformations through shifting its gaze to the future.[164]

Further, the "socio-materiality and regulation" approach bridges STS with sociolegal studies.[165] While this approach takes a slightly more doctrinal, formalistic approach to law, it does suggest that there are further substantive areas of research to be explored in future work exploring the intersections of STS and the sociolegal. The authors suggest further research on "technologies which promote interconnectivity across jurisdictions," such as ICTs.

This thesis builds upon this line of scholarship on the material and infrastructural turn in international law, which borrows concepts, theories, and methods from STS to rethink some of the assumptions underlying international law. It is not attempting to theorize law's materiality or its artifacts, as others have done.[166] Rather, it is analyzing the ways in which the material embodiments and infrastructures of technology co-produce social orders. In particular, it looks at the ways in which undersea cables were co-produced with international legal and social orders.

V. Conclusion

This Chapter has outlined some of the relevant debates in which this thesis seeks to intervene. It has identified some of the shortcomings of the existing literature on global governance and technology, on the materiality of data, and on undersea cable and their relationship to international law. By bridging histories of undersea cables with histories of international law, and using the conceptual framework of co-

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[164] Kingsbury, *supra* note 156.

[165] Alex Faulkner, Bettina Lange & Christopher Lawless, *Introduction: Material Worlds: Intersections of Law, Science, Technology, and Society*, 39 JOURNAL OF LAW AND SOCIETY 1–19 (2012).

[166] Alain Pottage, *The Materiality of What?*, 39 JOURNAL OF LAW AND SOCIETY 167–183 (2012); BRUNO LATOUR, THE MAKING OF LAW: AN ETHNOGRAPHY OF THE CONSEIL D'ETAT (2009); Tom Johnson, *Legal History and the Material Turn*, *in* THE OXFORD HANDBOOK OF LEGAL HISTORY 497–513 (Markus D. Dubber & Christopher Tomlins eds., 2018).

production, this thesis aims to fill the gap in the literature by highlighting the long historical relationship between technology and global governance. In doing so, the thesis aims to better understand technology's normative effects in relation to international law and how legal and social orders shape technological trajectories. The next Chapter will discuss the construction of undersea cable networks and their close links to empire.

CHAPTER TWO

CONSTRUCTING UNDERSEA CABLE NETWORKS

"The wrecks dissolve above us; their dust drops down from afar—
Down to the dark, to the utter dark, where the blind white sea-snakes are.
There is no sound, no echo of sound, in the deserts of the deep,
Or the great grey level plains of ooze where the shell-burred cables creep.

Here in the womb of the world—here on the tie-ribs of earth
Words, and the words of men, flicker and flutter and beat—
Warning, sorrow and gain, salutation and mirth -
For a Power troubles the Still that has neither voice nor feet.

They have wakened the timeless Things; they have killed
their father Time
Joining hands in the gloom, a league from the last of the sun.
Hush! Men talk to-day o'er the waste of the ultimate slime,
And a new Word runs between: whispering, 'Let us be one!'"

Rudyard Kipling[1]

I. Introduction

While the telegraph might commonly be attributed to individual inventors who

obtained patents for the technology, such as Samuel F. B. Morse in the United States,

or Cooke and Wheatstone in England, the history of the invention and construction

of the undersea telegraphic cable laid out here tries to go beyond the stories of the

individual inventors[2] to examine how these technological artifacts contributed to

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[1] Rudyard Kipling, *The Deep-Sea Cables (1898)*, *in* RUDYARD KIPLING: THE COMPLETE VERSE 141 (1990).

[2] There were a number of other inventors in the story who created different forms of telegraphic communications, but these were the most famous from England and the United States, the dominant players in the development of early telegraphic technologies. *See* ROBERT SABINE, C.E., THE HISTORY

changing notions of the social, political, and economic realms of life for people, nations, and empires.[3] Despite their economic significance in enabling faster communications and therefore, being of tremendous economic value, they also held significance for how people perceived time and space, and accordingly, their relationships with other people and places in the world.

This Chapter argues that embedded in the construction of international submarine cable networks were racialized, Western visions of social progress that were co-produced with the technology itself. The visions of social progress that accompanied undersea cables were divided along racial lines, as they embedded imperial ambitions that were prevalent at the time. As most of the early undersea cable networks revolved around Britain as the 'nerve center' of the All Red Line which connected its imperial territories, and most of the people involved in constructing these networks were engineers, businessmen, and politicians from England and the United States, there was a dominant vision of social progress of the white man bringing civilizing communications infrastructure to the rest of the world. For Rudyard Kipling, Nobel laureate and author of the poem cited in the beginning of this Chapter, imperial projects were the "White Man's Burden,"[4] necessary to promote progress, modernity, and civilized governance among colonies.[5] Science and technology were

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AND PROGRESS OF THE ELECTRIC TELEGRAPH WITH DESCRIPTIONS OF SOME OF THE APPARATUS (1869).

[3] On the tendency to focus on innovation and invention when discussing history of technology, its limitations, and some alternatives, such as examining history of technology in use and how it relates to social, economic, or cultural history, *see* David Edgerton, *From Innovation to Use: Ten Eclectic Theses on the Historiography of Technology*, 16 Hist. & Tech. 112 (1999).

[4] Rudyard Kipling, *The White Man's Burden (The United States and the Philippine Islands) (1899)*, *in* RUDYARD KIPLING: THE COMPLETE VERSE 261–262 (1990).

[5] Rohan Deb Roy, *Science Still Bears the Fingerprints of Colonialism*, SMITHSONIAN MAGAZINE, 2018, https://www.smithsonianmag.com/science-nature/science-bears-fingerprints-colonialism-180968709/ (last visited Jan 23, 2020).

the tools through which these imperial aspirations could be met. These racialized visions of social progress that came along with technological developments like the international telegraph, which was only made possible by the advent of successfully functioning undersea cables, were also shaped and facilitated by an international legal context that was constructing imperial relationships in favor of empires maintaining their power, and which also reflected racialized dynamics. The Western dominance in constructing cable and markets that served imperial and capitalist logics still has effects today. This can be seen not only in the geographies of undersea cables which overlap with those of nineteenth century imperialism, but also in the economic and commercial benefits deriving from data extraction and data flows from around the world going mainly to Western countries and corporations.

While this racialized vision of social progress through the technology of the telegraph and the infrastructure of submarine cables was prevalent in literature, media, and public discourse, in reality undersea cable networks would not have proliferated in the way they did in the nineteenth century without local infrastructures, knowledges, and labor of indigenous and colonized peoples. This Western-centric vision of modernity through cable connectivity was highlighted in literature and discourse that celebrated the moment of connection, but this was likely done to garner public support and then render obscure how they were constructed and maintained long after the initial cable connection was made. Solely focusing on the construction of the cable networks from the perspective of European and American engineers, businessmen, and cablemen, and stopping the story at the point of connection erases the history of indigenous populations' involvement with the construction of the materiality of the cables. This included, for example, the insulating material of gutta percha, which

required both specialized indigenous knowledge of cultivating it, and indigenous labor in extracting it.

Moreover, the extremely high demand for gutta percha changed economic and social conditions for native people in Southeast Asia, sparking territorial contestations that have shaped borders which still exist today. Other forms of labor and local infrastructures, along with instances of resistance and contestation, helped shape the construction and geography of cable landing stations and landing points on island territories. These local engagements with the geographies and materiality of undersea cables became a site where local agents could have global impact on the flow of information and the connection of territories and markets through cables. These networks were shaped not just through flows of communication and information, but also through productive frictions of resistance and contestation.[6]

Like the context of nineteenth century of international law that helped shape and facilitate imperial encounters that formed part of the background motivation for establishing underseas cable networks around the world, law and policy also played an important role in shaping underseas cable networks and the relevant actors involved. British nationalization of submarine and land telegraph networks resulted in lowered prices for sending telegraphs and changed the dynamics of private corporations' dominance. The telegraph monopolies that were prevalent in the early twentieth century shifted toward a different configuration of actors by the end of the century, as deregulation and increasing privatization of the undersea cable industry in the 1980s shaped a different array of actors and interests that increasingly worked together in private consortia.

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[6] ANNA LOWENHAUPT TSING, FRICTION: AN ETHNOGRAPHY OF GLOBAL CONNECTION (2005).

By decoupling communications from transportation, telegraphic communications reshaped markets. Underseas cables either followed existing trade routes or enabled access to new markets for trade. The telegraph in turn enabled new kinds of trade separate from physical commodities, such as futures trading, and materialized economic connections that defied territorial borders. The undersea cable could be seen as a force of "creative destruction" which reshaped capitalist dynamics.[7]

Even today, undersea cables have become the site where political contestation plays out, given their importance in the global economy and for security.[8] It is therefore no surprise that a silent war is being waged at the bottom of the oceans over which companies from which countries can connect or access which territories with cables. This dispute can be seen in the current Western dominance over internet infrastructure, including undersea cables, which is being challenged by China's "digital silk road," a plan which forms part of its Belt and Road Initiative (BRI) which aims to build technological infrastructure overseas.

This Chapter will begin with a brief contextualization of the context of nineteenth century international law and its relationship to empire. Then it will discuss the early construction of undersea cable networks, and the racialized visions of social progress that accompanied it. Next, it will discuss Britain's building of telegraphic connections to India—its largest and most important colony—and how this served its interests in being able to more efficiently manage and govern the Indian population from a distance. The risks associated with land-based telegraphs also motivated its move to building an entirely undersea cable network to connect its territories around the world. Then, the Chapter will discuss the close interconnection between capitalism

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[7] Joseph A. Schumpeter, Capitalism, Socialism, and Democracy 83 (1942).

[8] Richard J. Aldrich & Athina Karatzogianni, *Postdigital war beneath the sea? The Stack's underwater cable insecurity*, Digi War (2020), https://doi.org/10.1057/s42984-020-00014-x (last visited Aug 11, 2020).

and global communications. Next it will discuss how the market for gutta percha both relied upon indigenous knowledge, and transformed native Southeast Asian populations' social, economic, and political conditions. Finally, the Chapter will discuss cables in the twentieth century and today. In many ways, we are living in a technological world built on layers of imperial and economic logics, but it is also built on the forgotten histories, knowledges, and labor of local people in cable territories who were essential in shaping the configuration of the undersea cable network.

II. Nineteenth Century International Law and Empire

While we will turn to the co-productive relationship between undersea cables and international law in subsequent Chapters, this section aims to set the history of the construction of undersea cable networks within a broader context of international law which was already operating in favor of European imperial powers.[9]

With the "historical turn" in international legal scholarship,[10] critical scholars have noted international law's significant role in facilitating empire and the shaping of international law according to the interests of European civilizing nations and their lawyers.[11] While there were engagements with international law by lawyers of the Global South,[12] the history of international law in the nineteenth century was predominantly an enterprise of European imperial interests.[13]

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[9] This brief section is not intended to provide a historical account of international law, but rather to provide a little context to the technological history so that the significance of international law in legitimating, facilitating, and being shaped by imperial interests is not overlooked.

[10] *See, e.g.,* Martti Koskenniemi, *Why History of International Law Today?*, 2004 RECHTSGESCHICHTE - LEGAL HISTORY 61–66 (2004).

[11] MARTTI KOSKENNIEMI, THE GENTLE CIVILIZER OF NATIONS: THE RISE AND FALL OF INTERNATIONAL LAW 1870–1960 (2001).

[12] ARNULF BECKER LORCA, MESTIZO INTERNATIONAL LAW: A GLOBAL INTELLECTUAL HISTORY 1842-1933 (2015).

[13] JENNIFER PITTS, BOUNDARIES OF THE INTERNATIONAL: LAW AND EMPIRE (2018).

Unequal sovereignty played a significant role in colonial and imperial endeavors. This was exercised through the drawing of maps and state territorial lines by European powers, as witnessed at The Congo Conference in Berlin (1885), the occupation of *terra nullius*, and by the denial of sovereignty in encounters with the Other.[14] The principle of formal sovereign equality of states masked their factual inequality and hierarchy, and became a status that marked the difference between the 'civilized' and the 'uncivilized.'[15] Nineteenth century international law was primarily a European international law which took as its task land-appropriation.[16] International law worked to both facilitate and mask imperial practices behind a shroud of legitimacy. Empire itself was an international legal construction and international law became a medium through which relationships of domination and subordination were mediated.

III. The Construction of Undersea Telegraphic Cables

The telegraphic cable cannot be disentangled from the social and historical contexts in which it was shaped, and in turn, helped shape. While some described the telegraph as "a concrete definition of the Imperial unity" others described it as the "deployment of advanced technology in lesser-developed nations" as a means of replacing "the traditional imperial device of territorial acquisition."[17] Imperial interests both motivated and were advanced by the global telegraph networks through undersea

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[14] ANTONY ANGHIE, IMPERIALISM, SOVEREIGNTY AND THE MAKING OF INTERNATIONAL LAW (2005); ANDREW FITZMAURICE, SOVEREIGNTY, PROPERTY AND EMPIRE, 1500-2000 (2014); JOHN AGNEW, GLOBALIZATION AND SOVEREIGNTY: BEYOND THE TERRITORIAL TRAP (Second ed. 2017).

[15] ANGHIE, *supra* note 14; KOSKENNIEMI, *supra* note 11.

[16] CARL SCHMITT, THE NOMOS OF THE EARTH IN THE INTERNATIONAL LAW OF JUS PUBLICUM EUROPAEUM (G. L. Ulmen tran., 2006).

[17] HELEN GODFREY, SUBMARINE TELEGRAPHY AND THE HUNT FOR GUTTA PERCHA 32 (2018) (citing F.E. Kappey, "Electric Telegraph Service" in The British Empire Series, Vol. V 332 (1902); J.A. Britton and J. Ahvenainen, *Showdown in South America: James Scymser, John Pender, and United States-British cable competition*, 78(1) Business History Review p. 24 (Spring 2004).)

cables, as they became a tool in colonial administration and the management of diplomatic and military affairs from afar.[18] Strategic interests in undersea cables were heightened during war, when they were both used as a means of communication and diplomacy, and as a tool of warfare.[19] Submarine telegraphy became closely connected with new media, and the quicker speeds of communications and wider spaces of dissemination the undersea cables enabled.[20]

Before effective insulation methods and means were found with gutta percha, telegraph networks in the early years mostly consisted of overland wires.[21] But this created numerous challenges and difficulties, such as the need for translation and re-transmission any time the wires crossed national borders,[22] and the lack of security due to the ease of cutting wires and intercepting messages intended for others.[23] In times of war, the British would not want obstruction of its communication networks or to be dependent on foreign authorities to maintain its communications with the East. This became evident during the Second Boer War (1899-1902), when the Boers attacked overland British telegraph sites. Their location underwater meant that not only would they be safer from attack in times of war, but they would also require specialized expertise and greater time investment to injure them. As one diarist noted, "[a]s long as England holds the empire of the sea the cables will be safe from enemies in time of war."[24] Once insulation with gutta percha was done successfully, undersea

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[18] *Id.* at 32.

[19] *Id.* at 34.

[20] *Id.* at 35.

[21] *Id.* at 40.

[22] E.g., if a telegraph connection from Britain to India was sent via Persia, the messages would need to be translated from English to Russian to Persian, and then back into English. *Id.* at 40.

[23] *Id.* at 40.

[24] Joseph Charles Parkinson, The Ocean Telegraph to India: A Narrative and a Diary 300 (1870).

cables became a more secure and efficient way of transmitting telegraphic communications.[25]

While Samuel Morse experimented with underwater cables, since the United States was mostly concerned with its domestic economy at the time, it invested public money to build domestic overland telegraphic networks, rather than transcontinental cable networks.[26] This partially contributed to Great Britain becoming the dominant nation in building global telegraphic networks through undersea cables. Other contributing factors were that it had the largest global trade in services in the mid-nineteenth century, which relied upon the exchange and transmission of information, and access to capital to invest in building submarine telegraph networks.[27]

C.V. Walker laid the first undersea cable in the English Channel in 1849.[28] The first international undersea cable was laid between Dover, England and Calais, France in 1850. Although it failed only a day later, the Submarine Telegraph Company laid a new cable between England and France in 1851 which became the first successful international submarine cable. Both of these international cables were manufactured by the Gutta Percha Company, which was to become a dominant player in the telegraph cable trade.[29]

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[25] *Id.* at 40.

[26] GODFREY, *supra* note 17 at 41.

[27] *Id.* at 41.

[28] CHARLES BRIGHT, SUBMARINE TELEGRAPHS: THEIR HISTORY, CONSTRUCTION, AND WORKING. FOUNDED IN PART ON WÜNSCHENDORFF'S "TRAITÉ DE TÉLEGRAPHIE SOUS-MARINE" AND COMPILED FROM AUTHORITATIVE AND EXCLUSIVE SOURCES 5 (1898).

[29] GODFREY, *supra* note 17 at 41.

Figure 2.1. Cartoon depicting peace and goodwill between England and France, then newly connected by an undersea cable.[30]

As early telegraph lines crossed national borders, two inter-governmental agencies handled issues such as technical standards, rules of privacy and censorship, and telegraph rates. These agencies originating in the early 1850s were the Austro-German Telegraph Union and the West European Telegraph Union. In 1865, they merged to form the International Telegraph Union, the world's first multilateral organization.

The Atlantic Telegraph Company, in its treatise titled *The Atlantic Telegraph* (1857), reiterated the racialized aspects of social progress enabled by submarine cables and connecting civilized peoples across the Atlantic Ocean. For example, the racialized concept of social progress, peace, and cooperation associated with the Transatlantic Cable is evident in this excerpt:

> The Anglo-Saxon race, which is in the van of all social progress, dwells on *both sides* of the Atlantic. Two thousand miles of water stretch between Englishmen, and their own kin and kin in the West. […] The Professor [Morse] stated as one great reason for his own personal

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[30] BRIGHT, *supra* note 29 at 22.

anxiety to see the cable in active operation through the depth of the sea, a firm conviction that then the chances of conflict and misunderstanding between Englishmen and Americans must be diminished in an incalculable degree. […] Professor Morse *feels* that when the Atlantic Cable is at the bottom of the ocean, there can be no hostile purpose for which its strands could be pressed into service . . . . All wars arise in ignorance and misunderstanding of the real objects and interests of the races by which they are waged. To increase the facilities for the interchange of ideas, for the opening out of commercial relation, and for the development of intelligence, must be to diminish the need of appeals from reason to force.[31]

As will be further discussed, this utopian vision quickly dissipated as the technology did not live up to the ideals of peace and prosperity that the cable promised. What these excerpts make clear, however, is that the utopian visions associated with the undersea cable and it bringing the world closer together was reserved for bringing the Anglo-Saxon world closer together in cooperation, and bringing the British Empire closer to its imperial territories for the purposes of discipline, control, and governance of populations from afar.

A. Telegraphic Cables and the Shadows of Empire

Undersea cables were the infrastructure that enabled the formation of cross-border communication networks, but they also had a dark side. Historically, undersea cables both enhanced imperial projects and were built upon materials extracted in imperial projects during the nineteenth century. As we have seen, their development was both motivated by and dependent upon imperialism. As Hughes aptly described in his astute analysis on electrical power systems, technologies "are both causes and

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[31] *Id.* at 6–7.

effects of social change."[32] As their interconnectedness with imperialism shows, the same could be said here about submarine cables.

The so-called "long nineteenth century" was a time of unprecedented advancements in imperial ventures, culminating in the "age of empire."[33] This period was also characterized by developments in industrial technology, which was deeply intertwined with the expansion of European empires.[34] The electronic telegraph was one of the technologies which enabled and facilitated communications that became a necessity as European imperial powers such as Britain, Belgium, France, and the Netherlands expanded their influence to their colonies abroad, allowing quicker communications, more effective responses to revolts and military threats, and more efficient means of maintaining the integrity of their empires.[35] The importance of efficient communications in allowing direct control over territories as well as over what information could be passed along gave the British Empire huge advantages, but also fueled struggle.[36]

Undersea cables became a necessity for empires to communicate quickly with their colonies. France quickly prioritized building undersea cables connecting it to Algeria, and Great Britain needed a connection to its most important colony, India,

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[32] THOMAS PARKER HUGHES, NETWORKS OF POWER: ELECTRIFICATION IN WESTERN SOCIETY, 1880-1930 2 (1983).

[33] ERIC HOBSBAWM, THE AGE OF EMPIRE: 1875-1914 (Reprint ed. 1989). On the development of submarine telegraphy being almost coterminous with the "age of empire" identified by Hobsbawm, *see* Peter J. Hugill, *The Geopolitical Implications of Communication Under the Seas*, *in* COMMUNICATIONS UNDER THE SEAS: THE EVOLVING CABLE NETWORK AND ITS IMPLICATIONS 257 (Bernard Finn & Daqing Yang eds., 2009).

[34] DANIEL R. HEADRICK, THE TOOLS OF EMPIRE: TECHNOLOGY AND EUROPEAN IMPERIALISM IN THE NINETEENTH CENTURY (1 edition ed. 1981).

[35] John Tully, *A Victorian Ecological Disaster: Imperialism, the Telegraph, and Gutta-Percha*, 20 JOURNAL OF WORLD HISTORY 559–579 (2009).

[36] JILL HILLS, THE STRUGGLE FOR CONTROL OF GLOBAL COMMUNICATION: THE FORMATIVE CENTURY 4–6 (2002). One scholar has even identified the concept of empire with "an indication of the efficiency of communication." *See* HAROLD A. INNIS, EMPIRE AND COMMUNICATIONS 29 (1950).

the greatest source of its power and wealth.[37]   Gaining telegraphic access to India

meant building undersea cable networks that would pass through the Middle East,

including through the use of land-based telegraph systems. The Middle East became

a corridor to India.[38]   In 1857, the British government signed an agreement with the

Brett brothers, founders of the European and Indian Junction Telegraph Company,

who proposed to pass through the Euphrates Valley to connect the Mediterranean to

the Persian Gulf.[39] The breakout of the Indian Rebellion[40] a few months later in May

1857 further confirmed the need for a faster means to communication with India, and

was one of the driving forces for British dominance in developing telegraphic

technology.[41]

Communications Sir Henry Lawrence sent from the center of the rebellion in

Lucknow asking for support took nearly forty days to reach London by steamship.[42]

This incident and the delays in communication revealed the urgency of communicating

by telegraph for the British to effectively stop insurrections. But the Ottoman

government refused to grant concessions to the Bretts brothers, and instead built its

own telegraph network to the Persian Gulf, delaying Britain's ability to build submarine

telegraph networks to India.[43]   In 1858, the government sought alternative routes

through the Red Sea, but efforts to build undersea cables through the Red Sea and

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[37] DANIEL R. HEADRICK, THE INVISIBLE WEAPON: TELECOMMUNICATIONS AND INTERNATIONAL POLITICS, 1851-1945 15–17 (1991).

[38] *Id.* at 19.

[39] *Id.* at 19.

[40] The Indian Rebellion was a rebellion against the rule of the British East India Company, acting as sovereign for the British government. In response, the British government passed the Government of India Act of 1858, dissolving the East India Company and taking on direct administration of India.

[41] DANIEL R. HEADRICK, THE TENTACLES OF PROGRESS: TECHNOLOGY TRANSFER IN THE AGE OF IMPERIALISM, 1850-1940 99 (1988).

[42] HEADRICK, *supra* note 51 at 19.

[43] *Id.* at 20.

India Telegraph Company ultimately failed to work.[44] These failures resulted in Britain resorting to the common practice of using more reliable older technology as a back up when the newer technology failed.[45] In this case, Britain resorted to using land lines, but they were not ideal, as they were less secure and slower than undersea telegraphic cables.[46]

Setting up land lines to connect Britain with the large territorial area of India required obtaining cooperation from a number of parties. The Indo-European Telegraph Department, set up in 1862 by Colonel Patrick Stewart, its Director-General, created a land line connection between Karachi and Gwadur, on the coast of the Persian Gulf.[47] The land line connections on coastal areas were met with some resistance, and exacerbated already existing political tensions between tribes over territorial configurations.

It also required obtaining concessions from the Ottoman Empire and Persia so the Indo-European Telegraph Department could set up a land line from Tehran to the coastal area of Bushehr, connecting it to the Persian Gulf and the cable to India.[48] Russia was also building a line from Moscow to Tibilisi, Georgia which connected to Tehran. Once the two lines met, Britain could connect to India by telegraph.[49]

These land-based telegraph networks soon revealed critical limitations. Using land-based telegraph lines meant depending on multiple foreign governments for their communications, which could create not only delays but also possibilities for

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[44] *Id.* at 20.

[45] DAVID EDGERTON, THE SHOCK OF THE OLD: TECHNOLOGY AND GLOBAL HISTORY SINCE 1900 (2006).

[46] HEADRICK, *supra* note 51 at 20.

[47] *Id.* at 21.

[48] *Id.* at 21.

[49] *Id.* at 21.

espionage.[50] These limitations motivated building undersea cable networks that could be controlled by a single government and that would be less prone to security concerns.[51] Once the Atlantic cable proved to be a success, the British turned their attention again to India. In 1879, Britain was able to connect to Bombay via the Suez Canal, while avoiding landing cables on foreign territories.[52]

Figure 2.2. Drawing depicting the Indo-European Telegraph: Landing the Cable in the Mud at Fao, Persian Gulf.[53]

Moving telegraph cables underseas meant that they would no longer be subject to the dangers of people cutting them or of foreign governments being able to access critical security information. Moreover, it could also avoid foreign governments demanding reciprocal access to extensive territory to build their own telegraph networks.

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[50] *Id.* at 21.

[51] *Id.* at 21–22.

[52] *Id.* at 24.

[53] BRIGHT, *supra* note 29 at 73.

As explained in the next Chapter, the British Indian telegraph network became essential as a disciplinary technology for Britain to be able to retain control over the large and distant territory and population of India. Telegraphic communications also enabled resistance movements and contestation on the part of Indian people, including contributing to the movement of Indian nationalism which ultimately brought down the British Empire's long rule over the country and led to its independence.

B. Connecting World Markets: Expanding Empire, Capitalism, and Global Communications

At its very birth, the telegraph system became the handmaiden of commerce.[54]

The telegraph, as a network of communications materialized and connected through the infrastructure of cables, fundamentally transformed political, economic, and social thought and life in the nineteenth century. Underseas cables enabled and materialized these transformations on a large worldwide scale through connecting territories around the world. In contrast to land-based cables, whose spatial diffusion was limited by the limits of territorial land, underseas cables seemingly had no limit.

Moreover, through shifting people's conceptions of time and space, the submarine telegraph creating new possibilities for economic activities. The social constructions of space and time have long helped societies make sense of the world, as well as try to manage and govern it. Technological developments and infrastructures of communications and transportations, such as canals, railroads, steamships, and the telegraph shifted time-space perceptions, and in doing so, these technologies enabled creative ways of reimagining time and space toward different social aims.[55] Time-space

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[54] Tom Standage, The Victorian Internet: The Remarkable Story of the Telegraph and the Nineteenth Century's On-line Pioneers 164 (1998) (citing National Telegraph Review and Operator's Companion, 1853.)

[55] Barney Warf, Time-Space Compression: Historical Geographies 1–2 (2008).

compressions refer to not only the speed and spatial scales at which things and communications move, but also the ways people subjectively experience and make sense of these spatial relations conceptually.[56]

By decoupling communications from transportation, the telegraph enabled the growth of monopoly capitalism, imperialism,[57] as well as multinational corporations, including cable companies and news agencies.[58] Indeed, the global telegraph network connected through underseas cables reshaped world markets by integrating local economies in new ways through the rapid diffusion of price information in different markets.

Marx and Engels very early on noted that time-space compressions were essential to capitalism's ever-expanding logic. This logic necessitated the extension of capitalist markets to the global scale through technologies of production and communications:

> The need of a constantly expanding market for its products chases the bourgeoisie over the whole surface of the globe. It must nestle everywhere, settle everywhere, establish connections everywhere. The bourgeoisie has through its exploitation of the world market given a cosmopolitan character to production and consumption in every country . . . . The bourgeoisie, by the rapid improvement of all instruments of production, by the immensely facilitated means of communication, draws all, even the most barbarian nations into civilization. […]. It compels all nations, on pain of extinction, to adopt the bourgeois mode of production; it compels them to introduce what it calls civilization into their midst, i.e., to become bourgeois themselves. In one word, it creates a world after its own image.[59]

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[56] *Id.* at 8.

[57] James W. Carey, *Technology and Ideology: The Case of the Telegraph*, 8 PROSPECTS 303–325 (1983).

[58] Simone M. Müller, *From Cabling the Atlantic to Wiring the World: A Review Essay on the 150th Anniversary of the Atlantic Telegraph Cable of 1866*, 57 TECHNOLOGY AND CULTURE 507, 513 (2016).

[59] KARL MARX & FRIEDRICH ENGELS, THE COMMUNIST MANIFESTO 38-39 (1848) (trans. Samuel Moore) (2008 ed.).

In *Grundrisse*, Marx also wrote about capital's incessant need to annihilate space and time, removing any barriers to exchange:

> Thus, while capital must on one side strive to tear down every spatial barrier to intercourse, i.e. to exchange, and conquer the whole earth for its market, it strives on the other side to annihilate this space with time, i.e. to reduce to a minimum the time spent in motion from one place to another.[60]

Following Marx's analysis, Harvey argues that capital overcomes spatial limitations and accelerates the circulation of capital through "time-space compressions."[61] This process was clearly visible in the context of the technologies enabled by undersea cables, from the telegraph to the internet today, which have been described as technologies which embody the "annihilation of space by time." But this process also produces new spatial patterns and new territorial configurations in producing circulations and flows.[62]

Through time-space compressions, the telegraph transformed economic relations through a reorganization of commodity markets. It created the conditions of possibility for integration of national and world markets, as it was used to communicate prices of commodities such as cotton and corn across cities around the world, and it helped transform metal markets, ship brokering, and insurance into global businesses.[63] Before the telegraph became commonly used, the prices of commodities would vary between cities, based on the idea that markets in different cities were

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[60] Karl Marx, Grundrisse: Foundations of the Critique of Political Economy 538-39 (1973).

[61] David Harvey, The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change (1989).

[62] Erik Swyngedouw, *Communication, Mobility: Power Over Space*, *in* Transport and Communications Innovation in Europe 312 (G. Giannopoulos and A. Gillespie eds., 1993).

[63] Standage, *supra* note 68 at 169.

independent of one another.[64]   Prices of commodities reflected local conditions, creating incentives for traders to buy goods where it was cheaper and transport them to other cities where they could sell them for a higher price and earn a profit, as long as the higher price was high enough to make up for the cost of transporting goods.[65] The effect of improvements in communications resulted in a decline in price disparities in commodities markets in the United States.[66]   The telegraph enabled the formation of national, and even global, markets, as it "even[ed] out markets in space."[67]   While world or global markets were already in existence at the time, telegraphic communications were able to integrate them better as information moved more quickly.

The telegraph also transformed commodities markets by shifting speculation to futures.[68]   Just as it transformed price disparities between local markets and created markets on a larger scale through changing spatial thinking, it also transformed temporal thinking by making the future "a new zone of uncertainty and a new region of practical action."[69]   As Carey argues, "[i]t was not, then, mere historic accident that the Chicago Commodity Exchange, to this day the principal American futures market, opened in 1848, the same year the telegraph reached that city."[70]   Time contracts predated the telegraph, arguably going back to 1733 when the East India Company

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[64] James Carey, *Time, Space, and the Telegraph*, *in* COMMUNICATION IN HISTORY: TECHNOLOGY, CULTURE, SOCIETY 135–141, 136 (David Crowley & Paul Heyer eds., 1999).

[65] *Id.* at 136–137.

[66] *Id.* at 137.

[67] *Id.* at 137.

[68] *Id.* at 137. *See also* Alexander Engel, *Buying Time: Futures Trading and Telegraphy in Nineteenth-Century Global Commodity Markets*, 10 JOURNAL OF GLOBAL HISTORY 284 (2015).

[69] *Id.* at 138.

[70] *Id.* at 138. He is likely referring here to the Chicago Board of Trade, which was established in 1848, and in 2007, just before the Global Financial Crisis, was acquired by Chicago Mercantile Exchange (CME), and it operates under that name today. CME subsequently acquired the New York Mercantile Exchange in 2008. CME is currently the largest futures exchange in the world.

would transfer ownership in goods by trading warrants without requiring their physical transfer.[71] Nevertheless, the creation of markets in larger spatial scales and the creation of markets in futures created decontextualized markets. These markets were decontextualized from local conditions and from the commodities, as what was being traded in futures markets were essentially receipts and other negotiable instruments, or time against price. As markets became decontextualized from the product itself, grading systems evolved to accommodate increased trading volumes for which buyers were not able to physically inspect goods.[72] These decontextualizations resemble Marx's description of commodity fetishism.[73] Indeed, Marx noted in 1855 that the telegraph would "transform the whole of Europe into one single stock exchange."[74]

That this technology transformed markets and shaped capitalist dynamics is consistent with Schumpeter's theory of "creative destruction,"[75] whereby the "carrying out of new combinations" of knowledge and resources helps create technologies that then destabilize extant technologies and patterns of production.[76] "Creative destruction," according to Schumpeter, is:

> The opening up of new markets, foreign or domestic, and the organizational development from the craft shop to such concerns as U.S. Steel illustrate the same process of industrial mutation—if I may use that biological term—that incessantly revolutionizes the economic structure *from within*, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism.[77]

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[71] *Id.* at 138.

[72] *Id.* at 139.

[73] *Id.* at 139–40.

[74] Simone M. Müller & Heidi J.S. Tworek, *'The telegraph and the bank': on the interdependence of global communications and capitalism, 1866–1914*, 10 JOURNAL OF GLOBAL HISTORY 259, 268 (2015).

[75] SCHUMPETER, *supra* note 7 at 83.

[76] JOSEPH A. SCHUMPETER, BUSINESS CYCLES: A THEORETICAL, HISTORICAL, AND STATISTICAL ANALYSIS OF THE CAPITALIST PROCESS (1939).

[77] SCHUMPETER, *supra* note 7 at 83.

Creative destruction shapes capitalist dynamics by setting in motion "new consumers' goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates."[78]

This transformation of capitalist dynamics could also be seen in world markets and imperialist trade and commerce. Not only did undersea cables help shape markets and imperial trade, they were also shaped by them. Undersea cables routes were often laid on trade routes to promote commerce. Indeed, cables were laid in places where it was thought they could further develop trade, as in the example of the cable extending in the Amazon River by the Amazon Telegraph Company in 1895. British engineer and one of the leading figures in developing and constructing submarine telegraphy, Charles T. Bright, stated that this cable was "expected to further develop a large india-rubber, coffee, and sugar trade."[79]

Bright claimed that telegraphy "revolutionised" new means of conducting trade and business for merchants between different countries, as it "places the business man in touch with the money markets of the world."[80] As he noted, this was due to the speed of communications it enabled. What would have normally taken six months to receive a response to a letter from a London merchant to one in Calcutta would take a mere six hours with the telegraph.[81] He also saw the possibility of the "partial elimination of the middle-man in some departments of international commerce."[82]

Just as telegraphy helped promote national markets, it also helped shape global integration of financial markets and markets for commodities. Submarine cables and

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[78] *Id.* at 83.

[79] BRIGHT, *supra* note 29 at 127.

[80] *Id.* at 171.

[81] *Id.* at 171–72.

[82] *Id.* at 172.

telegraphy illustrate the interdependence of global communications and capitalism.[83] Indeed, the growth of both global trade and communications were concurrent with the growth of undersea cable networks.[84] Cable entrepreneurs built undersea cable networks "based upon particular understandings of cross-border trade following the logic of economic liberalism, profit maximization, and natural monopoly theory . . . ."[85] These global networks also influenced economic thought. Economists like Keynes and Hobson thought that capitalist exchange was deeply impacted by the speed of global telegraphic transmissions of communications and by the "dematerialization of information."[86]

Submarine telegraphy, enabled through undersea cables, both strengthened already existing cross-border markets and facilitated the creation of new markets where no prior trade relationship existed, such as Pan-American and Pacific markets.[87] Indeed, in the early twentieth century, American and Canadian governments financed the laying of new underseas cables linking their territories to China, Japan, Australia, and New Zealand with the specific intent of exploring and developing new markets and trade relations in the Pacific.[88] The possibility of accessing and developing new markets through the laying of new cables soon became integral to strategies for national economic development, as was the case in Canada and the United States.[89] The creation of new international markets and the solidification of existing ones in turn helped define the bounds of a "national market."[90]

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[83] Müller and Tworek, *supra* note 88.

[84] *Id.* at 260.

[85] *Id.* at 261.

[86] *Id.* at 261.

[87] *Id.* at 262.

[88] *Id.* at 271.

[89] *Id.* at 271.

[90] *Id.* at 263.

Moreover, the very geography of underseas cable networks followed imperial and economic logics, leaving many places in the world excluded from these networks. This created racialized, gendered, and class-based inequalities which excluded most people in the world from access to so-called 'global' communications.[91] These inequalities were based on social orders that reflected an exclusionary understanding of the world.[92] The geographies of these undersea cable networks therefore reflected an unequal mapping of the world which communications and capitalism helped shape, and which have affected political, economic and social relations to this day.[93] Indeed, Castell's "global space of flows" of data moving through undersea cables reflects "geographies of power concentrated within specific nodes and place, such as global trade centers, financial hubs and corporate headquarters."[94]

The geographies of communication helped establish geographies of national, regional, Western, imperial, and international spaces of political economy that sometimes overlapped with political territories.[95] Yet, more often they challenged national and imperial geographies.[96] As Müller and Tworek describe, "[c]able companies had to react to the challenges arising from mediating the maritime space between imperial territories, frequently at times of nationalist rhetoric."[97]

Early use of the ocean telegraph was very limited due to pricing structures. The early structuring of the telegraph market in the 1860s, which used a high price and low volume pricing model, made it out of touch for most people to use for

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[91] *Id.* at 262.

[92] *Id.* at 262.

[93] *Id.* at 263.

[94] Barney Warf, *Fiber optics: nervous system of the global economy*, *in* HANDBOOK ON GEOGRAPHIES OF TECHNOLOGY 113, 116 (2017).

[95] Müller and Tworek, *supra* note 88 at 269.

[96] *Id.* at 269.

[97] *Id.* at 269–270.

communications.[98] Later efforts to reduce the price of sending telegraphs to make

them more accessible were more likely motivated by connecting the dominions of the

British Empire rather than enabling universal access to telegraphic communications.[99]

The decoupling of communications and transportation through the telegraph

allowed for centralized control from a distance, control over both commercial and

political activities from afar in the context of British imperialism and changes in the

domestic American economy. The decoupling of communications from

transportation thus not only enabled faster speeds of communication and commercial

activities, it also expanded markets, inspired new ways of thinking about space and

time. As will be seen, through the undersea cables, communications became

materialized in new ways, and in the process, reconfigured social, political, and

territorial configurations.

The undersea cables' transnational character inspired thinking on a global or

world scale – whether that be a world economy and trade, world politics, world peace,

world empire, or world citizens. But that kind of thinking was hardly matched in

practice. Indeed, the submarine cable, due to its transboundary and international

character, became the mediating agent through which Americans and Europeans, and

in particular the British cablemen, encountered local populations of island nations and

worked with them to set up local infrastructures for cable landing stations,[100] where

signals are processed. In these encounters, the highly racialized and hierarchical social

relations between the British and the native populations became evident in popular

media portrayals of those encounters.[101]   These initial efforts to build local

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[98] *Id.* at 275.

[99] *Id.* at 279.

[100] STAROSIELSKI, *supra* note 38 at 101–111.

[101] *Id.* at 101–108.

infrastructures for undersea telegraph cables had effects on subsequent geographies of the undersea cable network, as they followed the original paths laid out. This path dependency was in large part due to the extensive labor, local communities, the creation of stations, transport and water systems, and management of natural phenomena that went into the creation of the original local infrastructures that helped shape subsequent paths that undersea cables would follow.[102] While undersea cable networks are more extensive and reach new places as compared to the nineteenth century network, the geographies of cables today still contain the legacies and shadows of territorial geographies that reflected imperial interests. These geographies in turn have effects on the spaces and speeds of the movement of data and capital through cable even today.

Moreover, the context of the Cold War and decolonization reconfigured undersea cable networks and landing stations. The Cold War reshaped cable stations into closed spaces, when security concerns over secrecy were dominant.[103] Decolonization also reshaped territorial relationships, which meant former imperial powers would lose control over and access to cable landing rights and stations. As former colonies became new nations, cable companies began localizing staff to prevent cable stations from being seen as foreign, oppositional, or as a point of interception.[104] Finally, in the current era of fiber optic cables, the undersea cable network reflects a privatized transnational network that produces and depends on actionable knowledge and information that could be used to distinguish who is part of the small network of people who uphold global communications and who is not.[105]

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[102] *Id.* at 111.

[103] *Id.* at 111–112.

[104] *Id.* at 117.

[105] *Id.* at 133.

Law and policy play a significant role in shaping the spatial politics of cable landing points, or the points where undersea cables meet coastal territory. In places where local and state organizations are empowered, like in the states of California and Hawai'i in the United States, there is considerably more local community engagement, tension, and contestation with the spatial politics of cable landing points, and the reconfiguration of space and community they entail.[106] On the other hand, in places like Australia where carriers are granted immunity from state and local laws, cable companies "are able to bypass long, expensive, and heterogeneous engagements with local governments" and local communities are thereby disempowered.[107] These local engagements with and resistances to cable landing points can shape global cable development, constituting a space where "local actors have global agency"[108] or where local acts of agency can quite literally have global effects on the movement of data and capital around the world.

C. Gutta Percha and the Social, Ecological, and Economic Impacts of Undersea Cables in Southeast Asia

Infrastructures include human elements as well as close interactions and shaping, or exploitation, of nature. The human element of infrastructures includes "the expertise of those who monitor and repair them, the labor of those who build and maintain them, and the very sociality of those who use them."[109] Building infrastructures also entails a "politics of nature," not only in the natural materials that go into constructing them, but also in producing nature as well. As one scholar has

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[106] *Id.* at 165.

[107] *Id.* at 166.

[108] *Id.* at 169.

[109] Timothy Mitchell, *Introduction: Life of Infrastructure*, 34 COMPARATIVE STUDIES OF SOUTH ASIA, AFRICA AND THE MIDDLE EAST 437, 439 (2014).

noted, "the growth of the nineteenth-century telegraph network . . . came to symbolize the new power over nature represented by technological modernity."[110] Cables held symbolic value as a modernizing force which depended on the mastery and domination of nature. This could be seen not only in the spaces the underseas cables occupied on the ocean floor and the mastery over the seas, but also in the materials required to build undersea cables in the early years of their development.

The link between constructing submarine cables and nature was evident in the materials needed to build functional cables that could be insulated in the deep sea. The success of the first submarine cables set down in the deep sea as well as the dominance of the British companies in the cable business depended upon access to and the use of gutta-percha, a natural plastic that could be used as an insulating gum.[111] Gutta percha derived from a tree called *Isonandra gutta*, which yields milky sap that turns into raw gutta percha when hardened.[112] This natural plastic, derived from Southeast Asia, was extracted and commodified, creating an ecological disaster in the process.[113] The material became essential for the development and proliferation of submarine cables in the nineteenth century,[114] and resulted in unsustainable demands for the finite material – causing near extinction of the trees from which it derived.[115] Almost all cables in the nineteenth and early twentieth centuries were insulated with gutta percha, making global communications dependent on the material and the people who collected and traded it.[116] While submarine cables were starting to change global

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[110] James Smithies, *The Trans-Tasman Cable, the Australasian Bridgehead and Imperial History*, 6 HISTORY COMPASS 691–711, 692 (2008).

[111] Tully, *supra* note 49 at 560. See also STAROSIELSKI, *supra* note 38 at 32–33.

[112] BRIGHT, *supra* note 29 at 253.

[113] Tully, *supra* note 49 at 560.

[114] Tully, *supra* note 49.

[115] *Id.* at 575–576.

[116] GODFREY, *supra* note 17 at 1.

communications, they were also transforming the lives of people living in Southeast Asia, such as Singapore and Borneo (now shared by Malaysia, Indonesia, and Brunei).

The submarine telegraphic system shaped new configurations of trade and new global commodity chains around gutta percha.[117] This motivated European expeditions to locate the material due to its economic value. In many ways, the global trade in gutta percha resembled what Wallerstein has described in his world-systems analysis.[118] World-systems analysis imagines developed economies, or centers, as linked with under-developed economies, or peripheries.[119] The centers or the core, dominate capital and investment, and the peripheries supply raw materials and labor for the core, creating core-periphery dependencies.[120]

At the same time, the gutta percha trade relied on local practices, local people, local knowledge, and local economic conditions. It was not solely a 'global' affair.[121] Since the material was difficult to locate, trade in gutta percha depended on the knowledge and skill of indigenous collectors.[122] Moreover, the globalized trade in gutta percha that depended on indigenous collectors "did not require them directly to sacrifice their social, cultural or economic traditions to exploit a new opportunity . . . ."[123] Thus, global trade in gutta percha, as well as the dependent and emergent undersea telegraph networks that depended on the material, were not the outcome of a few British and American inventors of the telegraph or the European empires who took advantage of the commercial opportunities the material enabled, but also were the

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[117] GODFREY, *supra* note 17.

[118] *Id.* at 10.

[119] IMMANUEL WALLERSTEIN, WORLD-SYSTEMS ANALYSIS: AN INTRODUCTION (2004); GODFREY, *supra* note 17.

[120] WALLERSTEIN, *supra* note 134.

[121] GODFREY, *supra* note 17.

[122] *Id.* at 3.

[123] *Id.* at 149.

result of indigenous knowledge and labor. Undersea cables became the technological site where natural materials and scientific, political, economic, and indigenous knowledges came together.

Figure 2.3. Sarawak: four Kayan people collecting gutta percha from a tree trunk.[124]

Moreover, as we shall see with regard to territorial disputes that were attributable in part to placing landing stations for undersea cables on coastal territories, the trade in gutta percha was also partially responsible for territorial disputes and the cession of parts of Brunei territory to Sarawak communities as a result of the gutta-percha wars. Indeed, the trade in gutta percha motivated the Sarawak communities to increasingly engage in monetary exchange rather than barter exchange out of

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[124] Sarawak: four Kayan people collecting gutta percha from a tree trunk. Photograph., WELLCOME COLLECTION, https://wellcomecollection.org/works/w9uxetw4 (last visited Dec 8, 2019).

convenience.[125]   Increased trade in gutta percha motivated increased movement of peoples into Sarawak, creating social changes and hostilities between different indigenous groups, and sparking disputes over state boundaries.[126]   These hostilities between different indigenous tribes and communities, despite their shared territories and common heritages, resulted in killings and revenge attacks that were related to the gutta percha trade, exacerbating already existing political conditions and tensions. The hostilities helped bring about the cession of territory to Sarawak from Brunei, shaping borders which still remain today.[127]

IV. Cables in the Twentieth Century and Today

Figure 2.4. Early twentieth century map of telegraphic communications.[128]

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[125] GODFREY, *supra* note 17 at 242–244.

[126] *Id.* at 246.

[127] *Id.* at 254.

[128] Van Hoven, C., and International Telegraph Bureau (Bern, Switzerland). "Carte générale des grandes communications télégraphiques du monde." Map. 1903. *Norman B. Leventhal Map &*

By the early twentieth century, there were an estimated 200,000 nautical miles of submarine cables around the world.[129] By 1914, Great Britain had the largest network of undersea cables for telegraphs, in part due to the size of its empire at the time, the ability of British firms to invest large amounts of capital into these projects, its position as a leader in global trade, and the government's provision of subsidies for the companies building the infrastructure.[130] Moreover, in addition to having the economic and political means to become the global leader in the development of undersea cables, it was in Britain's commercial, geopolitical, and cultural interests to develop this network.[131] During this century, undersea cables were also used in "information warfare," where Britain, for example, cut Germany's cables in order to block its communication systems during the First World War and directed all communication through its own networks as a form of intelligence gathering.[132] The role of cables in intelligence gathering remained a prominent one in later years as well. During the Cold War, for example, the United States intercepted Soviet Union's cables during Operation Ivy Bells for intelligence gathering purposes. More recently, the Edward Snowden revelations showed that the UK's Government Communications Headquarters (GCHQ) and the US's National Security Agency (NSA) used these undersea cables as mechanisms of intelligence gathering and surveillance.[133]

Today, there are nearly 750,000 miles of undersea cables which support the flow of information, communications, and data, and which connect the various

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Education Center, https://collections.leventhalmap.org/search/commonwealth:7h149w11c (accessed March 14, 2019).

[129] Tully, *supra* note 49 at 575.

[130] Headrick and Griset, *supra* note 36 at 544.

[131] Smithies, *supra* note 126 at 698.

[132] Gordon Corera, *The secret history of cable-cutting espionage*, BBC NEWS, December 15, 2017, https://www.bbc.com/news/world-europe-42367551 (last visited Mar 13, 2019).

[133] *Id.*

continents.[134] The advent of the use of fiber optic cables to link computers in the 1970s and their proliferation among private internet and telecommunications corporations in the 1980s greatly increased the speed of communication and transfer of data around the world, helping transform the internet from a communications system to a commercial system.[135] Fiber optics are thin, flexible rods of quartz glass that are about the width of a human hair, that are bundled together to form cables. They transmit light signals which make flows of data, voice, and video at the speed of light possible.[136] The move to fiber optic cables was motivated in part by global finance, which depended upon, and facilitated, the immediate movement of capital around the world.[137] The move to fiber optic cables also resulted in new, complex network configurations. The original lines were set as point-to-point, but submarine branching units enabled multiple points to be served simultaneously.[138] While there have been moves to connect new markets through fiber optic cables, the geographies of fiber optic cables networks reflect the geographies of the major economic markets of North America and East Asia.[139]

Moreover, in the 1980s and 1990s, deregulation and privatization of the cable companies and the increased demand for cable development changed the dynamics between the actors involved in this industry and dramatically sped up the development

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[134] Adam Satariano et al., *How the Internet Travels Across Oceans*, THE NEW YORK TIMES, March 10, 2019, https://www.nytimes.com/interactive/2019/03/10/technology/internet-cables-oceans.html, https://www.nytimes.com/interactive/2019/03/10/technology/internet-cables-oceans.html (last visited Mar 13, 2019).

[135] Warf, *supra* note 110 at 115.

[136] *Id.* at 113.

[137] *Id.* at 116.

[138] *Id.* at 120.

[139] *Id.* at 120.

of cable projects.[140]   As of 2015, approximately 380 undersea cables transport nearly

95-99% of all data flows.[141]
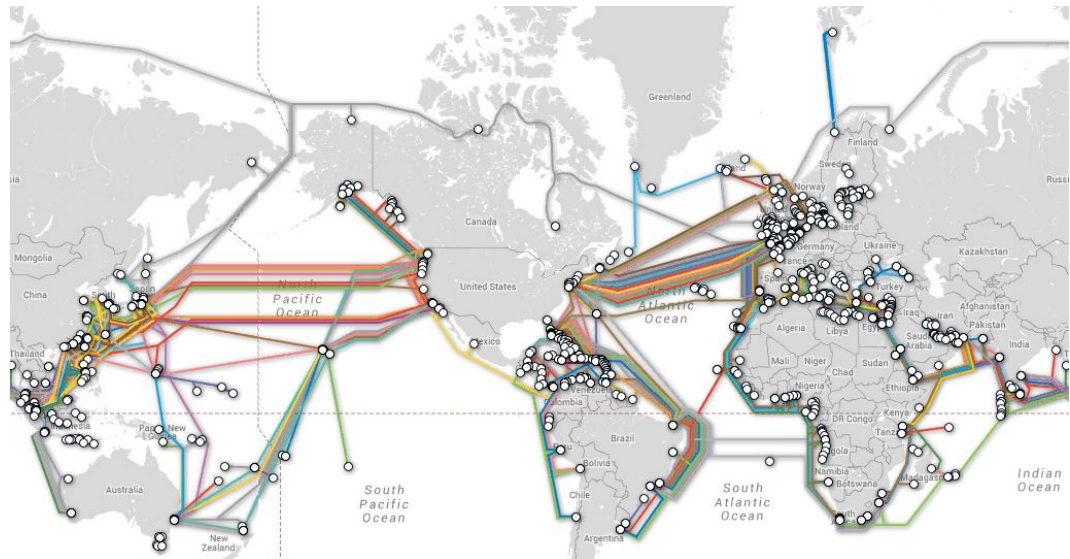
Figure 2.5. TeleGeography map of submarine cables.[142]

Just as in the late nineteenth and early twentieth centuries, where monopolistic

competition and cartels were rampant in the telegraph cable industry,[143] only a few

corporations own most of the undersea cables today. New cables, which are typically

no bigger than a garden hose, are also being laid down by technology companies like

Google, Amazon, Facebook, and Microsoft, to create new connections between its

[140] STAROSIELSKI, *supra* note 38 at 45–47.

[141] Douglas Main, *Undersea Cables Transport 99 Percent of International Data*, NEWSWEEK, April 2, 2015, https://www.newsweek.com/undersea-cables-transport-99-percent-international-communications-319072 (last visited Mar 14, 2019). *See also* Jeremy Page, Kate O'Keeffe & Rob Taylor, *America's Undersea Battle With China for Control of the Global Internet Grid*, WALL STREET JOURNAL, March 12, 2019, https://www.wsj.com/articles/u-s-takes-on-chinas-huawei-in-undersea-battle-over-the-global-internet-grid-11552407466 (last visited Apr 27, 2019).

[142] Cable Data, , https://iscpc.org/information/cable-data/ (last visited Jul 8, 2019).

[143] Dwayne R. Winseck & Robert M. Pike, *Introduction: Deep Globalization and the Global Media in the Late Nineteenth Century and Early Twentieth*, *in* COMMUNICATION AND EMPIRE: MEDIA, MARKETS, AND GLOBALIZATION, 1860–1930 1–15, 7 (Dwayne R. Winseck & Robert M. Pike eds., 2007).

data centers around the world and to increase the speed of connectivity around the world in the most efficient and cost-effective way possible.[144] Since 2016, there has been a boom in these companies building their own undersea cable networks.[145]

Moreover, these vast networks of data infrastructure are also subject to geopolitical and security concerns. For example, Australia blocked Chinese telecommunication firm Huawei from building a cable connecting Australia to the Solomon Islands out of security concerns.[146] Huawei has been banned from deploying 5G networks or "critical" telecommunications infrastructure in a number of countries, including Australia, New Zealand, and the United States.[147] This remains an area of concern in terms of security and intelligence gathering for the United States, who warned its allies that if they deploy networks with the involvement of Huawei, it will not assist them with intelligence gathering efforts.[148] The United Kingdom has also banned the company from operating "core parts" of a mobile 5G network.[149] The concerns regarding China's increasing dominance in undersea cable networks has become more pronounced given its plans to build more undersea cables and infrastructure as part of its "Digital Silk Road" initiative and plans by Huawei Marine

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[144] Satariano et al., *supra* note 152.

[145] Tyler Cooper, GOOGLE AND OTHER TECH GIANTS ARE QUIETLY BUYING UP THE MOST IMPORTANT PART OF THE INTERNET VENTUREBEAT (2019), https://venturebeat.com/2019/04/06/google-and-other-tech-giants-are-quietly-buying-up-the-most-important-part-of-the-internet/ (last visited Apr 27, 2019).

[146] Satariano et al., *supra* note 152.

[147] Rupert Neate, *Where is Huawei banned from working on critical networks?*, THE GUARDIAN, April 19, 2019, https://www.theguardian.com/technology/2019/apr/19/where-huawei-is-banned (last visited Apr 27, 2019).

[148] *Id.*

[149] Dan Sabbagh Defence & security editor, *May to ban Huawei from providing "core" parts of UK 5G network*, THE GUARDIAN, April 23, 2019, https://www.theguardian.com/technology/2019/apr/24/may-to-ban-huawei-from-supplying-core-parts-of-uk-5g-network (last visited Apr 27, 2019).

Networks Co.[150] to expand its cable networks by building 28 new cable links by 2020.[151] These debates reflect just how high the geopolitical stakes are with regard to control and access of information through undersea cables.
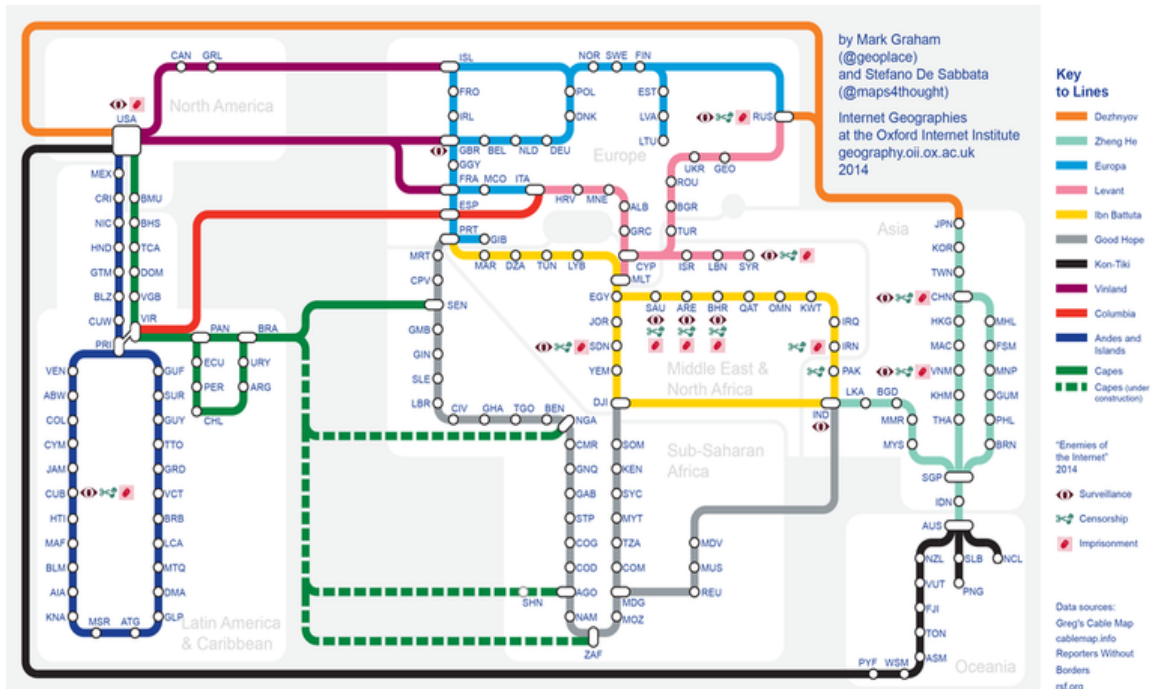
Figure 2.6. "Internet Tube": Abstracted map of internet cables in the form of a subway map.[152]

Economically, these cables also provide critical infrastructure for the global digital economy. As the UN Secretary-General has noted:

> Submarine cables are critical communications infrastructure, being used for more than 98 per cent of international internet, data and telephone traffic, with only a few States without fibre connectivity, and

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[150] Owned by Huawei Telecom and currently the fourth biggest corporation in the submarine cable industry. Page, O'Keeffe, and Taylor, *supra* note 159.

[151] *Id.*

[152] Mark Graham & Stefano De Sabbata, Internet Geographies at the Oxford Internet Institute, "Internet Tube," (2014) https://geography.oii.ox.ac.uk/internet-tube/#single/0 (last visited Apr 27, 2019).

many of these having cable projects currently under way. Submarine cables are recognized as vitally important to the global economy and hence to economic growth. By underpinning international communications, their role in providing access to data and information for all peoples is evident.[153]

An estimated $10 trillion in financial transfers, including transmission of information by the Society for Worldwide Interbank Financial Telecommunications (SWIFT), the Continuous Linked Settlement Bank (CLS), and the US Clearing House Interbank Payment Systems (CHIPS), are dependent upon these submarine cables.[154] In short, "The entire global economy relies on the uninterrupted usage of the vast undersea cable communications infrastructure."[155]

In addition to their role in underlying the global economic and security infrastructure, undersea cables also enable "modes of resistance that challenge dominant media formations," connecting people in different locations and providing means for the distribution of information, such as in the Arab Spring and the Occupy movements.[156] Indeed, if we consider individual citizens' engagement with these technologies, we see that the interaction of the virtual with the physical, embodied spatiality of persons who are situated in specific places and cultures, are always in an entanglement with one another.[157]

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[153] UN doc. A/70/74 (30 March 2015) (internal citations omitted).

[154] DOUGLAS R. BURNETT & LIONEL CARTER, INTERNATIONAL SUBMARINE CABLES AND BIODIVERSITY OF AREAS BEYOND NATIONAL JURISDICTION: THE CLOUD BENEATH THE SEA 4 (2017). *See also* RISHI SUNAK, UNDERSEA CABLES: INDISPENSABLE, INSECURE | POLICY EXCHANGE 11-12 (2017), https://policyexchange.org.uk/publication/undersea-cables-indispensable-insecure/ (last visited Mar 24, 2019).

[155] STAROSIELSKI, *supra* note 38 at 13 (citing KARL FREDERICK RAUSCHER, ROGUCCI STUDY FINAL REPORT (2010), http://www.ieee-rogucci.org/files/The%20ROGUCCI%20Report.pdf (last visited Mar 19, 2019)).

[156] STAROSIELSKI, *supra* note 38 at 2.

[157] Julie E. Cohen, *Cyberspace As/And Space*, 107 COLUMBIA LAW REVIEW 210 (2007).

Many of the undersea cables in operation today have been built upon prior networks, such as the telegraph cable network, which shows how already established infrastructures are often regenerated and used in new ways, with "new markets and economic potentials."[158] Indeed, undersea cable networks are built on communication and media networks that were driven by the logic of imperialism. For example, many submarine cable landing sites today are the same ones that connected the All-Red line of the British Empire.[159] Multinational corporations, often in close alliance with governments who relied on them for surveillance and military purposes, were the primary drivers of these developments and played a key role in developing the infrastructure and making the financial investments for the cables.[160] Even today, it is multinational corporations that hold ownership rights over the cables themselves. While globalization of capitalism might have been a stronger driver of the growth of these cable networks, concentrated in those areas in which markets are most developed, imperialism also played a strong role. Imperial powers worked together to create a shared hegemony over global communication, in the form of cooperative agreements, the International Telegraph Union, and regimes of international law.[161]

V. Conclusion

This Chapter has described the constructedness of undersea cables, networks, and infrastructures that underlie data flows. In doing so, it shows that there is nothing natural or even about their development, as it was shaped by a number of social, political, economic, and legal factors. Indeed, according to Jones:

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[158] SIGNAL TRAFFIC: CRITICAL STUDIES OF MEDIA INFRASTRUCTURES, 4–5 (Lisa Parks & Nicole Starosielski eds., 2015).

[159] STAROSIELSKI, *supra* note 38.

[160] Preface and Acknowledgments, *in* COMMUNICATION AND EMPIRE: MEDIA, MARKETS, AND GLOBALIZATION, 1860–1930 xv–xx (Dwayne R. Winseck & Robert M. Pike eds., 2007).

[161] *Id.*

Infrastructures… are social as well as technological. Cultural values—reflected in financial incentives, state regulations, moral sentiments, and ideas about what constitutes a good life—strongly influence which technologies get built and how they are used over time. Once put in place, technological transformations of the world feed back into social values, augmenting the regulatory, economic, and moral systems in which they were first introduced. This is not a deterministic relationship, but rather one of mutual shaping: social and technological worlds are co-produced."[162]

By historically situating how undersea cables developed, we have examined the political economy of such infrastructures, their relationship to imperial projects and the new political and economic possibilities that were rendered imaginable by the perceived contractions and expansions of time and space that they enabled. The networks of undersea cables being used today are built upon infrastructures and logics of imperial projects of the nineteenth century, which have been repurposed to create ever-more networks of communication and flows of massive quantities of data. These histories reveal that imperialism both motivated and provided the necessary material resources, such as gutta-percha, to allow for these undersea cable networks to develop, thereby privileging the dominant imperial power at the time of their development, namely, Great Britain.

These histories also reveal the close interconnection between global communications and capitalism, as undersea cable networks were built to facilitate trade on existing routes and to create new markets. It also shifted the spatiotemporality of markets such that local economies could be integrated into world trade and the future could become the site of economic activity. Indeed, as other scholars have shown, "[o]cean telegraphy allowed modern capitalist practices based on speed and

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[162] CHRISTOPHER F. JONES, ROUTES OF POWER: ENERGY AND MODERN AMERICA 8 (Reprint ed. 2016).

information densification to emerge and succeed, while it simultaneously co-created modern market spaces which were congruent as well as challenging to imperial territoriality."[163]

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[163] Müller and Tworek, *supra* note 88 at 283.

CHAPTER THREE

DAVID DUDLEY FIELD AND THE TECHNOLOGICAL SENSIBILITY OF INTERNATIONAL LAW CODIFICATION

I. Introduction

Historian of international law Martti Koskenniemi has argued that international law's start as a professional discipline can be traced back to the establishment of the first journal of international law—the *Revue de droit international et de législation comparée (Revue de droit)* in 1868—and the inauguration of the *Institut de Droit International* (IDI), started in Brussels in 1873.[1] Both the *Revue de droit* and the IDI had liberal legal reform at their core.[2] While this period has been characterized by international legal scholars as one of colonialism and empire,[3] liberal internationalism,[4] and international legal positivism,[5] these accounts have not emphasized the significant role that technology played in helping shape ideas about the world and how it should best be governed.

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[1] MARTTI KOSKENNIEMI, THE GENTLE CIVILIZER OF NATIONS: THE RISE AND FALL OF INTERNATIONAL LAW 1870–1960 (2001).

[2] *Id.* at 12–19.

[3] ANTONY ANGHIE, IMPERIALISM, SOVEREIGNTY AND THE MAKING OF INTERNATIONAL LAW (2005).

[4] KOSKENNIEMI, *supra* note 1 at 4.

[5] MÓNICA GARCÍA-SALMONES ROVIRA, THE PROJECT OF POSITIVISM IN INTERNATIONAL LAW (2014).

This chapter will discuss some of the ways in which undersea cables enabled a technological sensibility that motivated efforts of codification of international law starting in the late nineteenth century.[6] In particular, it will look at the ways in which David Dudley Field (1805-1894) (Field), one of the founding members of the IDI, was influenced by his brother Cyrus Field's efforts at laying the Atlantic Cable. Due to his close relationship with his brother, Cyrus Field, the successful paper businessman turned cable entrepreneur, and his personal involvement in the development of the Atlantic Cable as counsel to the New York, Newfoundland and London Telegraph Company, David Dudley Field was uniquely positioned to bridge the new technologies of the day with his sensibility on the 'law of nations'. In examining David Dudley Field's technological sensibility that played a role in his desires to codify law, this chapter will argue that this sensibility both informed efforts to professionalize and codify international law, and at the same time, showed the ways in which the international legal profession renews itself through reform projects, or the extension of existing rules, in the face of new technologies.[7]

After discussing how codification of international law, and international legal positivism more broadly, relate to economic-positivism, the chapter will describe David Dudley Field's involvement in the development of cable projects, and in particular the Atlantic Cable linking North America with the United Kingdom. Next, it will describe Field's involvement in the Association for the Reform and Codification of the Law of Nations in Brussels (now known as the International Law Association)

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[6] Daniel Wickberg, *What Is the History of Sensibilities? On Cultural Histories, Old and New*, 112 THE AMERICAN HISTORICAL REVIEW 661 (2007).

[7] On the argumentative practices deployed by international lawyers in this context, *see* Jean d'Aspremont, *Cyber Operations and International Law: An Interventionist Legal Thought*, 21 JOURNAL OF CONFLICT AND SECURITY LAW 575 (2016); David Kennedy, *When Renewal Repeats: Thinking Against the Box*, 32 N.Y.U. INT'L L. & POL. 335 (2000).

(the Association) and the IDI, and the ways in which he and his colleagues helped professionalize the discipline of international law. Finally, it will describe Field's efforts to codify law, both at the domestic level and the 'law of nations' as informed by his experiences with the telegraphic cable. As we shall see, the submarine telegraphic cable played a significant role in shaping one prominent international lawyer's thinking both about the world and how it should best be governed. This thinking in turn helped motivate codification projects which were founded on principles of laissez-faire economics that prioritized commerce and trade and that presumed a distinction between law and politics.

As such, technology and its associated technological sensibility could be seen as one of the invisible sources of global governance, with significant normative implications. As global governance increasingly turns to technology to help "solve" global problems, we might be better attuned to some of the normative implications of technology and the technological sensibility of international law codification and formalism if we see the ways in which it has been a part of our global normative architecture for some time.

II. Codification of International Law and Economic-Positivism

Codification in international law has been attributed to originating with Jeremy Bentham (1748-1832),[8] where he used his utilitarian approach to propose an "universal international code" to promote "the common and equal utility of all nations."[9] He also proposed an international court of arbitration as a means of

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[8] Sir Gerald Fitzmaurice, THE CONTRIBUTION OF THE INSTITUTE OF INTERNATIONAL LAW TO THE DEVELOPMENT OF INTERNATIONAL LAW (VOLUME 138) *in* COLLECTED COURSES OF THE HAGUE ACADEMY OF INTERNATIONAL LAW 214 (1973).

[9] Jeremy Bentham, *The Objects of International Law*, 2 *in* THE WORKS OF JEREMY BENTHAM , 536 (John Bowring ed., 1843).

securing perpetual peace.[10] Bentham did not seek to codify the Law of Nations in existence at the time, but rather was proposing a codified international law which could be the foundation for perpetual peace.[11] Other efforts were made in the late eighteenth century to codify international law. In 1792, for example, in the aftermath of the French Revolution, the French Convention sought to create a Declaration of the Rights of Nations to accompany the Declaration of the Rights of Man.[12] Abbé Grégoire prepared draft articles for this Declaration, but they were not approved by the Convention, and then were forgotten about.[13]

More serious efforts at codification of international law became more prevalent in the latter half of the nineteenth century. This codification movement started gaining traction in the 1860s, with international jurists from Austria, Russia, United States, and Switzerland proposing to codify the Law of Nations, and drafting actual codes.[14] In the 1870s, Field and Mancini also proposed reforms and codification of international law.[15] These efforts culminated in the end of the nineteenth century with the Peace Conference in the Hague in 1899, which sought to codify international laws.

The codification efforts in international law in the nineteenth century were part of a broader view of international law called positivism. Moving away from natural

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[10] *Id.* at 546–60.

[11] 1 LASSA OPPENHEIM, INTERNATIONAL LAW: A TREATISE, VOL. 1 PEACE 35 (2nd ed. 1912).

[12] *Id.* at 35.

[13] *Id.* at 35–6.

[14] 1 OPPENHEIM, *supra* note 11 at 36. These jurists included Alfons von Domin-Petrushevecz, Katschenowsky, Francis Lieber, and Bluntschli. *Id.* Luis Bara, a Belgian lawyer, won an award for best essay at the international peace congress of 1848 for his work, *La Science de la Paix* (1872), where he argued that the codification of international law was a necessary condition for abolishing war. *See* Irwin Abrams, *The Emergence of the International Law Societies*, 19:3 The Review of Politics 361, 363 (1957).

[15] *Id.* at 36.

law and embracing a more scientific approach toward international law,[16] codification efforts and the increase in number of treaties that started in the second half of the nineteenth century reflected this more positivistic approach to law. International legal positivism held the view that states were the central actors in the international legal order, the principal subjects of international law, and that international law could be more scientific by examining state consent through treaties. Appeals to scientific neutrality of international law were prominent among the early members of the IDI.[17]

These moves toward a positivist international law were also embraced by jurists such as Lassa Oppenheim, who described international law as a law of and between states.[18] For him, custom and treaties were the only sources of international law—again[19] reflecting his positivist view of the primacy of states and state consent in producing international law. Oppenheim saw international law as a science, or a tool that was merely a means to the ends of peace among nations and "governance of their intercourse," peaceful settlement of international disputes, and establishing laws of war.[20] He commended codification efforts, international arbitration, and popularizing international law.[21] While Oppenheim did not wholeheartedly agree with the proposition that codification would do away with international legal controversies, he felt that codification was a necessity, even if it might hinder the organic growth of

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[16] The meaning of the so-called "science" of international law has changed since the nineteenth century, but is often defined by a shared commitment to rationality, objectivity, and progress. *See* Anne Orford, *Scientific Reason and the Discipline of International Law*, 25 EUROPEAN JOURNAL OF INTERNATIONAL LAW 369 (2014).

[17] KOSKENNIEMI, *supra* note 1 at 61.

[18] 1 OPPENHEIM, *supra* note 11 at 4.

[19] *Id.* at 25.

[20] *Id.* at 314.

[21] *Id.* at 314–24.

customary law.[22] Nevertheless, he thought this problem could be overcome by periodical revisions of the code and gradual improvement over time.[23]

Antony Anghie has argued that the positivism that was prevalent in the nineteenth century was not just an attempt to render international law more scientific, but rather part of the broader interaction between Western and non-Western people during the peak of colonialism.[24] This was because positivism saw international law as formal law, such as treaties, and based on state consent, and those peoples that were not recognized as sovereign or as states were excluded from the European international legal system, thereby facilitating the imperial encounter.[25]

As Monica Rovira-Salmones has argued, positivism in international law has an economic normativity "designed to be at the service of commercial exchanges and offers a means to resolve conflicts of interests between private and public entities," and this normativity is adapted to "the conditions and foundations of modern capitalism."[26] This normativity, which she calls economic-positivism, tends to privilege economic interests over others, such as justice or ethics, and tends to appeal to seemingly apolitical concepts of "common" or "individual interests."[27]

Codification and harmonization efforts have long been premised on laissez-faire economic theories that prioritize individual interests, and they tend to favor commerce, free trade, and market liberalization.[28] International legal positivism and codification both attempted to make political choices technical issues that could be efficiently resolved through the scientific precision of international legal codes—a view

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[22] *Id.* at 41–2.

[23] *Id.* at 42.

[24] ANGHIE, *supra* note 3.

[25] *Id.*

[26] ROVIRA, *supra* note 5 at 1.

[27] *Id.* at 1–2.

[28] *Id.* at 4.

which in itself reflected a particular normative vision for international law premised on a division between political and economic interests.[29] These ideas would also later be picked up by Hans Kelsen in his view of international law as an objective science, inspired in part by the natural scientists of the nineteenth century.[30] Thus, common interests in the view of international legal positivists like Oppenheim could also be understood to refer to as the market as promoting union and progress for the so-called "Family of Nations" under a body of international law.[31]

That positivist international law and codification should favor commerce could also be seen in the division of the codification efforts into laws of war and laws of peace, where the laws of peace were mostly concerned with diplomatic, economic, and trade matters and were divided into public international law matters and private international law matters, but also included private law matters. The laws of war were meant to prevent conflict (and the consequent disruption of international economic relations) and regulate war, a last resort option for international disputes. International lawyers advocating for codification often noted that it was a necessity to meet the demands of the day, including the increasing (commercial) interdependence of the world,[32] Field included. Nineteenth century international lawyers believed that pacifism could be achieved through a "solidarity of interests" which free trade could facilitate—ideas which would continue into the twentieth century,[33] and well beyond into the twenty-first.

Praise for codification of international law by prominent international lawyers continued well into the twentieth century, where the establishment of the League of

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[29] *Id.* at 7, 78.

[30] *Id.* at 7–8.

[31] *Id.* at 77–8.

[32] *Id.* at 8.

[33] *Id.* at 36–7.

Nations and the Permanent Court of International Justice were seen by international lawyers such as Elihu Root as progress for international law and efforts to promote peace in the world.[34] The UN General Assembly, moreover, like the IDI, was formally tasked with "encouraging the progressive development of international law and its codification,"[35] for purposes of which it set up the International Law Commission.

III. David Dudley Field

David Dudley Field was one of the prominent figures in the early beginnings of international law as a professionalized discipline. He made numerous attempts to codify law by creating draft codes in the hopes that they would be adopted, both in the United States and in the law of nations. While some of his procedural codes were adopted in various states in the US, his efforts at the international level were less successful.

In addition to his efforts to reform the law of nations through a scientific code, he was actively involved in the process of the development and laying of the Atlantic Cable. Cyrus Field, the successful paper entrepreneur turned telegraphic cable investor and businessman, was his brother. He was actively involved in not only advising on legal matters but also in engaging with American and British politicians, and gave speeches upon the successful laying of the Atlantic Cable. The telegraph and cable businesses were some of the most profitable at the time. Like Hugo Grotius in his day who was a jurist on the law of nations and the law of the sea while he also served as counselor to the Dutch East India Company, Field was a jurist in the law of nations advocating international legal reform and codification while also serving as a counselor

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[34] Elihu Root, *The Codification of International Law*, 19 THE AMERICAN JOURNAL OF INTERNATIONAL LAW 675 (1925).
[35] U.N. Charter art. 13, para. 1(a).

to the New York, Newfoundland and London Telegraph Company on commercial cable projects.

The first son of a minister, the lineage of David Dudley Field could be traced to the De La Felds, which held a fiefdom in the ninth century in Alsace-Lorraine.[36] In the eleventh century, Sir Hubertus De La Feld received English lands as a grant for his service in the army of William the Conqueror.[37] His English lineage was part of the landed gentry class, and through the generations, the men in the family became scholars and noblesse oblige who committed their lives to service.[38] David Dudley Field's brothers became famous for their various endeavors, whether in politics, business, church, or law.[39]

Field's favorite subject at Williams College was mathematics. As a young man, he expressed curiosity about using mathematical precision to solve political problems: "Can political problems be solved with mathematical precision? If they can; in what way? And why may not problems in the other sciences which are not called exact admit of equal precision?"[40] In his later years, he attempted to bring more exactness and precision to the political and legal problems he witnessed and tried to help resolve through his legal reform and codification efforts, both domestically and internationally. His travels to Europe after the early death of his wife left an indelible mark on him, as he was impressed by the French and Italian legal systems and their codes and court

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[36] Michael Joseph Hobor, *The Form of the Law: David Dudley Field and the Codification Movement in New York, 1839-1888*, 1975.

[37] *Id.* at 70.

[38] *Id.* at 71.

[39] *Id.* at 72.

[40] *Id.* at 81. (citing David Dudley Field, "Common-Place Book," irregular pagination. The quote is listed as #20 in a collection labeled "Thoughts." Field Papers, Duke.).

systems.[41] While he had attended lectures by Frederick von Savigny and von Humboldt, he apparently was not moved to write about them in his diaries.[42]

Field opposed slavery, was a member of the Democratic Party, and felt that industry should be a cooperation between capital and labor. Field was a proponent of liberal individualism, which led him to support laissez-faire economic policies[43] and informed his theory of law as a guarantor of individual liberty and rights. When he studied political economy in college, in the time before the 1860s, ministers typically taught the subject, bridging laissez-faire economics with Christian morality through ideas of personal responsibility.[44] According to this view, the government had to refrain from interfering in economic affairs because it would conflict with ideas of individual liberty and freedom. Field was undoubtedly influenced by this idea, as evidenced in his position in the *Munn v. Illinois* case and his own personal writings. In *Munn v. Illinois*, 94 U.S. 113 (1877), a group of farmers had organized and obtained the passage of a law from the State of Illinois which regulated the rates grain elevators could charge them for storing their grains. Field represented Munn, a grain elevator owner, arguing that this law deprived him of his property rights and just compensation.[45] Field's brother, Supreme Court Justice Stephen Field, wrote an opinion in support of Munn, but the majority sided against him. Field was upset by the result which he believed interfered with personal liberty.[46] Field's idea of just law depended on the idea of just processes and application, which he felt would best be ensured through clear, comprehensive, and precise laws.[47] He felt the best way to

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[41] *Id.* at 93–4.

[42] *Id.* at 94.

[43] *Id.* at 116–18.

[44] *Id.* at 118–19.

[45] *Id.* at 120.

[46] *Id.* at 120.

[47] *Id.* at 131–2.

achieve this and the broader goals of a liberal society was through legal reform and codification, to both improve efficiencies in legal practice and resolve contradictions in the laws. Field and others supporting codification felt that it would support the needs of capitalist commerce by giving businesses greater legal certainty, and these efforts were largely supported by merchants and businessmen, especially in his domestic codification efforts based in New York City.[48]

Field had some success in having US states adopt his codes, as well as other countries adopting some of his codes, in India, England, Japan, Hong Kong, and Singapore. However, he suffered damaging attacks on his reputation after defending several capitalists and stock market manipulators, making him enemies that would fight his efforts at further legal reforms in the US. He then turned his efforts at legal codification at the international level. Perhaps his turn to the 'international' signified his disillusionment with his aims of promoting legal reform domestically for several decades. Like other international policymakers, he might have seen the international or the global as a place where progressive projects of governance could take place.[49] Yet, he may have both overestimated the benefits of codification, and underestimated its harms.[50]

Given the damage to his reputation in the US and so many lawyers that had turned against him in New York in the later years of his career, it is not clear to what extent Field's work on international legal codification had an effect on US foreign policy. Nevertheless, he was probably influenced by events and technologies of the time. The Monroe Doctrine (1833), the *Alabama* affair (1872), and the eventual success

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[48] *Id.* at 156.

[49] David Kennedy, *The Politics of the Invisible College: International Governance and the Politics of Expertise*, 2000 EUROPEAN HUMAN RIGHTS LAW REVIEW 463 (2001).

[50] *Id.*

of the Atlantic Cable no doubt contributed to his views on reform, codification, and arbitration at the international level.

As Briggs has noted:

> His abiding interest in codification as a method of law reform, as well as in providing 'a uniform system of rules for the guidance of nations and their citizens,' had been reinforced by the then current search for agreed rules of international law on the basis of which the American *Alabama* claims against England could be arbitrated, and by the successful attempt, after numerous failures, of his distinguished brother, Cyrus W. Field, to lay the Atlantic cable, a bond which David Dudley Field thought could be more closely forced by agreement on an international code.[51]

In any case, Field firmly believed in international law as a science that could be perfected through increased precision in the form of codification.

A. The Influence of Telegraphic Cables on Field

Field was hugely optimistic about the potential of the telegraph to promote peace and goodwill among the people of the world. In one celebratory speech, he said:

> How great will be the effect of all this upon the civilization of the human race, I do not pretend to foresee. But this I foresee, as all men may, that the necessities of governments, the thirst for knowledge, and the restless activity of commerce will make the telegraph girdle the earth and bind it in a network of electric wire. (…) Then the different races and nations of men will stand, as it were, in the presence of one another. They will know one another better. They will act and react upon one another. They may be moved by common sympathies and swayed by common interests. Thus the electric spark is the true Promethean fire, which is to kindle human hearts. Then will men learn

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[51] *See* Herbert Whittaker Briggs, David Dudley Field and the Codification of International Law (1805-1894), *in* INSTITUT DE DROIT INTERNATIONAL: LIVRE DU CENTENAIRE 1873-1973: EVOLUTION ET PERSPECTIVES DU DROIT INTERNATIONAL 69 (Institute of International Law, ed. 1975).

that they are brethren, and that it is not less their interest than their duty to cultivate good-will and peace throughout all the earth.[52]

Moreover, he used cables as a metaphor for the legislative process and the need for rules of procedure in his insistent pleas for legal reform, also in the US:

> Those rules of procedure, which have been carefully framed in order to prevent undue haste in the passing of bills, are commonly set aside, 'suspended' the process is called, near the close of the session, they very time when they are most needed. The master of a ship would be thought insane who, coming from fair weather and smooth seas upon a lee-shore and seeing a heavy gale rising, should let his sails run loose, call off his lookout, and throw away his cables and anchors. What would befall him is easy to tell.[53]

Cables also informed his approach to international matters and the laws of nations, where he foresaw the belligerent cutting of cables as a tactic of warfare, and pleaded for the codification of rules that would govern and discipline such conduct. In a "Memoir" addressed to the IDI at Heidelberg in September 1887, he called for establishing a permanent tribunal or arbiter to arbitrate disputes between nations as an alternative to resorting to war.[54] Should war be inevitable, he proposed a set of "ameliorations of the laws of war" that he felt were more attuned to the needs of time. In one such proposal, submarine telegraphs, communications, and the world being closer together played a prominent role in the need for not suspending treaties between nations in times of war:

> It is neither consonant with reason, nor compatible with the material interests of this generation, that the old rule should continue to prevail, which discharged all obligations of treaties between two nations as soon as they fell into war with each other. Men are brought into closer

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[52] DAVID DUDLEY FIELD, SPEECHES, ARGUMENTS, AND MISCELLANEOUS PAPERS OF DAVID DUDLEY FIELD, VOLUME 3 79 (Abram Pulling Sprague ed., 1884).

[53] *Id.* at 307.

[54] *Id.* at 323.

relations with one another than they ever were brought before. They speak together, though they happen to stand on opposite sides of the earth . . . it is indispensable that international agreements should be made between nations, and that these agreements where made should not be broken. Men . . . will have telegraphs under the sea, and fastened to many lands, and (*326) they will not suffer the messages between friendly peoples to be stopped because other peoples become unfriendly . . . . Conventions for the neutralization of international canals, for the protection of sea-cables, for the beneficent work of the Red Cross Society, are binding upon the faith of nations, however hotly they may be embroiled in war.[55]

In yet another reference to the telegraph, and technologies more generally, as a justification for legal reform projects for new legal codes, he addressed one of his counter-arguments as follows:

A third sophism is this one: We have grown strong and prosperous without a code, why get one now? What need is there of a change? Yes, we got on very well without steamers, railways, or telegraphs, a century ago; we built up cities; we founded States; we sent forth armies and navies; we made and administered a great many good laws. But what have inventors and legislators been doing in these hundred years? Are their works not worth having?[56]

Finally, he made a direct analogy between legal codes and telegraphic codes as a further support for his codification efforts:

There is nothing in the name of code to frighten anybody. We are used to it. There is a code of rules for this society and for that; for the Produce Exchange, the Stock Exchange and other exchanges; the doctors have a code for their practitioners; there is a bankers' code and an education code; there is a code of signals for the sea, and there is even a code for telegraphic messages. It would (*243) be hard if, with all these codes, we could not have a code of laws.[57]

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[55] *Id.* at 325–6.

[56] *Id.* at 242.

[57] *Id.* at 242–3.

His American background and experience with common law did not hinder his efforts at codification. He further emphasized the point that in contrast to claims that the common law cannot be codified, it was just like many other things which scholars had claimed would be impossible, like the steamship and the Atlantic telegraph.[58]

Field saw increasing intercourse between the people of the world as a justification for an international legal code. As the people of the world could be in direct communication with others anywhere located, he felt that increased intercourse among peoples would lead to increasing assimilation, favoring the adoption of a single body of laws to govern their relations. As he witnessed that countries such as Germany, Italy, and the United States became unified and therefore needed to live and be governed by unified public laws, he saw the need for a uniform body of public law to govern the nations and citizens of the world.[59]

He saw the arts and advances in science and technology as universal to the human race, and that the advancement of one nation's interests as advancing the rest. In an address he delivered in 1867 on the community of nations, he said:

> It appears to me that the true interests of nations are in a great measure coincident, and that the real advancement of one is not only not incompatible with, but is promoted by, the real advancement of the rest. (…). The invention of your Watt has made steam to do man's work all over the earth; the invention of our Fulton has sent the steamer into every river and sea; the genius of your Stephenson has driven the car with its horse of fire over the plains of France, and through the gorges of Italian mountains; and the genius of our Morse has bound continents and seas with a net-work of electric wire. (…).

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[58] *Id.* at 251.

[59] DAVID DUDLEY FIELD, AN INTERNATIONAL CODE: ADDRESS ON THIS SUBJECT, BEFORE THE SOCIAL SCIENCE ASSOCIATION, AT MANCHESTER, OCTOBER 5, 1866 / BY DAVID DUDLEY FIELD. 10–11 (1867).

Genius is universal.[60]

Just as he remarked that commerce would make the telegraph "girdle the earth and bind it in a network of electric wire,"[61] so too did he see the need for an international body of rules that would "encircle the world:"

> Peace and war, in their multitudinous relations, affecting every pursuit and all conditions of men; these are defined, treated and regulated by that all comprehending body of rules which spread all over and encircle the world.[62]

Yet, he acknowledged, just as the telegraphic cable excluded many parts of the world, so too was international law criticized for being made by and for "Christian States." Nevertheless, he saw international law as a necessity to better define relations between the Occident and the Orient and further justification for reforming and codifying international law.[63] His ideas about the need to expand international law to include Oriental nations, or non-Christian nations, were also informed by his voyages around the world.[64]

On the centennial anniversary of American independence in 1876, Field saw the American role in the development and progress of the law of nations as an important one, if not a leader in the development of international law. He noted that despite the prevalence of war during that century, there was an increasing intercourse among nations as seen by the increasing number of treaties and the extension of the

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[60] DAVID DUDLEY FIELD, ADDRESS ON THE COMMUNITY OF NATIONS; DELIVERED BY DAVID DUDLEY FIELD, AT THE BELFAST CONGRESS OF THE SOCIAL SCIENCE ASSOCIATION, SEPTEMBER, 1867 4 (1867).

[61] FIELD, *supra* note 52 at 79.

[62] DAVID DUDLEY FIELD, ASSOCIATION FOR THE REFORM AND CODIFICATION OF THE LAW OF NATIONS: ITS HISTORY AND AIMS; ADDRESS IN RESPONSE TO THE ADDRESS OF WELCOME MADE BY THE COMMITTEE OF THE STATES GENERAL, AT THE HAGUE, SEPTEMBER 1, 1875. 5 (1875).

[63] *Id.* at 5–6.

[64] DAVID DUDLEY FIELD, APPLICABILITY OF INTERNATIONAL LAW TO ORIENTAL NATIONS: PAPER PRESENTED TO THE INSTITUTE OF INTERNATIONAL LAW (1875).

international law to the "oriental nations."[65] He also noted that this intercourse was witnessed by "the ever increasing tendency to common systems of postal correspondence . . . and the regulation of co-terminous railways and telegraphs by land and sea."[66] With regard to war, he noted that the American contribution to international law was to provide the foundation for international arbitration as a means to settle disputes as an alternative to war.[67]

Field also contributed to structuring the global media and communication system of telegraphic cables based on his intimate knowledge of international law and his efforts to advance its progress for the aim of a "universal" peace and "civilization."[68] Both international law reform and global communications through the telegraph could help promote these aims. As Müller describes:

> The mid-nineteenth-century notion of an electric union and the pacifist concepts connected with it are some of the first expressions of a global imaginary in the history of modern globalization. For the cable actors, these discourses formed their economic and political realm of action—they were duly implemented into their sales rhetoric—and influenced their cultural way of thinking. A variety of explanatory ideologies nourished contemporaries' understanding of universal peace between the 1850s and the First World War, drawing from the political-economic philosophy of Manchester Liberalism, the idea of a *Societas Christiana*, or *l'esprit d'internationalité*. All of these ideologies were expressions of an elitist worldview that unthinkingly excluded the vast majority of the planet. Finally, telegraphy also functioned as an instrument for Euro-America's civilizing mission—a

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[65] David Dudley Field, *AMERICAN CONTRIBUTIONS TO INTERNATIONAL LAW: A PAPER READ BY DAVID DUDLEY FIELD, BEFORE THE INTERNATIONAL CODE COMMITTEE, AT PHILADELPHIA, SEPTEMBER 29, 1876.*, 14 THE ALBANY LAW JOURNAL; A WEEKLY RECORD OF THE LAW AND THE LAWYERS (1870-1908) 257 (1876).

[66] *Id.*

[67] *Id.*

[68] SIMONE MÜLLER, WIRING THE WORLD: THE SOCIAL AND CULTURAL CREATION OF GLOBAL TELEGRAPH NETWORKS 83 (2016).

concept that is inextricably linked to the notion of the telegraphic progress as well as the engineer as the "great civilizer." All of these ideas were inherently connected to the expansion of submarine telegraphy. They are verifications of an underlying philosophy of technology that expressed itself in the utopian and Eurocentric ideas of a world society of "kindred nations" in a world that was progressively "civilizing" itself according to the European model. During the Great Atlantic Cable undertaking, these ideas of universal peace and telegraphy's civilizing mission were as prevalent and important to the undertaking as the furtherance of world trade and economic prosperity.[69]

Thus, Field was part of two "civilizing" projects of the nineteenth century, both of which promised universal peace and reflected *l'esprit d'internationalité* of the time—international legal codification and the submarine telegraphic cable connecting the Anglo-American territories across the Atlantic. Both projects reflected liberal ideas of universal peace through the facilitation and protection of free trade.

B. Field's Codes

Field first proposed a code for international law in Manchester, England in 1866, during a meeting of the British Association for the Promotion of Social Science.[70] He was able to form a committee for preparing an international code, but as the committee failed to prepare one, Field decided to take matters into his own hands and draft the international code himself.[71]

In his *Draft Outlines of an International Code*, first published in 1872, he dealt with the laws of peace.[72] In 1876, he published a second edition of his codes, which added new sections on the laws of war.[73] In his *Draft Outlines*, Field proposed legal reforms

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[69] *Id.* at 84.

[70] MARK WESTON JANIS, AMERICA AND THE LAW OF NATIONS 1776-1939 120 (2010).

[71] *Id.* at 120.

[72] DAVID DUDLEY FIELD, DRAFT OUTLINES OF AN INTERNATIONAL CODE (1872).

[73] DAVID DUDLEY FIELD, DRAFT OUTLINES OF AN INTERNATIONAL CODE (2nd ed. 1876).

aligned with nineteenth century imperialism and the Monroe Doctrine.[74] Article 77, for example, provided that colonization was permissible, stating that a "nation has for itself and each of its members the right to explore any territory not within the territorial limits of a civilized nation."[75] Moreover, consistent with the Monroe Doctrine, Article 78 provided that "[t]he continents of Europe, Asia, and America are, in every part, under the dominion of established government, and are not subject to colonization or settlement, in any portion thereof, except with the consent of such government,"[76] which notably excluded Africa.[77]

That Field sought to promote global commerce through an international code was obvious, even to his contemporaries. Howard Payson Wilds, for example, understood Field's international code as one that was to protect and encourage global commerce "in every possible manner."[78] This was accomplished through the recognition and protection of property rights and the recognition of a public offense for "every act of plunder and violence on the high seas," including "persons who without authority from the owner, and with intent to injure any person or nation, remove, destroy, disturb, obstruct or injure any oceanic telegraphic cable not their own, or any part thereof".[79] He also sought to encourage the construction of telegraphs "by allowing, subject to the rights and obligations attaching to private property, the landing of submarine telegraphic cables on the shores of any nation, forbidding exclusive concessions, except on consent of both nations concerned, and relinquishing

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[74] JANIS, *supra* note 70 at 122.

[75] FIELD, *supra* note 72 at 30.

[76] *Id.* at 30.

[77] JANIS, *supra* note 70 at 122.

[78] Howard Payson Wilds, *Field's International Code*, 20 THE AMERICAN LAW REGISTER (1852-1891) 337, 339 (1872).

[79] *Id.* at 339.

government scrutiny at either end of the line . . . .”[80] Field's *Draft Outlines* provided

that "any person may land submarine telegraphic cables on the shores of any nation,

and work the same . . . and subject to the rights and obligations attaching to private

property." Many of the provisions of Title XV of Field's *Draft Outlines* on Telegraphs

were derived from the International Telegraph Conference, or the Vienna Convention

of 1868.[81]

His involvement in the IDI contributed to his influence, even if the codes were

not ultimately adopted based on his draft and his legal codes were met with some

resistance. His fellow founders of the IDI, Albéric Rolin (Gustave's brother) and

Pierantoni (son-in-law of Mancini), translated his *Draft Outlines* into French and Italian,

respectively.[82] Within the IDI, Field had some influence in helping push through draft

guidelines for legal reform. For example, the IDI adopted the Draft Regulations for

International Arbitral Procedure which were prepared by a committee for which Field

served as President.[83] While the codification of the laws of war in The Hague

Conferences were largely inspired by Francis Lieber's The Lieber Code,[84] he was

successful in helping advocate for the Cable Convention of 1884.

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[80] *Id.* at 342.

[81] FIELD, *supra* note 72 at 46–50.

[82] *See* Herbert Whittaker Briggs, David Dudley Field and the Codification of International Law (1805-1894), *in* INSTITUT DE DROIT INTERNATIONAL: LIVRE DU CENTENAIRE 1873-1973: EVOLUTION ET PERSPECTIVES DU DROIT INTERNATIONAL 70 (Institute of International Law, ed. 1975); David Dudley Field, "Prime linee di un codice internazionale del giurista americano David Dudley Field precedute da un lavoro originale 'La riforma del diritto delle genti e l'Istituto di Diritto Internazionale di Gand' del traduttore Augusto Pierantoni" (Augusto Pierantoni trans. 1874); David Dudley Field, "Projet d'un Code International par David Dudley Field" (Albéric Rolin trans. 1881).

[83] RESOLUTIONS OF THE INSTITUTE OF INTERNATIONAL LAW DEALING WITH THE LAW OF NATIONS, WITH AN HISTORICAL INTRODUCTION AND EXPLANATORY NOTES 1 (James Brown Scott, trans. & ed. 1916).

[84] Arthur Eyffinger, *Tobias Asser's Legacy: The Pertinence of the Institut de droit international to The Hague*, 66 NETHERLANDS INTERNATIONAL LAW REVIEW 313, 321 (2019).

Although Field and other Americans were seeking to bring obtain political influence which deviated from the Europeans' view of the IDI as a purely scientific organization,[85] his reform efforts reflected an apolitical view on the political problems of the world. Like other positivist international jurists of the time, he believed that many of the problems of the world, such as war, were due to a lack of a universal code of international law that could clarify ambiguities and rectify inconsistencies in various laws, and thus could be fixed through technical means. For these reformers, there was nothing indeterminate about the law itself,[86] but rather indeterminacy was a consequence of legal gaps that needed to be filled. As we shall see later, this view reflected a technological sensibility of international law that was premised on liberalism, which was later critiqued for its problematic assumptions and normative consequences. Moreover, the increasing tendency of international law to become more technical over the years has resulted in fragmentation of legal regimes based on functionalism and expertise. This has contributed to many of the problems international law faces, such as marginalization, lack of normative force, and that its own fundamental premises are part of the reason for the world's problems.[87]

IV. "Every Thing About Us Is International"

As Koskenniemi describes, the *Revue de droit* was born in a climate of "reformist spirit," to which parallels could be found in an 1864 essay by Charles Vergé, in which he:

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[85] KOSKENNIEMI, *supra* note 1 at 40–41.

[86] Admittedly, it would be anachronistic to consider that this proposition would even be considered then by international jurists. Structuralist critiques of international law and its indeterminacy would only come much later at the end of the twentieth century. On the structural indeterminacy of international legal argumentation, *see* MARTTI KOSKENNIEMI, FROM APOLOGY TO UTOPIA: THE STRUCTURE OF INTERNATIONAL LEGAL ARGUMENT (Reissue ed. 2006).

[87] Martti Koskenniemi, *The Fate of Public International Law: Between Technique and Politics*, 70 MODERN L. REV. 1 (2007).

Enthusiastically described the developments that had in the past half-century brought European peoples closer to each other. Economic relations had come to be based on division of labor, making States increasingly interdependent. Liberation of trade had been carried out through new agreements, abolishing customs and other duties, and providing for freedom of navigation in International waterways. New technology — railways, telegraph, postal connections—disseminated new ideas with unprecedented efficiency. (…). Even the new financial system brought States closer through rapid movements of capital over boundaries—"*L'argent n'avais jamais eu de patrie.*"[88]

These transformations, for Vergé, were "symbols of a universal law."[89]

It was in this reformist spirit that Field participated in, and helped establish, the international law institutions that were newly developing. Before helping establish the IDI along with fellow founding members Gustave Rolin-Jaequemyns, James Lorimer, Tobias M.C. Asser, Carlos Calvo, Johann Kaspar Bluntschli, Augusto Pierantoni, Gustave Moynier, Emile de Laveleye, Pasquale Stanislao Mancini, and Vladimir Bésobrasof, Field also participated in the creation of the Association for the Reform and Codification of the Law of Nations in Brussels (which changed its name to International Law Association in 1895) (Association), for which he served as President, and the United States International Code Committee (Committee) in the United States in 1873. The latter had the objective of "promoting the reform and codification of the law of nations."[90]

The Association then helped establish the IDI in Brussels that same year. The IDI was founded for the purpose of advancing the "progress of international law, by endeavouring to become the organ of the legal conscience of the civilized world." It was also to formulate the general principles of the science of international law and aid

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[88] KOSKENNIEMI, *supra* note 1 at 27.

[89] *Id.* at 27.

[90] Field, *supra* note 65.

any "serious attempt at a gradual and progressive codification of international law." The telegraph also played a role in the formation of the IDI and the idea of having conferences on international law for collective scientific activity, just as other fields of thought were doing. Rolin, for example, noted that organizing international scientific meetings was made easier by the new communications technologies of the day, and that it was an "essentially modern" idea to have an organization committed to the science of international law.[91] Pierantoni also noted that new interests in economics and communications in the late nineteenth century "would help spread law and justice throughout the world and build a new international law."[92]

Field saw these institutions as equally important in the development and progress of international law, albeit each had slightly different objectives. In his words:

> [W]hile the [IDI] was to be regarded as an exclusively scientific body, the aim of which was to favour the progress of international law, formulate its general principles, and aid every serious effort at its gradual and progressive codification, the Association was a body composed not only of jurists, but also of statesmen, economists, and philanthropists, the aim of which was to favour the progress of international law, in its practical application and in public opinion.[93]

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[91] KOSKENNIEMI, *supra* note 1 at 41.

[92] Liliana Obregón, *Normative Histories of the World Written in the Long European Century*, *in* CREATING COMMUNITY AND ORDERING THE WORLD: THE EUROPEAN SHADOW OF THE PAST, AND FUTURE OF THE PRESENT : REPORT FROM THE RESEARCH PROJECT "EUROPE BETWEEN RESTORATION AND REVOLUTION, NATIONAL CONSTITUTIONS AND INTERNATIONAL LAW : AN ALTERNATIVE VIEW ON THE CENTURY 1815-1914" ; FINANCED BY THE EUROPEAN RESEARCH COUNCIL (2009-2014) , 67 (Martti Koskenniemi & Bo Stråth eds., 2014), http://www.helsinki.fi/erere/pdfs/erere_final_report_2014.pdf (last visited Jul 29, 2020).

[93] FIELD, *supra* note 62 at 1–2.

The Association, in part due to its diverse membership which included merchants and businessmen, ultimately had a more commercial inclination than the IDI, which was thought of as a more scientific body.[94]

The IDI took on not only questions dealing with the laws of war, but also the laws of peace. Prominent among the latter were the rules governing undersea cables, as the Institute saw international communications as a high priority issue. Its call for an international agreement governing protection of submarine cables in 1879 led to the 1884 Cable Convention.[95] The founders of the IDI, referring to themselves as the "conscience of the civilized world," viewed themselves as part of a scientific organization that could help promote international legal principles in ways that states, politicians, and diplomats had failed to do, thereby helping establish international law as a distinct professional discipline.

Francis Lieber, the author of the *Instructions for the Government of Armies of the United States in the Field of 1863*, written at Abraham Lincoln's request during the American Civil War, made one of the first efforts to codify the laws of war. Lieber's codes inspired Bluntschli to codify the law of nations, and provided the impetus for other international law codification efforts.[96] Yet, Lieber did not agree with Field's efforts to codify international law. Lieber proposed the idea of a conference for scholars of international law in a letter to Rolin-Jacquemyn, which helped inspire the establishment of the IDI.[97] He felt that a private conference of jurists to settle important issues of international law was more important than a codified law of

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[94] Fitzmaurice, *supra* note 8 at 222–23.

[95] *Id.* at 229.

[96] Irwin Abrams, *The Emergence of the International Law Societies*, 19 THE REVIEW OF POLITICS 361, 368 (1957).

[97] *Id.* at 367–68.

nations because it would be more authoritative than writing down a set of laws and trying to convince governments to adopt it.[98]

Rolin-Jacquemyns and the other members of the IDI did not agree with Field's idea of codifying international law, deciding to leave the work of codification to the Association.[99] The Association held a second meeting in Ghent in 1874, where it passed a resolution to base the codification of different sections of international law on Field's *Draft Outlines of an International Code*, published in 1872.[100]

In an address to the meeting of the Committee in 1876, Field proudly remarked about the Committee, "Every thing about us is international. Within these walls, man is not so much American or English, French or German, as he is a member of the human family."[101] This quote invoked the spirit of the time. His internationalism was a liberal internationalism that was to be spread throughout the world by a small group of European and American male lawyers with an internationalist mindset who represented the "conscience of the civilized world." This distinction between the civilized and the non-civilized was one means by which international law facilitated European expansion, exploitation, and empire, including in the Berlin Conference of 1884-85.[102] So, when saying everything about us is international, Field may as well have been referring to the internationalist mindset, as it was obvious that the membership of the "human family" to which he referred was a highly exclusive one.

A. Codification of the Laws of War

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[98] *Id.* at 369.

[99] *Id.* at 377.

[100] THE PROPOSED CODIFICATION AND REFORM OF THE INTERNATIONAL LAW, , 9 THE AMERICAN LAW REVIEW (1866-1906) 181, 181 (1875).

[101] Field, *supra* note 65.

[102] KOSKENNIEMI, *supra* note 1 at 121–27.

Field reiterated the need for a codified body of the laws of war on numerous occasions. He considered war "the greatest scourge of the human race."[103] The various efforts of the lawyers and institutions that were advocating for the reform and codification of international law in the late nineteenth century culminated in the Hague Conventions of 1899 and 1907, which codified the laws of war.[104]

The Hague Conventions were largely built off of the Declaration of Brussels of 1874, which the IDI endorsed in 1875.[105] The Hague conferences transformed international relations, providing a way to codify rules that would govern states in times of war, and were made possible in part due to the efforts of the IDI. The IDI's reports and resolutions became a resource for delegates to refer to in the Conventions, and several members of the IDI attended the conferences as delegates themselves.[106]

The Peace Conferences were aimed at peaceful settlement of disputes, arms limitations, and laws of war. Among other things, the Hague Peace Conference of 1899 created the Permanent Court of Arbitration, established soon thereafter in The Hague in 1900, and established the laws and customs of war. Moreover, delegates called for a special convention for the protection of submarine cables on the heels of the Spanish-American War of 1898, where protection of cables was necessary to protect the interests of not only states, but also cable companies and their investors.[107]

B.   Advocacy for International Arbitration

By 1890, at 85 years old, Field became the President of the International Peace Convention, which aimed to promote world peace through international law. Had he

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[103] FIELD, *supra* note 59 at 7.

[104] Fitzmaurice, *supra* note 8 at 225.

[105] *Id.* at 225.

[106] GABRIELA A. FREI, GREAT BRITAIN, INTERNATIONAL LAW, AND THE EVOLUTION OF MARITIME STRATEGIC THOUGHT, 1856-1914 101 (2020).

[107] MÜLLER, *supra* note 68 at 104.

still been alive, Field would have surely been delighted to know that the end of the nineteenth century witnessed the establishment of the Permanent Court of Arbitration in The Hague.

In 1872, the success of the *Alabama* arbitration in preventing hostility between the United States and the United Kingdom provided hopes that arbitration could be a successful means of avoiding and preventing military conflict. Increasing use of arbitration was part of the capitalist expansion that was prevalent at the time. Field's advocacy for the geographic expansion of international law, its progress through codification, and the arbitration of disputes as an alternative to war, was surely connected to the American sensibility of "commercial universalism"[108] in the late nineteenth century as it was emerging as an informal empire of its own.[109]

V. The Technological Sensibility of International Law Codification

Field's efforts to codify international law sprang from both the morals of his Christian faith and his belief in formalism premised on ideals of liberalism. In the twentieth century, Carl Schmitt strongly criticized formalism, associating it with a liberalism "that fused the State with economy, technology, and ultimately 'society,' in a way that lost sight of the political."[110] In other words, formalism would turn law into an apolitical technology. As Koskenniemi describes:

> It was a delusion to think that political problems could be solved by technology: even as technology was neutral as such, it was completely political in its uses. The characterization of the era as 'technological' could be only preliminary: we can give a final verdict only after we have

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[108] Martti Koskenniemi, *Book Review, Mark Weston Janis, The American Tradition of International Law. Vol. 1: Great Expectations, 1789-1914*, 100 THE AMERICAN JOURNAL OF INTERNATIONAL LAW 266, 269 (2006).

[109] DANIEL IMMERWAHR, HOW TO HIDE AN EMPIRE: A HISTORY OF THE GREATER UNITED STATES (2019).

[110] KOSKENNIEMI, *supra* note 1 at 430.

seen what kind of politics it advanced.[111]

Field's technological view of law informed his codification efforts. Yet this view was premised on liberal ideas that were often in contrast to democratic ideals. This technological sensibility toward international law codification was not unique to Field, but his direct experiences and familial connection with the telegraphic cable and his frequent metaphoric references between telegraphic code and international legal code, and analogies between telegraphic wires and international law encircling the earth indicated that he had personally invested in both projects and wanted to see them succeed. In many ways, the success of each project depended on the success of the other. His knowledge of international law informed his counsel to his brother's company, the New York, Newfoundland and London Telegraph Company for obtaining territorial concessions for cable landings, such as a monopoly on landing rights in Newfoundland,[112] and also in advocating codification of laws of peace that directly related to submarine cables. Cables were technologies that represented ever-increasing economic and commercial interdependence, and Anglo-American domination throughout the world. His economic-positivism and technological sensibility was thoroughly consistent with his ideal of a universalized code of international law.

VI. Conclusion: International Law as "Code"

As this chapter has argued, attempts to codify international law starting in the late nineteenth century were influenced by, among other things, the technological developments of the time. They reflected a positivist view of international law as a "science" as the discipline was slowly emerging as a professionalized one on par with

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[111] *Id.* at 430.

[112] MÜLLER, *supra* note 68 at 23.

other fields such as the natural sciences and economics, but also due to the increasing influence of the German positivist legal tradition that was part of the first globalization of law and legal thought.[113]

This scientific view of law, and more specifically, the 'law of nations,' influenced the early leaders in the professionalization of the discipline, such as the founders of the IDI. American lawyer David Dudley Field attempted to transform international law into a codified body of law that could more easily globalize. Due to his significant involvement in the development and business of the submarine telegraphic cable, where commerce, communications, and techno-utopianism met, his motivations and ideas in international law might have been influenced by his lived experiences as a counselor to the New York, Newfoundland and London Telegraph Company, and by his brother, Cyrus Field, one of the primary businessmen and developers of the Atlantic Cable in the United States.

Field was not alone in his efforts to codify international law, but he was among the first to attempt a comprehensive codification of international law beyond one area, such as maritime law or the laws of war.[114] What set him apart, moreover, was his personal experiences with the Atlantic Cable, which seemed to be never far from his mind when he made speeches and advocated for international legal codification and arbitration. Though ultimately not adopted by nations then, his influence on the establishment and development of the International Code Committee and the IDI with the express objective of furthering "the progress of international law" through

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[113] Duncan Kennedy, *Three Globalizations of Law and Legal Thought: 1850–2000*, *in* THE NEW LAW AND ECONOMIC DEVELOPMENT 19–73 (David M. Trubek & Alvaro Santos eds., 2006).

[114] Edwin Maxey, *Development of International Law.: III. From American Independence to the Present*, 40 THE AMERICAN LAW REVIEW (1866-1906) 188 (1906). German-American jurist Francis Lieber, later a law professor at Columbia University, also proposed codification of the laws of war. The Lieber Code was adopted by then United States President Abraham Lincoln in the US Civil War, and later became the foundation for the Geneva Conventions governing the conduct of warfare. *See id.*

its codification helped set the foundation for further efforts to codify international law which continue today.

Perhaps more significantly, Field's efforts to reform international law highlighted the ways in which international law, like the telegraph, was a handmaiden to commerce. Just as Grotius' involvement with the Dutch East India Company indicated the close ties between international law and capitalism, so too did David Dudley Field's involvement in telegraphic cable projects with his brother Cyrus Field and his advocacy of international law reform, not to mention international law's and telegraphic cable projects' connections to facilitating imperialism.[115] David Dudley Field's contribution to the field of international law incorporated a technological sensibility of the law. While David Dudley Field may have viewed international law as a professional project of legal reform to be codified and universalized, the question is then, what and whose purposes would be served by a codified international law? His own belief in promoting a liberal global society and laissez-faire economic policy might provide one answer. As one of Field's contemporaries noted, his international legal codification project "cannot fail to advance the progress of liberal principles in international relations."[116]

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[115] *See* Chapter Two.

[116] FIELD'S INTERNATIONAL CODE, , THE ALBANY LAW JOURNAL; A WEEKLY RECORD OF THE LAW AND THE LAWYERS (1870-1908) 84 (1872).

CHAPTER FOUR

"OF NATIONS LINKED TOGETHER": CABLES, THE LEAGUE OF NATIONS & THE CONSTRUCTION OF IMAGINED GLOBAL COMMUNITIES

"Surf-bound, lonely islet,
Set in a summer sea,
Work of a tiny insect
A lesson I learn from Thee—
For to your foam-white shores
The deep sea cables come;
Through slippery ooze, by feathery palm
Flies by the busy hum
Of Nations linked together,
The young with the older lands,
A moment's space, and the Northern tale
Is placed in Southern hands."
Ernest Shackleton[1]

I. Introduction

In the early twentieth century, science and technology were seen as holding the promise of peace, prosperity, and uniting the world in ways that politics, diplomacy, law, and international organizations could not. In physicist Arthur Schuster's view, scientific investigation exposed "the artificial nature of political boundaries" and the idea of "national characteristics," such that he boldly claimed in 1906 that "it will fall

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[1] NICOLE STAROSIELSKI, THE UNDERSEA NETWORK 193 (2015) (citing Ernest Shackleton, "Fanning Island").

to the men of science and learning to preserve the peace of the world."[2] Science was

seen as unifying the world, and in turn, "the fundamental unity of the world was a

scientific fact."[3]

Early models of social theory proposed that societies could be modeled off of

biology and organisms.[4] Scientists also made profound shifts in trying to model society

based on the laboratory.[5] Science, scientific methods, and technological tools provided

the means for, and represented, particular visions of social progress. These ideas had

profound effects on knowledge, reinscribing ontological boundaries between nature

and culture, and human and nonhuman.[6] Faith in the idea that society and man could

be engineered to perfection, or at least improved upon, not only underlied motivations

for establishing international organizations like the League of Nations, it also had

dangerous implications, such as Francis Galton's establishment of the field of

eugenics.[7]

Schuster's view, along with many others at the time, that science and

technology could bring the world closer together, were set against a backdrop of

growing nationalism in the early twentieth century. With regard to undersea cables, as

we shall see, similar imaginaries and narratives were prominent, especially with regard

to the idea that they would bring the world closer together and that nations could be

linked through cables and the communications they enabled. In this way, undersea

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[2] MARK MAZOWER, GOVERNING THE WORLD: THE HISTORY OF AN IDEA, 1815 TO THE PRESENT 94 (2012) (citing Arthur Schuster, *International Science*, Nature 74 (1906).)

[3] *Id.* at 95.

[4] *Id.* at 97.; FRITJA CAPRA & UGO MATTEI, THE ECOLOGY OF LAW: TOWARD A LEGAL SYSTEM IN TUNE WITH NATURE AND COMMUNITY (2015).

[5] Bruno Latour, *Give Me a Laboratory and I Will Raise the World*, *in* THE SCIENCE STUDIES READER (Mario Biagioli ed., 1999).

[6] BRUNO LATOUR, WE HAVE NEVER BEEN MODERN (Catherine Porter tran., 1993).

[7] MAZOWER, *supra* note 2 at 98–99.

cables transformed political and international legal thought by enabling imagining the nation beyond the confines of the territorial of nation-states. While the role of technology in helping shape national identities has been explored by other scholars in the field of STS, the national identities explored were of national identities within territorially bounded states, such as France and Austria,[8] rather than ones that transcended political boundaries tied to territory.

Historian Charles Maier has noted that the "communication space" has never followed territorial limits.[9] The flow of information and communications around the world helped facilitate and organize the "movement of globalization."[10] Moreover, Bashford has argued that the origins of global population management lay in the interwar period, with the League of Nations.[11] It is in this period, she argues, that population management transitioned from international (between nations) to 'global.'[12]

In the nineteenth century, the submarine telegraph cable represented new utopian political possibilities, but was in reality a disciplinary and governing tool, especially in Britain's relationship with its Indian colonial subjects. The telegraph also played an important role in the Indian resistance movement and in helping shape

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[8] GABRIELLE HECHT, THE RADIANCE OF FRANCE: NUCLEAR POWER AND NATIONAL IDENTITY AFTER WORLD WAR II (1998); Ulrike Felt, *Keeping Technologies Out: Sociotechnical Imaginaries and the Formation of Austria's Technopolitical Identity*, *in* DREAMSCAPES OF MODERNITY: SOCIOTECHNICAL IMAGINARIES AND THE FABRICATION OF POWER 103–125 (Sheila Jasanoff & Sang-Hyun Kim eds., 2015).

[9] CHARLES S. MAIER, ONCE WITHIN BORDERS: TERRITORIES OF POWER, WEALTH, AND BELONGING SINCE 1500 301, n. 8 (2016).

[10] MICHAEL HARDT & ANTONIO NEGRI, EMPIRE 32 (2000); HEIDI J. S. TWOREK, NEWS FROM GERMANY: THE COMPETITION TO CONTROL WORLD COMMUNICATIONS, 1900–1945 10 (1 edition ed. 2019).

[11] Alison Bashford, *Global biopolitics and the history of world health*, 19 HISTORY OF THE HUMAN SCIENCES 67 (2006).

[12] *See generally, id.*

Indian nationalism. Thus, telegraphic cables became sites of imperial power and contestation.

Imaginaries of connectivity associated with undersea cables are full of paradoxes. The paradox of so-called 'global connections' is "the simultaneous creation of mobility and immobility, of privilege and exclusion, and of integration and segregation . . . ."[13] On the one hand, undersea cables were to connect all of the nations of the world, putting them in closer contact with each other and thereby creating conditions for peace, prosperity, and held all of the promises of progress and modernity. On the other hand, the geography of cables reflected uneven relational dynamics, embedded racialized visions of social progress, and the technologies and social orders they enabled created fragmented spaces between people rather than a unified cosmopolitan spatial order. Cables co-produced social orders that alienated and divided people as much as they brought them closer together through communications technologies.

Moreover, the League of Nations was established on the idea that better communications and exchange of information would help promote the League's mission of helping promote peace in the world, both by the League itself and between the people of the world. Yet the role of communications in the League was imagined not only to help promote the League's mission of promoting peace among nations, but also closely related to commerce. In lieu of free trade principles being enshrined in its Covenant, the League tied communications to commerce, and in doing so, enabled the creation of imaged global communities and global populations as objects of global governance. The League represented not only a "move to institutions"[14] in

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[13] Sujin Eom, *After Ports Were Linked: Paradoxes of Transpacific Connectivity in the Nineteenth Century*, *in* IMAGINARIES OF CONNECTIVITY: THE CREATION OF NOVEL SPACES OF GOVERNANCE 67–87, 72 (Luis Lobo-Guerrero, Suvi Alt, & Maarten Meijer eds., 2020).

[14] David W. Kennedy, *The Move to Institutions*, 8 CARDOZO L. REV. 841 (1987).

international law, but also a move from positivism to pragmatism, because the League represented the start of international law and institutions getting involved in economic matters, and other matters of social life, that were thought to be outside the purview of international law in positivist thought.[15] In this move to pragmatism, populations became the objects of international law as global governance, and economics became a tool for disciplinary governance through technical means.[16] This move meant a shift from governing state relations and diplomatic affairs to governing global populations. The global communities that were imagined were imagined as communities linked together not only by cables and their speedy communications, the peaceful exchange of ideas and better understanding among the people of the world, or through a new organizational form in international law, but also through the link to commerce and global markets.

This Chapter will discuss the dominant sociotechnical imaginaries of undersea cables and the ocean telegraph as a new mode of global communication in the nineteenth century and early twentieth century. Sociotechnical imaginaries highlight the ways in which publicly performed, institutionally stabilized imaginations of the future and visions of good social order affect present sociotechnical visions and practices.[17] Through the time-space compressions they motivated in political thought, undersea cables enabled the "nation" to be imagined all over the world, the "global" made more compact, and the world brought closer together through speedy

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[15] ANTONY ANGHIE, IMPERIALISM, SOVEREIGNTY AND THE MAKING OF INTERNATIONAL LAW 115–195 (2005).

[16] *Id.* at 179–86.

[17] Sheila Jasanoff, *Future Imperfect: Science, Technology, and the Imaginations of Modernity*, *in* DREAMSCAPES OF MODERNITY: SOCIOTECHNICAL IMAGINARIES AND THE FABRICATION OF POWER 1–33 (Sheila Jasanoff & Sang-Hyun Kim eds., 2015).

communications. These in turn helped create imagined global communities over which international law and its institutions could exercise governance.

II. Sociotechnical Imaginaries of Undersea Cables: Connecting Pasts, Presents, and Futures

Among the various sea creatures and mysterious sights the *Nautilus* submarine witnessed at the depths of the ocean in Jules Verne's *Twenty Thousand Leagues Under the Sea* was a cable on the ocean floor, at first confused for a giant sea snake. In recounting its story, Verne's fictional account includes a reference to the first transatlantic telegraph message:

> On July 23 [1866] the *Great Eastern*[18] was just 800 kilometres from Newfoundland when she received a telegram from Ireland announcing the news that an armistice had been signed between Prussia and Austria after the Battle of Sadowa. On the 27th, in dense fog, she sighted the port of Heart's Content. The enterprise had reached a successful conclusion and used its first telegraphic wire from young America to send old Europe these sage words which are rarely understood: 'Glory to God in the highest and on earth peace, goodwill to all men.'[19]

This quote highlighted what the cable represented for the two countries it had physically connected.

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[18] The *SS Great Eastern* was the ship which laid the first transatlantic telegraph cable in 1858 and went on several subsequent cable laying voyages. Verne himself was aboard the *Great Eastern* on one of its cable laying voyages in 1867, which also inspired his novel A FLOATING CITY (1871).

[19] JULES VERNE, TWENTY THOUSAND LEAGUES UNDER THE SEA 454 (David Coward tran., Translation edition ed. 2017).

Figure 4.1. Drawing depicting relations between the United States and Great Britain after the laying of the Transatlantic Cable ("Glory to God in the highest on Earth and peace goodwill toward men").[20]

The Atlantic Telegraph Company built and laid down the first transatlantic undersea cable in 1858, connecting communication networks between Great Britain and the United States for transmitting telegraphs.[21] The Atlantic Telegraph cable built in 1858 subsequently failed, reflecting what Hughes has termed a "reverse salient,"[22] but that failure motivated new cables to be laid down in its aftermath. In 1866, the third attempt at laying a cable across the Atlantic was a success.

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[20] CHARLES BRIGHT, SUBMARINE TELEGRAPHS: THEIR HISTORY, CONSTRUCTION, AND WORKING. FOUNDED IN PART ON WÜNSCHENDORFF'S "TRAITÉ DE TÉLEGRAPHIE SOUS-MARINE" AND COMPILED FROM AUTHORITATIVE AND EXCLUSIVE SOURCES 22 (1898).

[21] R.L. GALLAWA & F.H. WILLIS, AN INTRODUCTION TO UNDERSEA CABLE SYSTEMS (1974).

[22] Daniel R. Headrick & Pascal Griset, *Submarine Telegraph Cables: Business and Politics, 1838-1939*, 75 THE BUSINESS HISTORY REVIEW 543–578, 547 (2001) (citing THOMAS PARKER HUGHES, NETWORKS OF POWER: ELECTRIFICATION IN WESTERN SOCIETY, 1880-1930 (1983).)

In celebration of the first cable connection established between Britain and the United States in 1858, Queen Victoria and President James Buchanan exchanged telegraphs. Buchanan's message, which took ten hours of cable time to deliver, stated:

> May the Atlantic Telegraph, under the blessing of Heaven, prove to be a bond of perpetual peace and friendship between the kindred nations, and an instrument destined by Divine Providence to diffuse religion, civilization, liberty, and law throughout the world. In this view will not all nations of Christendom spontaneously unite in the declaration that it shall be forever neutral, and that its communications shall be held sacred in passing to their places of destination, even in the midst of hostilities.[23]

This quote by President Buchanan resembles what Jasanoff and Kim have termed "sociotechnical imaginaries,"[24] or "collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology."[25]

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[23] President Buchanan to Queen Victoria, August 16, 1858, Buchanan Papers (Papers of James Buchanan, Library of Congress).

[24] I thank Hilton Simmet for pointing out the relevance and importance of the concept of "sociotechnical imaginaries" in this analysis.

[25] Jasanoff, *supra* note 17 at 4.
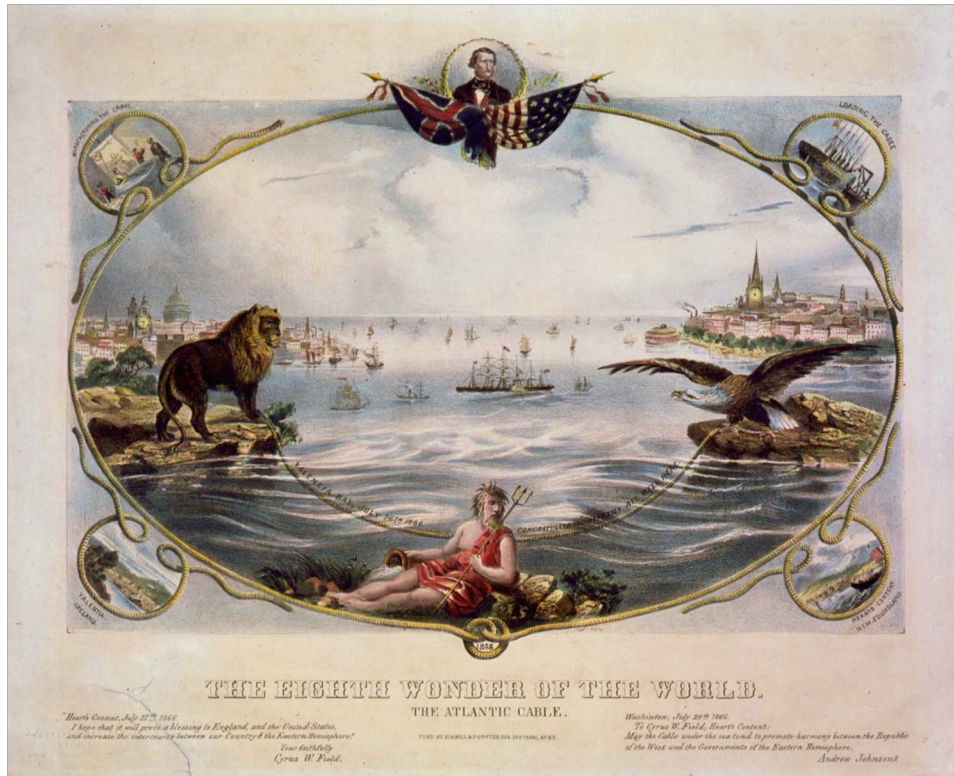
Figure 4.2. Commemorative print made in honor of the successful laying of the Atlantic cable in 1866, "The Eighth Wonder of the World." The cable connects Great Britain (the lion) with the United States (the eagle).

The Atlantic Telegraph cable held a promise of something more than the ability to send a cross-Atlantic telegraph at faster speeds. The seeming ease and speed with which communications were able to be delivered through this material infrastructure held the promise of peace, a new world based on principles of Christian civilization, and the easy diffusion of "civilization, liberty, and law throughout the world." This seemingly frictionless system of communication[26] carried with it not only political and economic purchase, but also seemingly contracted certain parts of the world closer

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[26] On capitalist imperialism's role in making "the flow of capital, commodities, and information across the different spaces of the global system—local, national, and global—as seamless as possible," *see* Dwayne R. Winseck & Robert M. Pike, *Introduction: Deep Globalization and the Global Media in the Late Nineteenth Century and Early Twentieth*, *in* COMMUNICATION AND EMPIRE: MEDIA, MARKETS, AND GLOBALIZATION, 1860–1930 1–15, 7 (Dwayne R. Winseck & Robert M. Pike eds., 2007).

together, while distancing others from technological advances concentrated around the powerful countries and economies of the world. This resulted in, among other things, a reconstruction of collective conceptions of time and space.

Moreover, it elevated engineers, electricians, and cable operators to the role of "great civilizers," making cable and telegraph agents "an integral part of Euro-America's ideology of a civilizing mission."[27] According to Müller:

> They not only 'conquered' nature, in the form of the world's oceans, and gathered knowledge about the unknown, such as the deep sea, but also took possession of their surroundings as spokesmen of 'civilized' Euro-America by naming indigenous children, villages, or mountains of countries they operated in.[28]

These technical civilizers conceptualized Euro-American superiority and civilization based on their industrial and technical advancements in relation to preindustrial nations, creating a distinction between civilized and uncivilized on the basis of technical progress.[29] In one example, American George Kennan took a telegraph expedition to Siberia, describing its people as "simple" and "childlike."[30] As Müller describes:

> The indigenous population's failure to explain and understand the science and working of the telegraph enforced Kennan's assessment of their naivety and childishness and furthered his notion of his superiority. The telegraph, which represented to Kennan and other Euro-Americans the 'electric nerve of modern civilization,' established a dichotomy and civilizational divide. In comparison, the 'Asian peoples had little to offer . . . in techniques of production and extraction or in insights into the workings of the natural world.'[31]

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[27] SIMONE MÜLLER, WIRING THE WORLD: THE SOCIAL AND CULTURAL CREATION OF GLOBAL TELEGRAPH NETWORKS 107 (2016).

[28] *Id.* at 107.

[29] *Id.* at 107.

[30] *Id.* at 109.

[31] *Id.* at 110.

This sense of superiority was also reinforced by cable entrepreneurs taking possession of lands for establishing cable stations.[32]

A. Reimagining the Nation and the Global

The technological developments in the latter half of the nineteenth century, including the submarine cables, also transformed imperial political thought by creating new possibilities for political futures that could not have been envisioned or imagined without them.[33] As Bell describes, "[t]echnology impacted not only on the material structures of social and political life but also on the cognitive apprehension of the world—on the modes of interpreting and reacting to the natural environment and the political potential contained therein."[34] This was due in part to distance and space being seen as impediments to imperial ambitions, as it would threaten the homogeneity necessary to maintain a durable polity.[35] It was thought that technological developments, by dissolving distance or "annihilating" space, could overcome this problem.[36] As the British engineer Charles Bright stated declaratively in 1898, since the first submarine cable was laid, "practically the whole of our earth has been strung with electric wires, and time and space have both been annihilated."[37]

There were frequent references in the early decades of submarine telegraphy that the world was shrinking. In 1898, Bright described how it shaped politics as follows:

> In the first place, then, it has accelerated—even more perhaps than the improvements in locomotion by land and sea—what may be called the practical *shrinkage* of the globe. The nations and peoples of the world,

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[32] *Id.* at 111.

[33] Duncan S. A. Bell, *Dissolving Distance: Technology, Space, and Empire in British Political Thought, 1770–1900*, 77 THE JOURNAL OF MODERN HISTORY 523–562, 526 (2005).

[34] *Id.* at 526.

[35] *Id.* at 532–537.

[36] *Id.* at 532. & 555-556.

[37] BRIGHT, *supra* note 20 at 202.

being in continual contact with each other through the telegraph and its powerful ally the Press, know one another, and understand one another's actions, thoughts, and national aspirations, infinitely better than they did thirty or forty years ago. The effect of this better knowledge and insight upon their mutual relations may not always, in the first instance, be a happy one: there is certainly a seamy side to it, so far as the commercial ascendancy of this country is concerned . . . . But if the whole world gains, as it undoubtedly does, by closer contact and the lessons which one nation is thereby induced to learn from another, we need not take very seriously to heart any *relative . . .* decrease of ascendancy in two or three departments of our national activities. Such 'ups and downs' are the necessary incidents of social and industrial progress all the world over; we have had plenty of them in this country in the past, so must make up our minds to bear patiently with them in the (*170) present and to profit from them in the future. We may even yet have to pass through the fire of much greater tribulations and humiliations before we achieve our national destiny, but we shall not have the telegraph or any other modern instrument of progress to blame for that.[38]

Bright also describes how a Pan-Anglican Federation could arise as a result of the closer relations that were rendered possible by the submarine telegraph between the United Kingdom and the "daughter-nations," or the "English-speaking, English-modelled (as to their institutions), and, in the main, of British and Irish stock, which have sprung up in the most distant quarters of the world."[39] An Imperial Federation could be formed between the United Kingdom and its colonies, including India. In his words, this could lead to:

[T]he constitution of a new nation, on a grander scale than any which the world has yet seen—a true Pan-Anglican Federation—embracing all the 'free' communities in different parts of the world which, albeit of diverse races and even colours, are naturally united by the common bonds of the English language as their official and most prevalent

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[38] *Id.* at 169–70.

[39] *Id.* at 170.

tongue, and of religious and political institutions of European and
mainly British origin. In a work like this, partly written for the rising
generation of telegraphists in all these countries, from the United
Kingdom, and its great 'emancipated daughter' the United States,
down to the smallest African and West Indian communities speaking
and reading our modern *lingua franca*, it does not seem out of place to
refer to such possibilities—especially as the extension of submarine
telegraphy is doing more, perhaps, than any other single movement in
the world to render their eventual realisation possible.[40]

Thus, more than the economic, political, and strategic possibilities offered by
the advent of the telegraphic cable system, the possibilities for imagined political
futures, as well as imagined political communities,[41] were changed through the time-
space compressions that these technologies made possible.[42]

By 1889, there were an estimated 115,000-165,000 nautical miles of submarine
cables linking far flung regions of the world, such as Britain and India, Malta and
Alexandria, France and Newfoundland, providing access to almost instantaneous
communications.[43] While these submarine cables were initially developed and owned
by companies in the private sector, such as the Anglo-American Cable Company and
Western Union, governments subsidized their developments when they saw the
military and strategic value in doing so.[44] For example, the British government
"supported and subsidized the creation of the All-Red Line, an undersea system
composed of strategic cables linking many of the British colonies," as "[m]ilitary

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[40] *Id.* at 170.

[41] BENEDICT ANDERSON, IMAGINED COMMUNITIES: REFLECTIONS ON THE ORIGIN AND SPREAD OF
NATIONALISM (Revised ed. 2016).

[42] Duncan Bell, *Cyborg Imperium, c.1900*, *in* CODING AND REPRESENTATION FROM THE NINETEENTH
CENTURY TO THE PRESENT: SCRAMBLED MESSAGES (Anne Chapman & Natalie Chowe eds., 2019).

[43] John Tully, *A Victorian Ecological Disaster: Imperialism, the Telegraph, and Gutta-Percha*, 20 JOURNAL OF
WORLD HISTORY 559–579, 568 (2009); JILL HILLS, THE STRUGGLE FOR CONTROL OF GLOBAL
COMMUNICATION: THE FORMATIVE CENTURY 23 (2002).

[44] Tully, *supra* note 43 at 569.

strategists saw cables as the most efficient and secure mode of communication with the colonies—and, by implication, of control over them—especially during wartime, when enemies might use the geographic dispersion of the empire to their advantage."[45] The Great Atlantic Cable project received £14,000 annually from the British and American governments for twenty-five years,[46] indicating that governments heavily subsidized the early development of transcontinental cable networks.

The All Red Line was the informal name of the telegraphic cable network of Great Britain, which directly connected its imperial territories to Britain through cables for strategic and commercial purposes. By creating multiple linkages to Britain, this meant that 49 separate cables would have to be cut to isolate Britain,[47] securing Britain's continuous connectivity with its colonies. One commentator, George R. Parkin, delivered an address using the metaphor of the nervous system and the heart to describe the telegraphic network of Great Britain:

> A new nervous system has been given to the world. The land telegraph and submarine cable have changed the whole conditions of national life; above all, they have revolutionized the meaning of the terms 'geographical unity' and 'geographical dispersion.' …. It is no flight of the imagination, but a simple fact to say that by the agency of the telegraph, backed by the diffusive power of the press, in a few short hours the heart of our nation, through all its world-wide extent, may be made to beat with one emotion, from Montreal to Melbourne, from London to Zambesi, from the Ganges to the Saskatchewan.[48]

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[45] STAROSIELSKI, *supra* note 1 at 34.

[46] MÜLLER, *supra* note 27 at 191.

[47] HELEN GODFREY, SUBMARINE TELEGRAPHY AND THE HUNT FOR GUTTA PERCHA 54 (2018).

[48] GEORGE JOHNSON, THE ALL RED LINE, 1903: THE ANNALS AND AIMS OF THE PACIFIC CABLE PROJECT 177–78 (1903).

Other similar metaphors of the body and the nervous system abounded,[49] as a comparison of the instantaneous communications that happen in the body and those that happen among the people of the world, as part of a broader fascination with organicism in nineteenth-century thought.[50] As Tully describes:

> Without this immense girdle of telegraph wires radiating from London, the administration and defense of the 'Empire on which the sun never sets' would have been problematic and 'imperial overstretch' a distinct possibility: if London were the brain of the Empire, the telegraphic cables were its nerves, connected to thousands of eyes and ears.[51]
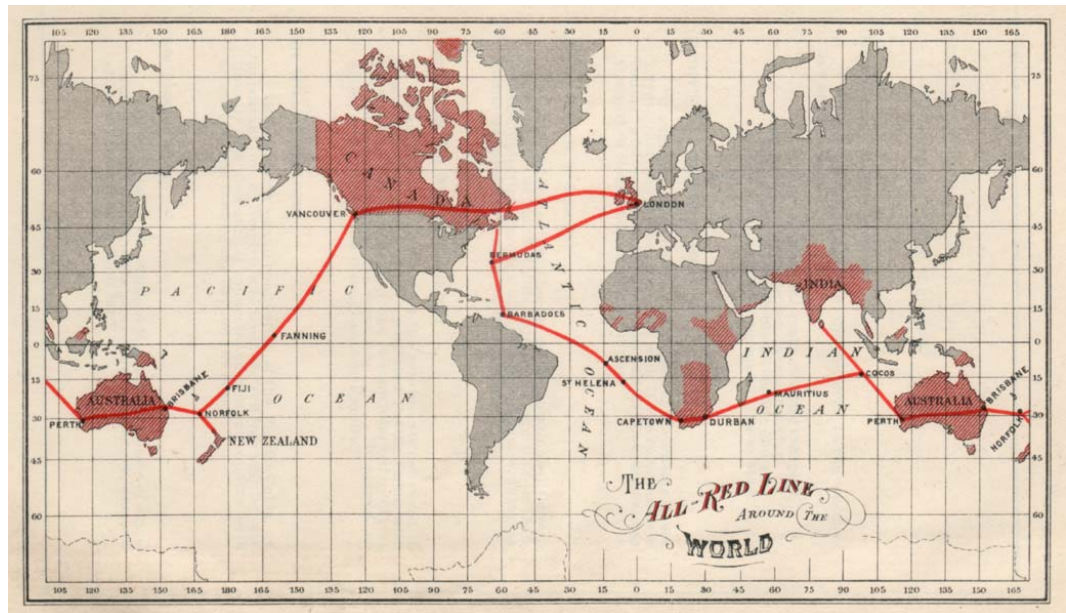
Figure 4.3. Map of the British All Red Line (including both submarine cables and landlines).[52]

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[49] *See* Iwan R. Morus, *The Nervous System of Britain: Space, Time and the Electric Telegraph in the Victorian Age*, 33 British Journal for the History of Science 457-58 (2000).

[50] James Carey, *Time, Space, and the Telegraph*, *in* COMMUNICATION IN HISTORY: TECHNOLOGY, CULTURE, SOCIETY 135–141 (David Crowley & Paul Heyer eds., 1999).

[51] Tully, *supra* note 43 at 569.

[52] JOHNSON, *supra* note 48.

What is more, even beyond the time and space compressions created by this vast network of undersea cables linking the British empire to its colonies, undersea cables held value as a symbol of British imperial expansion and consolidation—thus, they both extended and compressed the space of the British Empire in new ways,[53] rendering it capable of being imagined as "a single global (federal) state ruling over a homogeneous worldwide nation."[54] As communications infrastructure are both a source and consequence of power, control over international communications "reflect the dominant economic and political power structure of the day."[55] It is therefore no surprise that Britain's hegemony in the world was reflected in its hegemony over telegraphic undersea cable networks at the time.[56]

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[53] *See* James Smithies, *The Trans-Tasman Cable, the Australasian Bridgehead and Imperial History*, 6 HISTORY COMPASS 691–711, 693 (2008). Smithies refers to this as "imperial expansion and consolidation." *Id.*

[54] Bell, *supra* note 33 at 528.

[55] HILLS, *supra* note 43 at 6.

[56] Smithies, *supra* note 53.

Figure 4.4. The Cable & Wireless Great Circle Map, 1945.[57] This map places London as the center of the world and the most well-connected place in the world through visualizing the telegraphic cable.

One commentator discussing the All Red Line noted the power of electric telegraphy in creating national cohesion while maintaining Britain as the center, stating:

> The wonderful power of electricity applied to telegraphy has suggested its employment on an extended scale, to bring all the parts of the outer Empire within speaking distance of each other, and within instant touch of the Mother Country, the great centre of British power, and the source of influence and national cohesion.[58]

In addition to time and space compressions, the physical connection of the territories itself was seen as something that could promote imperial unity and a sense of imperial

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[57] Gill MacDonald, Britain the World Centre: Cable & Wireless Great Circle Map (1945).

[58] JOHNSON, *supra* note 48 at 9.

identity. The British empire had not only girdled the globe with its colonial ventures, but it also aimed to girdle the globe once again through physical cables that could protect its strategic and commercial interests, while physically connecting its territories. By the early twentieth century, with the completion of the Pacific cable, Britain fulfilled Puck's promise in *A Midsummer Night's Dream* to "put a girdle round about the earth."[59]

As George Johnson noted in the early twentieth century:

It is difficult to conceive how a perfect union, or any union of the whole, is possible without union between the parts. …. [W]e are approaching the period when new relations may be established between the United Kingdom and those younger British communities beyond the seas, known in past history as colonies, but which are passing from colonial tutelage to a higher national status. In order to promote these closer relations, what is more desirable, what more necessary, than that each and all be connected by the appliances which art and science have devised?[60]

Indeed, it was the ocean cable, "by annihilating space between continent and continent, [that brought] the peoples of the earth into close contiguity and knowledge of each other."[61] This imaginary around the undersea telegraphic cable can be seen here quite clearly:

Suffice to say, that in whatever direction the genius of Britain as a world-conqueror may lead her, it will always be in the direction of practical undertakings, and peaceful, civilizing influences, which, in future ages, may, perhaps, finally culminate in that poetical dream of the world, the great confederation of mankind. …. And thus flame together, with one electric spark, symbolical of that divine love of common humanity, those mighty peoples bound together by a common blood, heredity, speech, and loyalty:

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[59] WILLIAM SHAKESPEARE, A MIDSUMMER NIGHT'S DREAM act 2, sc. 1.

[60] JOHNSON, *supra* note 48 at 245.

[61] *Id.* at 337.

> 'Brother with brother, kindred peoples set
> About the base of one Imperial throne.'[62]

But this confederation of mankind "bound together by a common blood" meant one that was limited to the Angloworld. Britain's "cable nationalism" reflected "a global, imperialist nationalism,"[63] rather than a truly cosmopolitan aspiration. Indeed, this vision of the Angloworld imagined political ties based on race rather than territorial boundaries.[64] The telegraph, in linking these political communities in disparate parts of the world, became a constitutive element of these communities, which were figured as a "cyborg" community, intermediated through the technology of the telegraph.[65]

Indeed, Britain desired to unite British communities all over the world. This was set within a period of 1880 to 1914 that was characterized by mounting nationalism, and ethnicity along with language became particularly important for the constitution of national communities.[66] Thus, in much the same way that Anderson described how the technologies of print capitalism helped give communities a sense of imagined nationhood despite their geographic dispersion through the shared ritual of reading the same newspapers,[67] the technologies of telegraphic communication enabled imagining the British nation as a united community, despite being geographically dispersed around the world. This point is underscored by the acceleration and wider scale of the dissemination of news that telegraphic

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[62] *Id.* at 343.

[63] Jean-Claude Allain, *Strategic Independence and Security of Communications: The Undersea Telegraph Cables*, *in* NATIONHOOD AND NATIONALISM IN FRANCE: FROM BOULANGISM TO THE GREAT WAR 1889-1918 , 274 (1991).

[64] Bell, *supra* note 42.

[65] *Id.*

[66] ERIC HOBSBAWM, NATIONS AND NATIONALISM SINCE 1780: PROGRAMME, MYTH, REALITY 183-84 (1990).

[67] ANDERSON, *supra* note 41.

communication enabled. Thus, undersea cables not only helped form an imaginary of a national identity premised on imperial unity for the British people on the basis of material and communicative linkages of distant territories, they also enabled a transformation of the scales at which communities and nations could be imagined.

The transformation of economic thought which global communications infrastructures enabled, along with other apparatuses and infrastructures like the railway, the steamship, and the newspaper, also transformed social and political thought in ways that made imagining global citizens a possibility.[68] The undersea cable, due to its transnational spatiality that transgressed the borders of territorial nation-states, was also able to connect people of different nationalities, creating a "cable transnationalism," and "new spaces and identities that developed beyond the nation state."[69] Cable engineers and operators were able to travel the world and visit distant lands in ways that were typically reserved for the elite and men involved in the navy or the shipping industry.[70] They were also linked together in the maritime space and the telegraph business in ways that transcended their own national identities.[71]

Undersea cables thus sparked also a reimagining of the global along with the nation. But they did not ultimately deliver the imperial unity and cohesiveness that so many utopian imaginaries in the early years of submarine telegraphy envisioned. These utopian imaginaries of submarine cables and telegraphy were most likely intended to garner public support. This was due in large part to submarine cables being largely

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[68] Simone M. Müller & Heidi J.S. Tworek, *'The telegraph and the bank': on the interdependence of global communications and capitalism, 1866–1914*, 10 JOURNAL OF GLOBAL HISTORY 259, 274 (2015).

[69] Simone Müller-Pohl, *Working the Nation State: Submarine Cable Actors, Cable Transnationalism and the Governance of the Global Media System, 1858-1914*, *in* GOVERNING GLOBALIZATION PROCESSES IN THE NINETEENTH AND EARLY TWENTIETH CENTURIES 101–123 (Isabella Löhr & Roland Wenzlhuemer eds., 2013).

[70] Müller and Tworek, *supra* note 68 at 272–73.

[71] *Id.* at 272.

publicly-funded or subsidized projects at the time, which required vast sums of capital, and obtaining public favor for these projects was seen as important.[72]

Indeed, the idea of instantaneous communication was also presented to publics as a great leveler, one which would promote greater democratic participation through access to policies in the moments they are made.[73] In 1889, Lord Salisbury, then prime minister, gave a speech claiming that the telegraph "assembled all mankind upon one great plane, where they can see everything that is done, and hear everything that is said, and judge of every policy that is pursued at the very moment those events take place."[74] The telegraph thus shaped understandings of the world as an interconnected whole, both literally and metaphorically, and shaped understandings of how to best govern it. "Future thinking" had already taken shape and was playing out in colonial and capitalist dynamics,[75] as we have seen in the prior Chapter, as well as in the building of transcontinental cable networks and their associated imaginaries.

B. Telegraphic Discipline and Resistance in Colonial India

Effective modes of governing have throughout history depended on, among other things, rendering subjects legible, and therefore knowable and subject to control and discipline.[76] It also depended on modes of spatial discipline. The telegraph and

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[72] JOSEPH CHARLES PARKINSON, THE OCEAN TELEGRAPH TO INDIA: A NARRATIVE AND A DIARY 4 (1870).

[73] Iwan Rhys Morus, 'The nervous system of Britain': space, time and the electric telegraph in the Victorian age, 33 THE BRITISH JOURNAL FOR THE HISTORY OF SCIENCE 455, 458 (2000).

[74] Id. at 458. (citing Dinner of the institution of electrical engineers, 24 Electrician 12, 13 (1889).)

[75] MAZOWER, supra note 2 at 25.

[76] See, e.g., Michel Foucault, "Governmentality," Lecture at the Collège de France, Feb. 1, 1978 in THE FOUCAULT EFFECT: STUDIES IN GOVERNMENTALITY 87-104 (Burchell, Gordon, and Miller, eds., 1991); MICHEL FOUCAULT, DISCIPLINE & PUNISH: THE BIRTH OF THE PRISON (Alan Sheridan tran., 1995); JAMES C. SCOTT, SEEING LIKE A STATE: HOW CERTAIN SCHEMES TO IMPROVE THE HUMAN CONDITION HAVE FAILED (1998); Sheila Jasanoff, Virtual, visible, and actionable: Data assemblages and the sightlines of justice, 4 BIG DATA & SOCIETY 1–15 (2017).

the cables, due to both their ubiquity and invisibility, could be seen as a new panopticon by making knowledge and intelligence instantly available.[77]

Discipline also depended on the efficiency of communication,[78] especially when the areas or territories to be governed are large, or distant, in the case of imperial territories. Disciplining both territory and populations from afar was no easy task for the British in the context of their colonial administration of the large territory and population of India.

Britain's connectivity through cables with its colonial territories, such as India, perhaps unsurprisingly came with a different set of interests and imaginaries, due to the perceived lack of "common blood" and different languages and ethnicities that made the peoples of Britain and the peoples of India more heterogeneous than the British populations spread around different parts of the world. Having direct submarine telegraph access to India, however, was critical for Britain. This was due to India being its most important colony and because of its strategic and geographic importance.

Great Britain's use of the telegraph to manage its imperial territory did not come without contestation. In 1897, the Daily News wrote a piece called "How the Electric Telegraph Saved India," describing how the telegraph had put a stop to the Indian Rebellion that had taken place forty years before. In the piece, it said:

> There is a third claimant [to the title Saviour of India – after Viceroy Lord. Lawrence and John Nicholson], Mr. William Brendish, the signaller boy at the Delhi telegraph office in 1857, who on the 11th of May (a day after the outbreak at Meerut) sent the messages partly founded on bazaar 'gup,' which gave the Punjab men, and the Commander-in-Chief at Simla, the first vague news of the mutiny and its murderous work. The electric telegraph, said Montgomery – one

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[77] Morus, *supra* note 73 at 463.

[78] HAROLD INNIS, EMPIRE AND COMMUNICATIONS 5 (1950).

of that great school – has saved India. Said Sir Herbert Edwardes, 'that message,' sent by 'that little boy,' was, 'I do not hesitate to say, the means of the salvation of the Punjab.' It enabled Montgomery, and the commanding officer at Lahore to disarm the native troops before the news of the revolt reached the barracks; and to flash their warning over the lines to Peshawar. According to one version of the story, the telegraph boy had just finished the last click of his message when the Sepoys burst into the office and killed him. But young William Brendish not only escaped in good time, but is still living, having retired from the Indian Service with a special pension, and a flattering acknowledgment of his services from the Governor-General.[79]

Here, it seems that the telegraph saved India "for rather than from the British."[80] Part of the reason the British could quell the rebellion was due to its stronger means of communication via the telegraph. The telegraph enabled the British to respond quickly to outbreaks of violence and hostilities. The Rebellion motivated Britain to develop stronger and faster communicative links to India through undersea cables.

The large size of India made it difficult for British colonial administrators to manage and control the large territory.[81] Investment in telegraphy in India by the British was "a national experiment," intended to secure British security, control, and commercial interests in its colony.[82] By connecting large cities, the geographies of the British Indian telegraph network mirrored its function as both an administrative and commercial technology.[83]

Indeed, had the British not developed quick communications with India via submarine cables, its power there may have weakened sooner than 1947. Even though

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[79] ROLAND WENZLHUEMER, CONNECTING THE NINETEENTH-CENTURY WORLD: THE TELEGRAPH AND GLOBALIZATION 211 (2013) (citing How the Telegraph Saved India, Daily News p. 6, September 29, 1897).

[80] *Id.* at 211.

[81] *Id.* at 212.

[82] *Id.* at 212.

[83] *Id.* at 231–32.

Britain passed the Government of India Act in 1858 in response to the Indian Rebellion in 1857, promising to grant Indians the same rights as British subjects, this was far from reality. At the same time that Britain was ostensibly granting Indian colonial subjects more rights in response to the biggest rebellion against British rule, it strengthened its grip over those subjects through telegraphic communications. This enabled the British to govern and discipline from a distance, while it kept its colonial administrators on Indian territory to quell insurrections and send strategic information to Britain. This effectively limited Indian subjects' ability to exercise any direct democratic demands, as the only representatives of Britain in India were the administrators. As the telegraphic wires were increasingly moving underseas and no longer crossed land and therefore, they could not be disrupted by everyday people.

Indeed, most telegraphic communications in the nineteenth century were colonial communications between Britain's colonial office and colonial administrators abroad.[84] It was an elite enterprise. The way it changed life for non-elite publics was through the dissemination of news by telegraph and the subsequent commodification of news, which was to shape public consciousness in new ways.[85]

Submarine telegraphy became a disciplinary technology, one that could be used to discipline colonial subjects, nature, and other countries and their relationship to territory. It enabled "governing at a distance."[86] Indeed, as Morus describes, Victorian commentary on the telegraph "demonstrated how that intelligence could proliferate and impose its discipline increasingly further away from its point of origin."[87] It

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[84] Simone M. Müller, *From Cabling the Atlantic to Wiring the World: A Review Essay on the 150th Anniversary of the Atlantic Telegraph Cable of 1866*, 57 TECHNOLOGY AND CULTURE 507, 513 (2016).

[85] *Id.* at 513.

[86] NIKOLAS ROSE & PETER MILLER, GOVERNING THE PRESENT: ADMINISTERING ECONOMIC, SOCIAL AND PERSONAL LIFE (2008).

[87] Morus, *supra* note 73 at 456.

became an instrument that could spread Victorian values.[88] Due to rendering things instantly knowable, it became in Morus's words "an ideal tool for discipline and surveillance."[89] The nervous system metaphor was also particularly apt to describe its potential as a disciplinary tool. The simultaneity and time-space compressions in understandings of the telegraph were crucial in its role as a disciplining technology, which was often compared to the brain's role in maintaining discipline over the rest of the body through instantaneous communications in the nervous system.[90]

Communications through the telegraph not only enabled the British to maintain a stronger grip over its most important colony, it also enabled rebellions by Indian nationalist movements against this grip. The dissemination of news from abroad and from other parts of India proved to be a uniting force for Indians in their insurrections and uprisings against colonial rule. Thus, telegraphy in the context of Indian nationalism was also a threat to British imperial control and a means of challenging it. It ultimately contributed to the downfall of British rule in India in the mid-twentieth century.

Indian nationalism did not exist prior to British imperial presence. Until the end of the nineteenth century, "the idea of India was a British concept."[91] Most people identified themselves not as Indians, but according to their caste, religion, language, and the region they lived.[92] Indeed, it was this fragmentation of the population in different regions which likely enabled the East India Company to enjoy rulership of

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[88] *Id.* at 456.

[89] *Id.* at 457.

[90] *Id.* at 458.

[91] Daniel Headrick, *A Double-Edged Sword: Communications and Imperial Control in British India*, 35 HISTORICAL SOCIAL RESEARCH / HISTORISCHE SOZIALFORSCHUNG 51, 58 (2010).

[92] *Id.* at 58.

the Indian colony with such force, violence, and destruction for nearly three centuries.[93]

In the 1880s and 1890s, the concept of a common Indian identity was forged by educated English-speaking Indians, among whom several formed the Indian National Congress.[94] What brought them together in their shared identity was the shared English language and the shared experience of racial discrimination by the British.[95] Modes of communication, including the mail and telegraph, also contributed to the formation of their Indian identity across regional, caste, and religious divides.[96]

The rapid diffusion of news through telegrams also contributed to the Indian independent movement by uniting people in different regions of India that might not have communicated with one another or have united with one another in protest and contestation against British rule otherwise. In 1904, for example, Viceroy Lord Curzon's announced partition of Bengal into two smaller provinces stirred strong opposition by a number of different groups, including Indian elites, peasants, and workers.[97] The opposition movement centered in Calcutta, *Swadeshi*, called for a boycott of British goods in response to the announced partition.[98] News of the movement quickly spread through Bengal and other parts of India through *The Bengalee* newspaper, as the lowered cost of press telegrams permitted the rapid diffusion of news about the opposition movement.[99]

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[93] WILLIAM DALRYMPLE, THE ANARCHY: THE EAST INDIA COMPANY, CORPORATE VIOLENCE, AND THE PILLAGE OF AN EMPIRE (2019).

[94] Headrick, *supra* note 91 at 58.

[95] *Id.* at 59.

[96] *Id.* at 59.

[97] *Id.* at 59.

[98] *Id.* at 59.

[99] *Id.* at 59.

Moreover, the news of Japanese defeat of Russia in the battle of Tsushima Strait also proved a pivotal moment for Indian independence activists. Educated Indians considered the May 1905 as the defeat of a European nation by an Asian nation— something which had not happened for several centuries since the Mongols conquered Russia.[100] The news of this defeat fundamentally shifted Indian nationalist thought and motivated Indian nationalists and the press to aim for demanding the enjoyment of "equal rights with the white subjects of Britain."[101] News of the Russian Revolution in 1905 also provided similar inspiration to Indian activists, sparking waves of nationalist protest and violence.[102] Thus, the same technologies that were used strengthen British rule in India ultimately became essential to the movement which brought its downfall.

III. Cables and Communications in the Interwar Period

A. The Founding of the League of Nations

League of Nations (1920-1946) was founded at the Paris Peace Conference on April 24, 1919. It was founded by the Allied Powers after World War I—the war to end all wars—devastated Europe. Then US President Woodrow Wilson pushed hard for the creation of the League of Nations, although the United States never joined the League. Wilson negotiated the terms of the peace treaty between Great Britain, France, Italy, Japan, and Germany. Wilson's Fourteen Points Speech, which he made on January 8, 1918, was his plan to create sustainable foundations for achieving world peace. His fourteenth point stated that, "A General Association of Nations must be formed under specific covenants for the purpose of affording mutual guarantees of

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[100] *Id.* at 59.

[101] *Id.* at 60.

[102] *Id.* at 60.

political independence and territorial integrity to great and small States alike."[103]

General Jan Smuts of South Africa also played a key role in helping shape the

institutional structure of the League, including the Mandate System.[104] The League of

Nations was significant in the history of international law because it was the first

international organization established to promote world peace and because it was the

first institutionalized approach to international law and cooperation. It reflected a

move to what Kant described as one of the conditions necessary to sustain a perpetual

peace, "a federation of free states."[105]

The Allied and Associated Powers and the Principal Powers signed the Treaty

of Versailles on June 28, 1919 (Treaty), and Germany signed the protocol in January

10, 1920, establishing the League of Nations soon thereafter. Articles 1 to 26 of the

Treaty was the Covenant of the League of Nations, establishing it to "promote

international co-operation and to achieve international peace and security."[106] Some

key aspects of the postwar settlement included the establishment of the Mandate

System of the League of Nations, the creation of new boundaries for Germany, and

the redistribution of administrative control over former Ottoman colonies and former

German colonies. The Covenant of the League of Nations established the Mandate

System. The Mandate System was proposed as a way of administering the territories

of the former German and Ottoman Empires, but nevertheless perpetuated forms of

neocolonialism.[107] It created three tiers of Administration for A, B, and C mandates.

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[103] Woodrow Wilson's Fourteen Points (January 8, 1918).

[104] ANGHIE, *supra* note 15 at 119.

[105] IMMANUEL KANT, PERPETUAL PEACE: A PHILOSOPHICAL ESSAY 128–137 (M. Campbell Smith tran., 1903).

[106] League of Nations Covenant, Preamble.

[107] ANGHIE, *supra* note 15 at 115–195.

While it ultimately failed in its aims to achieve peace and prevent further aggression and wars, as Japan, Italy, and Germany withdrew from the League in the 1930s and Europe descended into World War II by the end of that decade, the interwar period and the League of Nations were significant as they represented "the move to institutions"[108] in international law in the early twentieth century. The League helped promote a pragmatic approach to international law that would not consider international law as positivists did—a technical science devoid of politics, economics, or social life—but rather a tool that could be used through a variety of means, such as rules, standards, and administration rather than just treaties and custom, to achieve political and economic outcomes.[109]

As Anghie argues, it was the first move to using economics as a tool of 'disciplinary governance' in international law,[110] much earlier than in the decolonization period and the shift to universalized 'development' through the Bretton Woods Institutions (the World Bank and the International Monetary Fund), and the period of the Cold War. The new focus on economic progress and development meant a transition away from defining who was in or out of international law on a racialized or cultural basis, becoming a more universalized category.[111] The 'economic' mindset reflected in the League's Mandate System transitioned away from race to justify its hierarchical approach to colonial administration, along with broader interventions that by the Bretton Woods Institutions that were justified on the basis of "improv[ing] the welfare of an economically deprived group of people."[112]

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[108] Kennedy, *supra* note 14.

[109] ANGHIE, *supra* note 15 at 127–36.

[110] *Id.* at 179–90. (citing Foucault, *supra* note 78).

[111] *Id.* at 161.

[112] *Id.* at 193.

B. The Redistribution of German Cables

The Treaty also dealt with a redistribution of German colonial territories and properties, as well as newly defined borders. Article 118 of the Treaty stated:

> In territory outside her European frontiers as fixed by the present Treaty, Germany renounces all rights, titles and privileges whatever in or over territory which belonged to her or to her allies, and all rights, titles and privileges whatever their origin which she held as against the Allied and Associated Powers.[113]

The postwar settlement concluded in the Treaty was not just a peace agreement—it was a redistribution and rearrangement of the world economy through international law by seizing private property "on a worldwide scale."[114] The economic aspects of the Treaty were preceded by economic warfare that had already started during the War, in which enemy property was less defined by territoriality than it was by nationality of the owners.[115]

Included in this redistribution of former German colonial territories was the also the redistribution of property in German colonies.[116] Article 297b provided for the expropriation of German property:

> The Allied and Associated Powers reserve the right to retain and liquidate all property, rights and interests belonging at the date of the coming into force of the present Treaty to German nationals, or companies controlled by them, within their territories, colonies, possessions and protectorates including territories ceded to them by the present Treaty.

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[113] Versailles Peace Treaty 1919, 225 Parry 188, Art. 118 [hereinafter "Treaty of Versailles"].

[114] Nicholas Mulder, *'A Retrograde Tendency': The Expropriation of German Property in the Versailles Treaty*, JOURNAL OF THE HISTORY OF INTERNATIONAL LAW / REVUE D'HISTOIRE DU DROIT INTERNATIONAL 1, 1–2 (2020).

[115] *Id.* at 3–4.

[116] Treaty of Versailles, *supra* note 115, Art. 120.

Further, the Treaty provided that Germany had to give up all of its undersea telegraph cables. It had to grant to Japan all of its rights and privileges in the territory of Kiaochow, including railways, mines, and submarine cables.[117] German cables from Tsingtao to Shanghai were also granted to Japan.[118] Other submarine cables owned by the German state were also granted to the Allied Powers.[119] 15 cables spanning 20,000 miles were first distributed according to the terms of the Treaty of Versailles. This redistribution resulted in several conflicts, including over Yap, which was a strategically located communications hub in the Pacific.

The League convened the International Communications Conference to meet in Washington, DC in 1920.[120] Delegates from the Allied Powers and the United States were to attend. To discuss how to distribute German cables taken during the war.[121] The distribution of cables became particularly problematic when it came to the German cables connected to Yap Island, as the United States, Japan, and Great Britain had interests in maintaining access to the Island as a hub for communications due to its strategic location in the Pacific, and its connection to several other locations via cables. The United States argued that Japan should not hold exclusive control over that island and its cables linked to the Far East, and that it should instead be internationalized and used as an international cable landing station.[122] It argued that the cables linking Yap to Shanghai should be internationalized, based on Wilson's

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[117] Treaty of Versailles, *supra* note 115, Art. 156.

[118] Treaty of Versailles, *supra* note 115, Art. 156.

[119] Treaty of Versailles, *supra* note 115, Annex VII.

[120] CABLE CONFERENCE SEPT. 15. Meeting Called by League of Nations Will Be Held Here., THE WASHINGTON POST (1877-1922), August 4, 1920, at 6.

[121] *Id.*

[122] SENATORS ARE TOLD OF YAP DEADLOCK, THE NEW YORK TIMES, January 26, 1921, at 9.

reservations at the Paris Peace Conference.[123] Japan claimed that its League mandate

gave it exclusive jurisdiction over the island, and could control the cables that landed

there.[124] The Netherlands also claimed an interest in taking ownership of German

cables that landed in Yap and connected to the Dutch East Indies[125]

Japan argued that since the United States did not make a reservation for its cables

landing on Yap at the Paris Peace Conference, that no such reservation should exist,

and Yap should be a Japanese mandate operating under Japanese law.[126] Japan

contended that under its laws, the cables landing on the island had to be administered

exclusively by Japan, and that it should have exclusive ownership and control over

means of communications in Japanese possession. Japan wanted absolute sovereignty

over both the island and the cables landing there. The Conference did not result in an

agreement, but in 1922, the United States and Japan signed a bilateral treaty agreeing

that Yap would remain a Japanese mandate, but granting the U.S. a cable landing

station on the island.

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[123] THE CONTROVERSY OVER YAP ISLAND, 14 THE NEW YORK TIMES CURRENT HISTORY
108 (1921).
[124] NEW CABLE AGREEMENT IN EFFECT NEXT WEEK, THE NEW YORK TIMES, March 11,
1921.
[125] *Id.*
[126] SENATORS ARE TOLD OF YAP DEADLOCK, *supra* note 123.

THE FORMER GERMAN CABLES

Submarine cables of the world ————, with principal connecting land telegraph lines ————, showing cables which Germany renounced to the Principal Allied and Associated Powers ————— by Part VIII, Section I, Article 244 (including Annex VII) of the *Treaty of Versailles* of June 28, 1919, and Article II of the *Treaty between the United States and Germany* of August 25, 1921.

(base from charts 1334 and 1360 of the hydrographic office, u.s. navy)

Cables renounced by Germany on her own behalf and on behalf of her nationals:

① from the Straits of Dover to off Vigo;
② from off Cherbourg to Brest;
③ from off Dunkirk to Tenerife;
④ from the Straits of Dover to Fayal;
⑤ from the Straits of Dover to Fayal;
⑥ from Fayal to New York;
⑦ from Fayal to the longitude of Monrovia;
⑧ from off Tenerife to off Monrovia;
⑨ Monrovia-Lome (two parts specified in treaties);
⑩ from Lome to Duala;
⑪ from off Monrovia to off Pernambuco;
⑫ from Constantinople to Constanza;
⑬ from Yap Island to Shanghai;
⑭ from Yap Island to Guam Island;
⑮ from Yap Island to Menado (Celebes).

Compiled by
Col. Lawrence Martin

FIGURE 7

[14]

Figure 4.5. Map of The Former German Cables, 1919.[127]

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[127] LAWRENCE MARTIN, MAPS SHOWING TERRITORIAL CHANGES SINCE THE WORLD WAR, THE TRANSFER OF THE GERMAN CABLES, AND THE LEAGUE OF NATIONS IN 1923 (1924).

In the postwar redistribution of territory and cables, the United States saw an opportunity to strengthen not only its economic and political power through the spread of its companies and economic activity in other countries, but also to strengthen its strategic resources, including communications, so it could avoid dependence on other countries' resources.[128] World War I had made it clear that without these resources, the United States would be in a considerably vulnerable position, motivating it to compete with Britain for control over international communications.[129]

Prior to the War, the British hegemony over undersea cables was unquestioned, and helped it gain advantage in the conflict. During the War, the British had cut German transatlantic cables, considerably weakening its position in the war, as it depended on routing its telegrams through foreign embassies, cables, and territories.[130] Britain was able to intercept Germany's telegraphic communications, as well as monitor and regulate news sent from Germany to the United States.[131] Given Britain's dominance at the end of war in international communications, the United States' negotiating strategy in the Versailles peace treaty included strengthening its position over submarine cables in relation to Britain's dominance.[132]

According to Jill Hills:

> With the transfer of the transatlantic German cables to Britain and France, and the seizure of the German cables from Guam by the Japanese, the U.S. government regarded itself as ending the war weaker, rather than stronger, in communications. As a result U.S. negotiating tactics at the Paris Peace Conference moved from first demanding the restoration of the German Atlantic cables to their

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[128] HILLS, *supra* note 43 at 178.

[129] *Id.* at 179.

[130] *Id.* at 180.

[131] *Id.* at 180.

[132] *Id.* at 181.

former owner to then arguing for the cables to be held jointly by the five Allied powers and managed under the terms of an international convention. Woodrow Wilson was influenced by Walter Rogers, the communications expert of the U.S. Commission to Negotiate the Peace, who (*182) in order to promote a "more orderly, efficient and integrated world network," supported the inclusion of the U.S. cable companies under the International Telegraph Convention. Wilson attempted to put the issue of the international regulation of cables and, particularly the lowering of tariffs, on the conference agenda. Rogers had worked out a free-trade program for cables in which all members of the League of Nations were to "abolish discrimination in rates and exclusive landing concessions, and to grant free exchange of business, the establishment of inland extensions of cables, and freedom of transit for messages without scrutiny or interference". In other words, the Americans were looking to the Europeans to liberalize their international communications.[133]

Thus, the redistribution of cables in the aftermath of World War I was closely linked to the promotion of commerce, liberalization, and free trade.

C. The League of Nations, Communications, and the Construction of Imagined Global Communities

The League of Nations also established an Information Section. The Information Section was created for the purposes of informing the public about the activities of the League, and creating informational pamphlets, brochures, documents, books, periodicals, and broadcasts. The Information Section was tasked with "the collection of information suitable for publication and . . . the selection of the most appropriate means of influencing public opinion" by spreading knowledge about the League and its activities.[134]

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[133] *Id.* at 181–2. (internal citations omitted).

[134] League of Nations, Secretary-General, *The League of Nations and modern methods of spreading information utilised in the cause of peace*, A.18.1937, Report furnished in accordance with (3) of the Assembly resolution of October 10, 1937, p. 3 (1937).

It also organized, prepared, and convened the Conference of Press Experts in 1927. This was part of, according to Casey, "a push to engender an international civil society through the medium of a vibrant international press in order to perpetuate peace in the wake of four years of European bloodletting."[135]

Prior to World War I, cables were part of the broader system of news and information exchange that tied Europe to the rest of the world.[136] The interwar period, however, was marked by a deglobalization due to the rearrangements in the communications and news infrastructures after the war, including prohibitively high tariffs that blocked the flow of information.[137]

The belief that the free flow of information and communications would help promote peace in the world was based on liberal ideas of progress through rational exchange of ideas to promote democratic governance, which could be traced back to Jeremy Bentham.[138] This logic also permeated the Paris Peace Conference. The League of Nations became established to promote "open, just and honourable relations between nations,"[139] founded on the idea that peace could be promoted through the free flow and exchange of information.[140] The free flow of information was thought to help promote an "international community," in part through the simultaneous spread of information and its resulting creation of sympathies between people of the world.[141] This flow of communications and information around the world through cables was therefore pertinent to not only the institutionalized peace

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[135] Christopher A. Casey, *Deglobalization and the Disintegration of the European News System, 1918–34*, 53 JOURNAL OF CONTEMPORARY HISTORY 267, 269 (2018).

[136] *Id.* at 269–70.

[137] *Id.* at 269.

[138] *Id.* at 272–3.

[139] League of Nations Covenant, Preamble.

[140] Casey, *supra* note 136 at 273.

[141] *Id.* at 274.

projects of the interwar period, but also to the building of communities of people on a global scale.

The Covenant of the League of Nations, moreover, specifically sought to promote freedom of communications among all signatories.[142] The League saw its own success in promoting peace as dependent upon the success of the press and the availability and accessibility of the press to ensure it could "publicize its activities and encourage 'better world intercourse.'"[143] For that reason, the League established the Information Section to help manage its information and distribute it to press agencies, as it saw these as central to its success.[144]

Article 23e of the Covenant, which provided for the promotion of freedom of communications and transit, also contained a provision regarding commerce among League Members.[145] Wilson tried to promote commerce among the Allies without committing the United States to free trade, in light of the Republicans in Congress being in favor of protectionism.[146] He likely did this in order to improve the likelihood that Congress would consent to the U.S. becoming a League Member, but the U.S. never joined. According to Hills:

> In general, the U.S. position in the peace conference was to foster international political cooperation through the League of Nations but to operate an Open Door policy in economic matters. Although that policy was rather vaguely expressed in the phrase "commercial equality," Wilson seems to have interpreted it to mean that the Allies would give each other most-favored-nation status, along the lines of the subsequent Pan-American Agreement of 1933. But faced with protectionist Republicans in Congress, and a British campaign to

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[142] League of Nations Covenant, Article 23e.

[143] Casey, *supra* note 136 at 274 (citing League of Nations, Information Section, The League of Nations and the Press: International Press Exhibition, Cologne, May to October 1928, p. 7).

[144] *Id.* at 274.

[145] League of Nations Covenant, Article 23e.

[146] HILLS, *supra* note 43 at 183.

translate his idea of commercial equality into a multilateral commercial treaty, Wilson backtracked from committing the United States to free trade. Instead, it was agreed that the Covenant of the League of Nations should include a provision in Article 23e "'to secure and maintain freedom of communications and of transit and equitable treatment for the commerce of all Members of the League,'" while article 24 provided for placing international bureaus, such as the International Bureau of the Telegraph Union, under the direction of the League of Nations, if "the parties to such treaties consent". Congress never consented.[147]

Moreover, the League of Nations also had an Advisory and Technical Committee for Communications and Transit Section (Communications Committee) to help carry out Article 23e of the Covenant. In a meeting for the Fourth General Conference on Communications and Transit held in Geneva in October 1931, the President of the Communications Committee, M.A. de Vasconcellos stated:

> The study of communications questions, their progress and growth, has always been parallel to the study of the growth and progress of civilisation itself. Our generation, however, is passing through one of those critical periods of human history in which the changes are so rapid that they almost seem to be projected onward by the force of upheaval. In the technical sphere, the internal combustion engine symbolises this stage of civilisation, as the steam engine symbolised the mechanics of the nineteenth century, and draught animals still earlier stages. The applications of the internal-combustion engine and recent electrical inventions are paramount factors in the most formidable transformation the world has ever witnessed in the mechanics of communications. On the seas, on the railways, on the roads, in the air, under the waters, the thirst for speed brings all sorts of races in to contact, brings far-off countries nearer together, and propagates instantaneously the most fruitful — as well as the most destructive — ideas. Through the Press, by telephone, by photographs, by the cinema, by wireless telegraphy and telephony, the ideas, facts and documents of our era are communicated hourly to millions of men

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[147] *Id.* at 183. (internal citations omitted).

who utilise them with equal speed in every sphere of their activities.

We can hardly realise the infinite variety and complexity of the international problems raised by the development and instantaneousness of means of communication. Legal, technical, economic and social problems are occupying the thoughts of academies, congresses, international conferences and the technical organisations of the League. We have studied some of these problems; the Advisory and Technical Committee will submit to you others of an increasing — and perhaps fundamental — importance for the solution of the crises or disasters now bearing so heavily on certain countries.

We see, for instance, the duel between rail and road still further complicating the old struggle between rail, and waterway. This duel is a most serious matter for railways throughout the world. Wireless telegraphy and telephony menace the costly and ancient submarine cable systems which are only holding out temporarily against such competition by means of provisional economic agreements. The cost of progress is becoming heavier, because progress is more rapid than in the past. The annihilation by new inventions of millions of capital threatens with ruin the most flourishing enterprises of the previous decade, before those enterprises have had time to recuperate the vast sums invested in their installation.[148]

This quote, like those in the nineteenth century on the promises that the telegraphic cable would bring to the world, equates the progress of communications with the progress of civilization. Moreover, the time-space compressions are also there, where it was thought the communications technologies would bring people of the world in "far-off countries nearer together." And finally, in addition to annihilating time and space, these communications technologies raised new kinds of international

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[148] League of Nations, Organisation for Communications and Transit, *Records and Texts Relating to the Fourth General Conference on Communications and Transit, Held at Geneva from 12th to 24th October, 1931, Volume II, Minutes of the Fourth to the Thirteenth Plenary Meetings of the Conference*, p. 7 (C.977.M.542, 1931, VIII, Vol. II, Series of League of Nations Publications VIII. Transit, 1931 VIII 24.11).

problems that had to be dealt with by the League, including the annihilation of capital that was invested in prior technologies, only for them to become quickly replaced by newer and faster technologies.

Thus, the global publics that were being constructed through communications technologies like the undersea telegraphic cables and the communications they enabled were thought to bring people of the world closer together through communication of ideas, and to bring greater understanding and help promote peace and prosperity. However, the global public that was being imagined was hardly inclusive of all peoples. The League itself had perpetuated forms of neocolonialism in the postwar transition and the redistribution of former Ottoman and German colonial territories into mandate territories to be administered by the Allied Powers. Moreover, given the close associations of global communications with global commerce, it seems that these global publics were only inclusive of those peoples who could engage in liberal ideas of progress, including those which promoted commerce, markets, and free trade.

In addition to the "move to institutions," the League was a move to informal empires through trade and international organizations like the League. The interwar period effectively co-constructed imagined global communities of people and an "international community" of states, linked together through communications infrastructures such as cables and normative infrastructures such as international institutions like the League of Nations.[149] That the idea of the "international

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[149] The literature on "international community" and international law is enormous, and there is no singular definition of the term. For a few examples, *see, e.g.,* René
-Jean Dupuy, *Communauté internationale et disparités de développement,"* 165 RCADI 9 (1979); Georges Abi-Saab, *Whither the International Community?*, 9 Eur. J. Int'l L. 248 (1998); Dino Kritsiotis, *Imagining the International Community*, 13 Eur. J. Int'l L. 961 (2002); Monica Hakimi, *Constructing an International Community*, 111:2 Am. J. Int'l L. 317 (2017). International jurists' references to "international community" can be traced back to at least the interwar period in HERSCH LAUTERPACHT, THE FUNCTION OF LAW AND THE INTERNATIONAL COMMUNITY (1933). Earlier references can be traced

community" would become more established in international law starting in the interwar period is reflective of how this community was both imagined and constructed in the context of communications technologies and international legal institutions such as the League. While Foucault theorized governmentality as shaping a subjectivity of population as an object of governance, this link between technology and international organizations helped international law become a global governmentality. This global governmentality did not just manage the affairs of states and diplomats, but managed various aspects of social life of populations all over the world with the help of communications technologies.[150] These technologies helped produce a particular "global consciousness" without which there could be "no political goal oriented to a common hope."[151]

IV. Conclusion

In this Chapter, using the concept of sociotechnical imaginaries, we have examined how different visions of desirable futures have become embedded in the technological developments surrounding undersea cables, from their advent in the nineteenth century to the interwar period in the context of the League of Nations. In the context of the nineteenth century, undersea cables came to represent the possibility of bringing the world closer together and enabled imagining the British nation to be

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back to the sixteenth century. *See* ANTONIO CASSESE, INTERNATIONAL LAW 22 (2005) (2nd ed.). However, according to Abi-Saab, while natural law concepts of *societas gentium* or *jus gentium* were regularly used by Vitoria, Suarez, and Grotius and might have expressed "the fundamental unity of the human race . . . governed by nature law," they were likely referring to "a theoretical construct . . . rather than as an existent reality." *Id.* Here, I am arguing, that communications technologies and the League of Nations helped construct a global community of peoples that were seen as being brought together by technology and international organizations that existed at that time, rather than referring to a concept to be aspired to in the distant future.

[150] While other projects of world governance predated this period, they did not tend to take populations as their objects of governance.

[151] CARL SCHMITT, THE NOMOS OF THE EARTH IN THE INTERNATIONAL LAW OF JUS PUBLICUM EUROPAEUM 50 (G. L. Ulmen tran., 2006).

all over the world, transcending political borders. This enabled a new spatial scale at which political communities, nations, and governance were imagined. Yet, this imaginary was set in the context of British imperialism, and hardly reflected social reality. Moreover, the imagining of the nation all over the world often came with racialized rather than territorialized visions of the nation, including of the Angloworld, intermediated through the telegraph and transnational undersea cable networks. The telegraph became a disciplining technology for the British in managing the colonial population in India, but also became a tool for Indian resistance and helping shape Indian nationalism in the process.

Cables and the communications they enabled also played an important role in the interwar period, as seen in institutional discourses of the League of Nations. Cables and communications between people of the world were thought to help promote peaceful relations and became an integral part of the League's work. Moreover, the League, with its emphasis on the importance of information flows and communications, helped construct an imagined global population over which governance could take place, enabling new scales of governance for international law.

CHAPTER FIVE

THINKING OUTSIDE THE CABLE: THE CO-PRODUCTION OF UNDERSEA CABLES AND INTERNATIONAL LAW

I. Introduction

This Chapter argues that undersea cables were a technology co-producing territorial configurations, sovereignty, and international law. Not only did the advent of the undersea cables shape new international legal regimes like the Cable Convention and the Law of the Sea, it also helped motivate new international institutional formations like the International Telegraph Union (later the International Telecommunication Union) (ITU), the first IO. These undersea cable networks were also shaped by these international legal regimes and actors, and their embedded visions of social progress. While territory and sovereignty are foundational concepts in international law, they are also largely regarded as produced and constructed by international law. Instead, this Chapter argues that territory and sovereignty are as much technological productions as they are international legal ones. Technologies like undersea cables helped co-produce international law, empires, and their embedded notions of social progress. Overlooking these relationships risks neglecting major historical motivations for territorial and sovereign claim-making, as well as projects of reform and renewal in international law. If international law is a common project and performance of a professional community of international lawyers, projects of

doctrinal and institutional development and renewal in international law can be seen as the solutions that international lawyers develop for the "problems" they identify.[1] The development of new technologies like undersea cables can be seen as one such "problem" which motivated projects of doctrinal and institutional creativity and renewal in international law.

Cables were territorial technologies that were co-produced with territorial geographies and configurations. Cables not only physically linked territories of different nations and states together, but also motivated territorial claim-making. Moreover, as communications technologies, cables were intricately tied with territorial disputes such as the Siam Crisis of 1893 and the Fashoda Crisis of 1898. Cables in many ways shaped territorial configurations and relations. As we have seen, the materials that were needed to insulate cables and make them capable of enduring the conditions in the deep seabed, such as gutta percha, shaped territorial disputes and reconfigurations in the nineteenth century that still exist today in Southeast Asia.[2]

During the twentieth century, cables were used as part of territorial expansion strategies not only for the purposes of imperial expansion, but also for the purposes of accessing landing points and landing stations on territory. Islands became especially important in this story due to their geographies which lent themselves as convenient landing points in the long distances between continents. This in turn affected the identities of islanders and even resulted in the displacement of an entire native island population in the Chagos Islands. Islands became important points linking and mediating global data flows and communications to local infrastructure and local people. In the island context especially, we can see the ideas of economic and social

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[1] David Kennedy, *When Renewal Repeats: Thinking Against the Box*, 32 N.Y.U. INT'L L. & POL. 335, 344–45 (2000).

[2] *See* Chapter Two.

progress that accompany the idea of the 'global' and where it meets—and sometimes conflicts with—local actors' visions, creating frictions between different visions of progress.[3] Moreover, cables became technologies of war, with cable cutting becoming a war tactic and intercepting cables becoming a practice of intelligence gathering which could overcome the limitations of territorial sovereignty in the high seas.

This Chapter traces the international legal regimes that constructed and facilitated the development of undersea cables. It will also examine how cables played an important part in international legal contestations and motivated territorial claim-making by a variety of actors, including states, corporations, and individuals, shaping territorial configurations and relationships that still exist today. Further, it will analyze the role of the ITU, and how claims of state sovereignty helped grant private corporations considerable power in developing and controlling undersea cables. Finally, we will look at how cables, as well as technology more broadly, might be helping reconfigure understandings of international legal concepts like sovereignty even today. In reshaping how people viewed the world and embedding notions of social progress, undersea cables helped shape new normative infrastructures, including international legal regimes and international organizations, consistent with those visions in a process of co-production.[4]

II. Undersea Cables and International Law

A. Submarine Cables in War

Some of the earliest anxieties around undersea cables was how they should be treated during warfare, and this was an area of considerable discussion. Coleman Phillipson, a British international lawyer writing in 1908, emphasized the importance

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[3] ANNA LOWENHAUPT TSING, FRICTION: AN ETHNOGRAPHY OF GLOBAL CONNECTION (2005).

[4] Sheila Jasanoff, *The Idiom of Co-Production*, *in* STATES OF KNOWLEDGE: THE CO-PRODUCTION OF SCIENCE AND THE SOCIAL ORDER 1–12 (Sheila Jasanoff ed., 2004).

of creating new international legal regimes regarding the cutting of cables during times of war. Due to their strategic importance in times of war, and the increasing number of cables around the world which facilitated international affairs and world commerce, Phillipson claimed they "necessitate some convention relative to their employment or interference by neutrals and belligerents in times of war."[5] The Cable Convention only dealt with the treatment of cables in times of peace, detailing the international legal protection of cable repair operations. Yet by the late nineteenth century cables became known as instruments of war, and were utilized as such. Not only were they used to transmit important war communications, they were vulnerable as targets of belligerents who could use them cut off the means by which their enemies obtained critical information, or to intercept the cables to obtain valuable strategic information.[6]

While there had been efforts to protect submarine cables within territorial seas of neutral parties during war by the IDI in 1902,[7] there had not been any treaty in place on the permissibility or prohibition of cutting or destroying cables during warfare. Indeed, as Phillipson described, after the successful laying of the transatlantic cable between the United Kingdom and the United States, there was increasing concern with protecting undersea cables at the international level. In his words, "[t]heir international character, determined rather by their territoriality than by the nationality of their proprietors, demands international protection."[8]

The United States proposed holding an international convention on the issue in 1869, suggesting that "[w]anton destruction of cables in the open sea . . . should be regarded as piracy; the sovereignty of States on whose shores cables terminated should

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[5] COLEMAN PHILLIPSON, TWO STUDIES IN INTERNATIONAL LAW 58 (1908).

[6] *Id.* at 59.

[7] *Id.* at 60.

[8] *Id.* at 60.

be affirmed; the convention should remain in force also in time of war—which in effect was a perpetual neutralization of cables . . . ."[9]

In 1871, the International Telegraph Conference held by the International Telegraph Union in Rome declared that naming a commission on establishing rules for treatment of telegraphs in times of war was beyond the scope of the authority set forth for the Conference. During that Conference, cable entrepreneur Cyrus Field proposed that destruction of cables should be prohibited, and "innocent despatches should be allowed in time of war; but he was unable to suggest any method by which the innocence, from the standpoint of a belligerent, of private or apparently private communications could be guaranteed."[10] Cyrus Field claimed that the destruction of telegraphic cables during war should be considered "an act of barbarism and be strictly prohibited by the law of nations."[11] He claimed that telegraphic messages should not be disrupted in times of war, for the powerful reason that "a Telegraph may be the means of making or accelerating the making of peace between combatants."[12]

Still other proposals were made regarding the treatment of cables in times of warfare. The IDI in 1878 appointed a committee to consider the issue of protecting cables in times of war. The following year, the committee decided to first create a classification of different cables, based on whether they connected territories of belligerents, neutrals, or connected portions of territory belonging to the same

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[9] *Id.* at 61–62.

[10] *Id.* at 63.

[11] Remarks of Mr. Cyrus W. Field, at the International Telegraphic Conference, Rome December 28th 1871, LIBRARY OF CONGRESS, WASHINGTON, D.C. 20540 USA, https://www.loc.gov/item/rbpe.23303200/ (last visited Dec 14, 2019).

[12] Cyrus W. Field, REMARKS OF MR. CYRUS W. FIELD, AT THE INTERNATIONAL TELEGRAPHIC CONFERENCE, ROME DECEMBER 28TH 1871., https://www.loc.gov/item/rbpe.23303200/ (last visited Dec 14, 2019).

belligerent.[13] Dr. Scholz, a member of the German Court of Appeal, proposed a similar, but more detailed classification scheme. He advanced a theory of the territoriality of the cable, or the *Kabel-territorium*.[14] Comparing cables to bridges, Dr. Scholz's theory proposed that the cable be considered "an accessory to the territory where it terminates, and is under the same sovereignty as the latter."[15] The principle of sovereignty, according to this theory, would thus be determined by the territoriality of the cables and the their ownership.[16] Phillipson did not find this theory persuasive, as it applied to cables between neutrals and belligerents and seemed to favor the latter.[17] Moreover, it would remain unclear how the territoriality of the cables would be apportioned if it began on the shores of one state and ended on the territorial shores of another. The Law of the Sea ultimately answered some of these questions and more broadly prohibited damaging cables.

B. The Law of the Sea

The seas have been the subject of significant geopolitical interest for centuries. They have remained an important area of concern in international law matters, including the United Nations Convention on the Law of the Sea (UNCLOS),[18] and have been the basis of a number of disputes brought before international legal fora. Adopted in 1982, UNCLOS contains provisions regarding undersea cables, the foundations for which can be found in the first convention to address undersea cables

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[13] PHILLIPSON, *supra* note 34 at 67–68.

[14] *Id.* at 69.

[15] *Id.* at 69.

[16] *Id.* at 70.

[17] *Id.* at 70.

[18] United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS].

developed in 1884 as the International Convention for the Protection of Submarine Cables ("Cable Convention").[19]

The Cable Convention was the international legal regime that expressly permitted the laying of cables in areas outside of territorial seas. Some of its principles have been incorporated into the 1958 Geneva Convention on the High Seas and Continental Shelf (High Seas Convention),[20] which purported to codify existing customary international law, and subsequently the UNCLOS, including prohibitions on breaking or injuring cables,[21] responsibility to bear the cost of repairing a cable that has been damaged as a result of laying or repairing one's own cable,[22] and compensation for avoiding anchoring by a ship out of concern of injuring a cable.[23] The provisions of UNCLOS on submarine cables, which are based on the provisions of the High Seas Convention, are considered customary international law, and therefore are binding on non-state parties.[24] The UNCLOS considers submarine cables a "common good that [is] the foundation of the increasing globalization and interconnectedness of the world."[25]

The UNCLOS provisions are one of the international legal regimes that permits the laying of cables undersea, even without the permission or consent of the coastal

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[19] DOUGLAS R. BURNETT & LIONEL CARTER, INTERNATIONAL SUBMARINE CABLES AND BIODIVERSITY OF AREAS BEYOND NATIONAL JURISDICTION: THE CLOUD BENEATH THE SEA 8 (2017). *See also* Convention for the Protection of Submarine Telegraph Cables (Paris, 14 March 1884; in force 23 September 1888), Article 2 [hereinafter Cable Convention].

[20] United Nations Convention on the High Seas, April 29, 1958, 450 U.N.T.S. 11.

[21] Cable Convention, Article 2.

[22] Cable Convention, Article 4.

[23] Cable Convention, Article 7.

[24] BURNETT AND CARTER, *supra* note 5 at 13.

[25] Tara Davenport, *Submarine Communications Cables and Law of the Sea: Problems in Law and Practice*, 43 OCEAN DEVELOPMENT & INTERNATIONAL LAW 201, 201 (2012).

state.[26] Indeed, according to Articles 58 of UNCLOS provides for the freedom to lay submarine cables and pipelines in the exclusive economic zone (EEZ) and Article 87(1) establishes "the freedom of the high seas enjoyed by all states includes the freedom to lay submarine cables."[27] Article 112 of the UNCLOS also ensures that states can lay cables in the bed of the high seas beyond the continental shelf and Article 113 requires that states adopt laws that declare willful damage of submarine cables by a person subject to its jurisdiction a punishable offense.[28] The only restrictions to the permissive freedom to lay undersea cables are the UNCLOS provisions regarding territorial waters and the continental shelf, which require the consent of the coastal state with regard to the path the cables follow.[29] The ICJ further recognized this in the *North Sea Continental Shelf Cases*.[30] In areas within the territorial sea of a state, the coastal state must consent to the laying of cables, their operation, maintenance, and landing on territory, and may restrict those actions according to its domestic regulations.[31] In the high seas, or areas beyond national jurisdiction (ABNJ), coastal states may not restrict other states or their nationals from laying and maintaining cables.[32] While these

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[26] Douglas Burnett, Tara Davenport, and Robert Beckman, "Overview of the International Legal Regime Governing Submarine Cables," *in* SUBMARINE CABLES: THE HANDBOOK OF LAW AND POLICY 81 (Douglas R. Burnett, Robert C. Beckman, and Tara M. Davenport, eds., 2014). The only exception for this is that states can exclude cables from areas within their territory or territorial sea. UNCLOS Article 79(4).

[27] UNCLOS Articles 58 and 87(1).

[28] UNCLOS Articles 112 and 76(3).

[29] UNCLOS Articles 21 and 76(3).

[30] *North Sea Continental Shelf Cases (Federal Republic of Germany v. Denmark; Federal Republic of Germany v. Netherlands)*, 1969 I.C.J. Rep. 3, 39, ¶ 65 (Feb. 20).

[31] Markos Karavias, *Submarine Cables and Pipelines: The Protection of Investors Under International Law*, THE JOURNAL OF WORLD INVESTMENT & TRADE 860–889, 864 (2018).

[32] Douglas R. Burnett, *OSPAR and Coastal State Encroachment on High Seas Submarine Cable Freedoms*, *in* SUSTAINABLE OCEAN RESOURCE GOVERNANCE: DEEP SEA MINING, MARINE ENERGY AND SUBMARINE CABLES 234–277 (Kotzur Markus et al. eds., 2018). Limitations include "taking measures to avoid the possibility or prejudicing cable repair and due regard for other freedoms of the sea and activities conducted in the Area." *Id.*

regimes only afford privileges to states to lay cables, this creates derivative rights for private actors such as corporations to do so as well. The private corporations and cableships that are laying submarine cables often do so in associations or consortia, including private corporations from a number of different jurisdictions.[33] As will be further discussed in this Chapter, these consortia and the property rights apportioned in the cables are governed by the terms of private agreements.[34] As the cables themselves are not registered under any flag,[35] they are not subject to any one state's exclusive enforcement jurisdiction when those cables are located in ABNJs. The UNCLOS prohibits the exercise of state sovereignty in ABNJs, as they are considered "the common heritage of mankind."[36]

In addition to the international legal regimes that apply specifically to the cables themselves, the principles of *res communis* and *res nullius* have also provided the foundation for the laying of cables in the seas. The freedom of the high seas based on a principle of *res communis* has been a foundational concept in international law, often attributed to Grotius' writings in *Mare Liberum: Sive de Iure quod Batavis Competit ad Indicana Commercia Dissertatio* (1609).[37] Some of the logics and principles behind Grotius' thoughts on the high seas have played out today in ways similar to the past, when navigation of the seas and their characterization as global commons permitted

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[33] Introduction: Why Submarine Cables?, *in* SUBMARINE CABLES: THE HANDBOOK OF LAW AND POLICY , 9 (Douglas R. Burnett, Robert C. Beckman, & Tara M. Davenport eds., 2013).

[34] Karavias, *supra* note 17.

[35] Introduction, *supra* note 19 at 9.

[36] UNCLOS Article 136.

[37] HUGO GROTIUS, THE FREEDOM OF THE SEAS, OR, THE RIGHT WHICH BELONGS TO THE DUTCH TO TAKE PART IN THE EAST INDIAN TRADE (1916).

the vast expansion of empire and alliances between corporations and states to advance the interests of capital and the expansion of imperial power.[38]

While the seas have been the site of commercial trade, extraction, and geopolitical conflict over the past centuries, today they are also the site of a silent and largely invisible occupation by technology and telecommunications corporations. Indeed, the Law of the Sea might be seen as premised on an extractive logic,[39] something which we have also witnessed with the laying of cables on the ocean floor and the role of international law in facilitating those activities.

In the case of the undersea cables, we can see how new technological developments spurred the creation of new international legal frameworks, like the Cable Convention, which in subsequent iterations transformed into the UNCLOS. Indeed, the preamble to UNCLOS highlights that one of its purposes is to facilitate international communication by establishing:

> [W]ith due regard for the sovereignty of all States, a legal order for the seas and oceans which will facilitate international communication, will promote the peaceful uses of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment.[40]

That international communication is the first priority listed in the preamble to the UNCLOS illustrates its importance in the Convention, and reflects that it was indeed international communication through underseas cables that helped spur the creation and subsequent development of a formal international legal framework

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[38] FRITJOF CAPRA AND UGO MATTEI, THE ECOLOGY OF LAW: TOWARD A LEGAL SYSTEM IN TUNE WITH NATURE AND COMMUNITY 82-84 (2015).

[39] Surabhi Ranganathan, *Ocean Floor Grab: International Law and the Making of an Extractive Imaginary*, 30 EUROPEAN JOURNAL OF INTERNATIONAL LAW 573 (2019).

[40] UNCLOS, Preamble.

governing the seas. Not only did this framework, along with other concepts such as *res communis* and *res nulllius*, facilitate and permissively help shape the construction of undersea cable networks, undersea cable networks in turn had the effect of motivating the creation of new international legal regimes. As we shall see later in this Chapter, these undersea cables also motivated the creation of the first IO, making them one of the foundational technological developments which helped shape the subsequent institutional configurations of international law.

Moreover, the preamble to UNCLOS also states that the Convention is "an important contribution to the maintenance of peace, justice and progress for all peoples of the world."[41] As we have seen, this creates an imaginary of the seas as a space of not only peace and international cooperation, but also a space that can help facilitate "progress." This idea of social progress mirrors discourses on the new social, economic, and political relations imagined and enabled through undersea cables and their facilitation of rapid communications around the world. That the seas should promote progress imagines them in close connection with technologies that are passing through them. In doing so, it promotes an imaginary of the seas as "technological zones"[42] but the global reach of the cables means that they have broader social impact than the physical spaces they reach. It also promotes a vision of the seas as a place for capital investment and economic interests to play out. As Ranganathan argues, "[c]ommercial interests and techno-scientific progress also contributed to a view of the seas as something more than a navigational surface or fishing commons – as containing places, in fact, for fixed capital investment."[43]

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[41] UNCLOS, Preamble.

[42] Andrew Barry, *Technological Zones*, 9 EUROPEAN JOURNAL OF SOCIAL THEORY 239–253 (2006).

[43] Ranganathan, *supra* note 25 at 574.

Cables also produced a particular imaginary of the seas as a space beyond territoriality and nationality, and therefore a cosmopolitan space, as exemplified in the many narratives described in the previous Chapter of the benefits cables would bring to the world and mankind. The cosmopolitan imaginary of the seas is particularly evident in the UNCLOS's own reference to the deep seabed and the high seas as the "common heritage of mankind."[44] But this cosmopolitan dream of the seas, and in particular the seabed, was hardly the reality. During the twentieth century, the seabed became subject to increasing territorial and national jurisdiction claims that were recognized by the UNCLOS, something which Ranganathan terms the "ocean floor grab".[45] The unequal distribution of the economic benefits of seabed mining squarely confirmed that the high seas and its resources were not for the common benefit of mankind.[46] These activities benefit some states and corporations and harm others, even if extractive projects in the seas are described as benefitting mankind.[47]

C. The International Telecommunication Union

Undersea cables also motivated the creation of a new institutional form in international law, the international organization, and a new form of governance—governance by standardization. The International Telegraph Union was established in 1865 as an IO among states to promote compatibility through establishing standards for the different communication systems such as codes, language, standards for government communications, and to coordinate prices on the market for network use. Its agreements prevented competition and promoted the cartelization of the industry

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[44] UNCLOS Article 136.

[45] Ranganathan, *supra* note 25 at 575–76.

[46] *Id.* at 597–8.

[47] *Id.* at 598.

between a few countries.[48] The International Telegraph Union was established by a conference in Paris, consolidated existing agreements and unions such as the Austro-German Telegraph Union, the Telegraphic Union of Western Europe, and the Bern Telegraph Convention, to create uniformity across national telegraph systems.

While Mazower argues that the idea of "governing the world" originated with the Concert of Europe in 1815,[49] the ITU and the increasing international institutionalization in its aftermath represented a new form of internationalism which continues to be present today. According to Howland, the ITU represented the "administrative internationalism" of the nineteenth century.[50] This administrative internationalism was different from the "idea of international society as a family of sovereign states dominated by the great powers."[51] This novel internationalism was open to states, semi-sovereigns, and colonies, which differed significantly from the international order and the world imagined as a "set of sovereign states."[52] This administrative internationalism was far more open and flexible to a wide variety of political units beyond sovereign states than the international order later imagined in the Hague Peace Conferences of 1899 and 1907.[53]

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[48] JILL HILLS, THE STRUGGLE FOR CONTROL OF GLOBAL COMMUNICATION: THE FORMATIVE CENTURY 287 (2002).

[49] MARK MAZOWER, GOVERNING THE WORLD: THE HISTORY OF AN IDEA, 1815 TO THE PRESENT (2012).

[50] Douglas Howland, *Telegraph Technology and Administrative Internationalism in the Nineteenth Century*, THE GLOBAL POLITICS OF SCIENCE AND TECHNOLOGY - VOL. 1 183–199 (2014).

[51] *Id.* at 184.

[52] Douglas Howland, *An alternative mode of international order: The international administrative union in the nineteenth century*, 41 REVIEW OF INTERNATIONAL STUDIES 161–183, 162 (2015).

[53] *Id.* at 162.

Membership in the ITU in the nineteenth century "offered linkages to the global network of telegraph cables."[54] Howland describes the new internationalism that the telegraph's expansion around the world offered:

> [T]he new internationalism was based, not on an idealism looking to eternal peace, but on a practical realization among people across the world: the mutual advantages to be secured by their common interests justified some collective administration of their mutual activities. The world was achieving a new stage of integration, and a central fact of this new world order was the new international administrative union inaugurated by the International Telegraph Union.[55]

This novel internationalism permitted an alternative means for "semi-civilized" states like Japan and colonies to assert state power against colonial powers through engagement with international organizations.[56] Indeed, as Howland notes, the international administrative law of that period, starting from the 1860s, was based on technology. These laws "creat[ed] standards for telegraph linkages, standard time zones and railway gauges for train transportation, and standards for postal rates and transport."[57] These technological developments were increasingly problematizing territoriality as an organizing principle for international affairs. According to Howland, "[t]echnology transcended territory in theory and accordingly, the international administrative union that managed the technology and its services was prepared to represent that universal space uniformly across territorial divisions reflecting sovereign or national differences."[58] As this space was composed of both public and private

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[54] Howland, *supra* note 49.

[55] *Id.* at 183.

[56] *Id.* at 184.

[57] *Id.* at 185.

[58] *Id.* at 186.

interests, the ITU managed to integrate all of these competing interests into a global network.[59]

"Colonial voting," or voting on behalf of its colonial territories, gave Britain increased voting power and dominance in the Telegraph Union, ensuring it could establish rates that would benefit itself, both as a user of international communications and to British commercial interests.[60] The United States, on the other hand, never joined the International Telegraph Union because the government did not want to interfere with private enterprises in telecommunications, and did not want to regulate their activities.[61] While it was an international organization with states as voting members, private telegraph companies also participated in its conferences.[62] Although these companies had nonvoting rights at the plenipotentiary conferences, they participated in the modification of regulations established by the Telegraph Union in its administrative conferences after 1871,[63] ensuring that the interests of these private companies were represented. Moreover, by sending representatives to these conferences, it also gave the cable companies and their managers means of having their voices heard and to advocate for their interests with government officials.[64]

Moreover, the ITU inaugurated standard setting as a form of global governance. Standard setting through coordination has since become a more effective means of

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[59] *Id.* at 187.

[60] HILLS, *supra* note 47 at 60–61.

[61] George A. Codding Jr., *The International Telecommunications Union: 130 Years of Telecommunications Regulation*, 23 DENVER JOURNAL OF INTERNATIONAL LAW & POLICY 501, 502 (1995).

[62] GEORGE A. CODDING, JR. & ANTHONY M. RUTKOWSKI, THE INTERNATIONAL TELECOMMUNICATION UNION IN A CHANGING WORLD 11 (1982).

[63] HILLS, *supra* note 47 at 59; *Id.* at 287.

[64] Simone Müller-Pohl, *Working the Nation State: Submarine Cable Actors, Cable Transnationalism and the Governance of the Global Media System, 1858-1914*, *in* GOVERNING GLOBALIZATION PROCESSES IN THE NINETEENTH AND EARLY TWENTIETH CENTURIES 101–123, 115 (Isabella Löhr & Roland Wenzlhuemer eds., 2013).

governing international communications than attempts to govern the content or users of technology.[65]   Standard setting has also been more durable due to the path dependencies of communication infrastructures.[66]   Coordination of different communication systems through technical standards was necessary to ensure that international communications could effectively and smoothly move across different national borders.[67]   This also required the cooperation of private corporations that owned undersea cables, even though the ITU did not have a mandate to coordinate them.[68]   Still today, the ITU does not have a mandate to govern privately owned undersea cables.[69]

In 1932, the International Telegraph Union was merged into the International Telecommunication Union (ITU), and in 1934, the International Radio Telegraph Union merged into the ITU.   The ITU is a United Nations specialized agency established by agreement in 1947.   Since its origins, ITU has been a public-private partnership organization, and its membership includes a number of public and private sector corporations, in addition to its Member States.   Several other IOs including UNESCO, World Health Organization (WHO), United Nations Development Programme (UNDP), International Labour Organization (ILO), International Monetary Fund (IMF), and the World Bank have a history of sending representatives to attend ITU conferences.[70]

In 2012, the World Conference on International Telecommunications (WCIT-12) sought to substantially revise the International Telecommunications Regulations

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[65] Heidi J. S. Tworek & Simone M. Müller, *Introduction*, 27 JOURNAL OF POLICY HISTORY 405–415 (2015).

[66] *Id.* at 406.

[67] *Id.* at 407.

[68] *Id.* at 407.

[69] *Id.* at 408.

[70] CODDING, JR. AND RUTKOWSKI, *supra* note 61.

(ITRs) with the Draft of the Future ITRs, including by granting Member States of the ITU with equal rights to manage the internet, right of access to telecommunication services, support for the development of internet infrastructure.[71] It attempted to bring internet governance under a set of negotiated international rules, but those rules could also be used to justify problematic practices such as censorship.[72] Arguably, the human rights references in the proposed ITRs conflicted with the notion that the ITRs were not regulating content, despite the explicit reference to not addressing content-related aspects of telecommunications.[73] The WCIT-12 ultimately failed to achieve consensus.[74] This has always been the case with the ITU being more successful at providing technical standards rather than a common supranational telecommunications regulatory framework binding states, especially with regard to content based regulations.[75]

III. Cables as Territorial Technologies

According to Maier, the twentieth century, which he conceptualizes as starting roughly around 1860 and ending roughly around 1970 or 1980, was characterized by the "emergence, ascendancy, and subsequent crisis of what is best labeled 'territoriality.'"[76] According to him, territoriality is a recent attribute of human

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[71] David P. Fidler, *Internet Governance and International Law: The Controversy Concerning Revision of the International Telecommunication Regulations*, 17 ASIL INSIGHTS (2013), /insights/volume/17/issue/6/internet-governance-and-international-law-controversy-concerning-revision (last visited Mar 5, 2020).

[72] Alberto Oddenino, *Diritti individuali, sicurezza informatica e accesso alla conoscenza in rete: la revisione delle International Telecommunication Regulations dell'ITU (Individual Rights, Cybersecurity and Access to Knowledge on the Internet: The Revision of ITU International Telecommunication Regulations)*, 7 DIRITTI UMANI E DIRITTO INTERNAZIONALE 532–539 (2013).

[73] Fidler, *supra* note 70.

[74] *Id.*

[75] Tworek and Müller, *supra* note 64.

[76] Charles S. Maier, *Consigning the Twentieth Century to History: Alternative Narratives for the Modern Era*, 105 THE AMERICAN HISTORICAL REVIEW 807, 807 (2000).

societies. It refers to "the properties, including power, provided by the control of bordered political space, which until recently at least created a framework for national and often ethnic identity."[77]

As there were various reconfigurations of territoriality for several centuries in the context of imperialism, territoriality took on a new rescaling in the latter half of the nineteenth century, as new technologies such as steam power, railroads, and the telegraph changed the geographic scale of political control.[78] These transformations in "territorial consciousness" meant that no part of a territory could avoid state control. The telegraph, steamboats, and railroads gave access to more points within a state's territory, which "could be supervised by administrators, opened for economic exploitation, mobilized for national purposes."[79] This gave states considerable motivation to invest in material infrastructure projects to mobilize territory for state power, and to give states greater power over populations and economic resources. In the last decades of the twentieth century, the imagery of global information networks and mobile capital prevailed over territorially-based processes of production.[80]

A. Cable Landing Rights

Obtaining cable landing rights became a necessary, but complicated and contested affair. It caused disruptions in diplomatic affairs over equal treatment. For example, when Germany sought landing rights in Constantinople and met with resistance from Britain and delays by Turkey, it had to threaten interrupting the Indo-European Telegraph Company lines in Germany to finally obtain them.[81] In addition,

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[77] *Id.* at 808.

[78] *Id.* at 815–816.

[79] *Id.* at 820.

[80] *Id.* at 824.

[81] DANIEL R. HEADRICK, THE INVISIBLE WEAPON: TELECOMMUNICATIONS AND INTERNATIONAL POLITICS, 1851-1945 108 (1991).

when France excluded American companies from concessions for landing rights, the United States established a principle of reciprocity where it would only grant landing rights if American companies could also obtain landing rights at the other end of the cable.[82] This was in contrast to the common practice at the time of granting exclusive, monopoly landing rights, which most countries were doing and which granted considerable consolidation in the companies operating in the cable business.[83]

International regulations and standards were also important in shaping rules for granting concessions and landing rights on territorial shores, especially through the International Telegraph Union. Today, each cable that touches a state's territory and is installed in a cable landing station requires first obtaining a license from the government of the territory where the cable lands, and then obtaining a permit authorizing laying a cable on the territorial seabed, for cables that pass through territorial waters, even if they do not touch that country's land, and authorizing any portions of the cable that connect to overland cable routes.[84] A cable "Landing Party", a telecommunications carrier based in the country where the cable is laid, usually assists with obtaining these necessary permits.[85] Some states also require permits for cables that pass through the EEZ or continental shelf, even if the cable never passes through the territorial seas.[86] Some states, such as India and Indonesia, even require that members of the crew and/or the vessel laying the cables have the same nationality as

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[82] SIMONE MÜLLER, WIRING THE WORLD: THE SOCIAL AND CULTURAL CREATION OF GLOBAL TELEGRAPH NETWORKS 192 (2016).

[83] *Id.* at 192.

[84] Keith Ford-Ramsden & Tara Davenport, *The Manufacture and Laying of Submarine Cables*, *in* SUBMARINE CABLES: THE HANDBOOK OF LAW AND POLICY , 124 (Douglas R. Burnett, Robert C. Beckman, & Tara M. Davenport eds., 2014).

[85] *Id.* at 124.

[86] *Id.* at 124.

the coastal state.[87] Some of these restrictions are contrary to UNCLOS provisions and indicate an overextension of their exercise of territorial sovereignty, something Oxman has termed the "territorialization" or "creeping jurisdiction" of coastal states in the EEZ.[88] This illustrates the ways in which undersea cables are inextricably tied with territorial sovereignty and help shape its meanings through state practice with regard to cables.

B. Contestations over Borders

In the early decades of the development of telegraph networks, borders became an area that raised ambiguities for creating interconnected networks governed by standardized rates. For example, in the 1870s, the International Telegraph Union and Germany postmaster Ernest von Stephan proposed initiatives to standardize rates for sending telegraphs using state-owned systems across Europe.[89] The goal was to provide a cheaper means of communications as an alternative to privately owned telegraphic networks and to make state-owned telegraph systems more competitive with privately owned cable firms.[90] Indeed, communications network infrastructures, such as underseas cables, along with roads and common electricity, helped materialize the European Union far before its formal institutionalization as a space of economic and political cooperation.[91] Creating a "trans-European communicative space" meant also defining which countries would be considered part of that space, and therefore

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[87] *Id.* at 144.

[88] Bernard H. Oxman, *The Territorial Temptation: A Siren Song at Sea*, 100 THE AMERICAN JOURNAL OF INTERNATIONAL LAW 830–851 (2006).

[89] DWAYNE R. WINSECK & ROBERT M. PIKE, COMMUNICATION AND EMPIRE: MEDIA, MARKETS, AND GLOBALIZATION, 1860–1930 100–101 (2007).

[90] *Id.* at 101.

[91] Simone M. Müller & Heidi J.S. Tworek, *'The telegraph and the bank': on the interdependence of global communications and capitalism, 1866–1914*, 10 JOURNAL OF GLOBAL HISTORY 259, 270 (2015).

part of the standardized rate system.[92] While including European colonies as part of the trans-European rate did not raise controversy, areas of informal empire such as Turkey, Persia, and Egypt did,[93] raising questions also about the economic motivations and consequences of political identity and belonging. Due to opposition from the privately-owned cable cartels, the British government, and the British telegraph system, however, these efforts ultimately never came to fruition[94] and those areas of informal empire were excluded from the standardized rate system of the European communicative space.

C. Cables and Communications in Territorial Disputes

Cables played a role in territorial conflicts and were used strategically to obtain essential intelligence information, as the Siam Crisis (1893) illustrated. France and Great Britain came into conflict over the territory of Siam, as it was essential for both of their strategic interests. France wanted to take control of Cambodia, and Britain wanted to "keep Siam independent as a buffer protecting Burma."[95] In May 1893, after the Siamese had fired on French gunboats, the French government authorized General Humann to demand a large piece of territory and other privileges from the Siamese via a cable communication.[96] The Eastern Telegraph Company delayed the transmission of the cable so the British Cabinet could read it.[97] In 1896, France and Great Britain agreed to leave Siam as an independent territory, but smaller than it had been, as Siam ceded Laos to France.

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[92] WINSECK AND PIKE, *supra* note 88 at 101.

[93] *Id.* at 101.

[94] *Id.* at 101–102.

[95] HEADRICK, *supra* note 80 at 79.

[96] *Id.* at 79.

[97] *Id.* at 79.

Communications played an essential role in the territorial expansion and claim-making activities of European imperial powers and the United States. The ability to communicate quickly became essential in conflicting claims between England and France during partitioning of the African continent. The Fashoda Crisis (1898) illustrated this well. Marchand, needing to communicate to Paris, would have needed to use a British cable, which would remove the secrecy of the information being transmitted and allow the British to slow down the communication.[98] Marchand ultimately departed Cairo because he needed to communicate with Paris, but since the British Kitchener had built a telegraph line along the Nile River, he could communicate easily with London without needing to leave the territory. Marchand's departure from Cairo weakened France's ability to have a say in the disposition of the Sudan.[99]

D. Cables as Impetus for Territorial Claim-Making

Disputes over cable landing stations provided impetus for territorial claim-making. Islands became important as landing stations for cables in the long distances between continents, as longer cables were more susceptible to breakage. The search for island landing stations both motivated the acquisition of island territories and territorial disputes over them. In the late nineteenth century, Canadian engineer Sandford Fleming, went on several expeditions looking for suitable island territories to serve as cable landing stations in the mid-Pacific, as a way of connecting Canada and Australia and thereby completing the All Red Line around the world. In 1887, Fleming, threatened by the possibility of losing access to the Hawaiian Islands, made

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[98] Jean-Claude Allain, *Strategic Independence and Security of Communications: The Undersea Telegraph Cables*, *in* NATIONHOOD AND NATIONALISM IN FRANCE: FROM BOULANGISM TO THE GREAT WAR 1889-1918 , 271 (1991).

[99] P. M. Kennedy, *Imperial cable communications and strategy, 1870–1914 ^{1}*, LXXXVI THE ENGLISH HISTORICAL REVIEW 728–752 (1971).

a formal request to the British government to take possession of three islands in the Pacific, Christmas Island, Penhryn Island, and Fanning Island.[100] Britain annexed these three islands in 1888 to use them as landing stations for cables.[101]

As the British sought to have landing points for the All Red Line only touching on British territories, laying a cable between Australia and Canada made a mid-ocean telegraph station desirable. With this goal, Fleming went on an expedition near the Hawaiian Islands, with an interest in seeing if Necker Island would be a suitable place for landing a cable. After some investigation, it appeared that British Government had already recognized Necker Island "as an appanage of the Hawaiian Crown or Government, and had asked the Provisional Government on what conditions they would allow Great Britain to have control of the island, for the purposes of landing a cable there."[102] Until that point in time, the island was uninhabited and uninhabitable, and Hawaii had not made any claims to it.[103] It had appeared that the desire to land a cable on the island gave it increased strategic importance, and the Hawaiian Government needed to land and take formal possession of it to make a valid claim.[104] Once the British Colonial Office and Foreign Office informed the Hawaiian government of its interests in the island, the Hawaiian government planted its flag on the island in 1894, marking it as its own.[105] After raising its flag on Necker Island, Hawaii proclaimed sovereignty over "the little lava rock."[106] Thereafter, the British

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[100] Robert W. D. Boyce, *Imperial Dreams and National Realities: Britain, Canada and the Struggle for a Pacific Telegraph Cable, 1879-1902*, 115 THE ENGLISH HISTORICAL REVIEW 39, 53 (2000).

[101] GEORGE JOHNSON, THE ALL RED LINE, 1903: THE ANNALS AND AIMS OF THE PACIFIC CABLE PROJECT 147 (1903).

[102] *Id.* at 135.

[103] *Id.* at 135.

[104] *Id.* at 141.

[105] HILLS, *supra* note 47 at 83.

[106] JOHNSON, *supra* note 100 at 142.

Government and the Hawaiian Government tried to negotiate an agreement to lease either Necker Island or another neighboring uninhabited island to Great Britain for the purposes of laying the Pacific Cable. Since the Hawaiian Government had a Reciprocity Treaty with the United States that prevented it from leasing or disposing of its lands, they needed to obtain the approval of the United States Government, who ultimately rejected the proposed agreement.[107] These claims show the interwovenness of undersea cables with territorial claims and sovereignty.

E. Cables Reconfiguring Territory and Sovereignty

1. The Philippines

After the Spanish-American War, when the United States took control of the Philippines, American entrepreneurs also took the opportunity to land cables on newly acquired American territory without seeking concessions. After that war, the United States realized the strategic importance and convenience of using its own cables rather than British cables. American entrepreneurs sought subsidies from the government to build undersea cable networks to connect the United States with territories across the Pacific Ocean, which the government refused. In 1901, John Mackay, president of the Commercial Cable and Postal Telegraph companies, declared his intention to lay a cable across the Pacific Ocean without a government subsidy. He formed the Commercial Pacific Cable Company, which laid a cable from San Francisco to Manila in 1903, without requesting landing rights from the Philippines, as he considered the Pacific Ocean a "navigable water of the United States."[108] Colonial territories opened the way for cable entrepreneurs to land cables on new territories without concessions, illustrating the interconnection between empire, territory, and cable laying.

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[107] *Id.* at 145–46.

[108] Daniel R. Headrick & Pascal Griset, *Submarine Telegraph Cables: Business and Politics, 1838-1939*, 75 THE BUSINESS HISTORY REVIEW 543–578, 566 (2001).

2. Azores Islands

Cables were used as part of strategies of territorial expansion and strengthening imperial control over territories in different parts of the world. But they also motivated creative means of managing conflicting claims of access to strategically located territories. The Azores Islands in the mid-Atlantic were a strategic cable landing point between Europe and North America. In the mid-1920s, control over landing rights in the Azores, was "internationalized," meaning the islands became "an open hub where cable firms from a variety of countries interconnected with one another and were managed through a cooperatively run office and switching station."[109] The United States Department of State advocated opening access to the Azores Islands so that resources such as office, traffic management, and interconnections could be jointly managed as a "global communications commons."[110]

Several corporations turned the islands into a hub for their operations, including Western Union, the French Cable Company, the New German Cable Company, and the Italian Submarine Telegraph Company.[111] Western Union, the Western Electric Company, and the Telegraph Construction and Maintenance Company developed new Permalloy cables around 1924, which were considerably faster than old cables.[112] Western Union was the only American company to lay these cables across the Atlantic to the Azores and then to France Germany, Spain, and Italy.[113] With the advent of this new technology, firms created an "open network" regime to share communication resources with one another, including leasing

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[109] WINSECK AND PIKE, *supra* note 88 at 314.

[110] *Id.* at 267–268.

[111] *Id.* at 314.

[112] *Id.* at 314.

[113] *Id.* at 314.

bandwidth rather than laying their own cables.[114]   This transformed the highly competitive space of cable and communication networks filled with cartels and price-fixing into one where cooperation could take place.[115]   It also transformed the Azores Islands into an internationalized communications hub, administered and accessible to multiple states and corporations, transforming territorial relationships.

3. Diego Garcia & Ascension Island

Communications and signals intelligence operations motivated the British to make territorial acquisitions even after the collapse of formal imperialism.   Britain became interested in creating a new sovereign area in the string of small islands in the Indian Ocean known as the Chagos Islands called the British Indian Ocean Territories (BIOT).   It successfully persuaded Mauritius and the Seychelles to detach these islands from their sovereign territory.   The British purchased the Chagos Islands for £3 million from Mauritius, then a British colony, and created the BIOT in 1965.   The UK had applied considerable pressure to Mauritius to consent to detaching the Chagos Islands, and made it a condition of granting Mauritius independence.[116]

While many attribute Britain's interest in the Chagos Islands as motivated by creating military and navy bases, and helping the US create foreign bases there, Mainwaring and Aldrich argue that those motivations came later, as "signals intelligence and communications drove the initial acquisition and maintenance of Diego Garcia and the British Indian Overseas [sic] Territories (BIOTs)."[117]   The British

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[114] *Id.* at 314–315.

[115] *Id.* at 315.

[116] Legal Consequences of the Separation of the Chagos Archipelago from Mauritius in 1965, Advisory Opinion (Feb. 25, 2019), https://www.icj-cij.org/en/case/169/advisory-opinions, [hereinafter Chagos Opinion].

[117] Sarah Mainwaring & Richard J. Aldrich, *The Secret Empire of Signals Intelligence: GCHQ and the Persistence of the Colonial Presence*, THE INTERNATIONAL HISTORY REVIEW 1, 10 (2019).

worked with American defense officials to develop the intelligence outpost on Diego

Garcia, the largest island in the archipelago. Britain helped build a communications

station on the island in late 1970, thereby helping shape the US's proxy empire.[118] In

the process, the British forcibly deported the native people of Diego Garcia to

Mauritius and the Seychelles. As many native people worked on the coconut

plantations of the Chagos-Agalega company, the BIOT Administration bought out the

company in 1967, becoming the only property owner on the island. The British leased

out property to the company, but after the company terminated the lease in 1967, the

UK forcibly removed the formerly employed native farm workers to Mauritius. The

native Chagossions subsequently faced severe poverty and discrimination after being

deported to Mauritius.[119]

Britain's sovereignty over the Chagos Islands still has significant consequences

today and has caused disputes relating to decolonization and the resettlement of

indigenous populations. Mauritius brought a dispute over sovereignty of the Chagos

Islands before the International Court of Justice in the *Legal Consequences of the Separation*

of the Chagos Archipelago from Mauritius in 1965 case. In that case, the issues presented

were (1) whether decolonization of Mauritius was lawfully completed when it was

granted independence in 1968, even though the Chagos Islands had been separated

from Mauritius before then, and (2) the consequences in international law of the UK

administering the islands and the inability of Mauritius to resettle its nationals that were

indigenous to the Chagos Islands. The ICJ held that Britain's decolonization of the

Chagos Islands was unlawful as the separation of the archipelago from Mauritius in

1965 was not a "free and genuine expression of the people concerned" as Britain

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[118] *Id.* at 10.

[119] STEPHEN ALLEN, THE CHAGOS ISLANDERS AND INTERNATIONAL LAW (2014).

conditioned granting independence to Mauritius on the granting of sovereignty over the Islands.[120] The ICJ left the issue of the modality of decolonization and resettlement to the UN General Assembly.[121] Three months after the ICJ's issuance of its Advisory Opinion, the UN General Assembly voted in favor of the Chagos Islands being returned to Mauritius.[122] Despite these outcomes, the UK does not recognize Mauritius's claim of sovereignty and has until now refused to return control over the Chagos Islands.[123] Moreover, the UK claims that rising sea levels due to climate change make resettlement of native Chagossians unfeasible.

Another British outpost located midway between South America and Africa called Ascension Island provided a strategic site for communications activities for both Britain and the US. From 1922 to 2002, Cable & Wireless PLC provided governmental and economic administration for the island. In 2008, the UK made a claim to the United Nations Commission on the Limits of the Continental Shelf (UNCLCS) requesting sovereignty over 77,220 square miles of submarine territory around Ascension Island. While the UNCLCS ultimately denied the request,[124] it appeared that the UK was using the Island as a site for GCHQ's operation of a signals interception facility, using it as a communications and intelligence operations site.[125]

IV. Cables as Technologies of War

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[120] Chagos Opinion, *supra* note 108 at 172, 177–181.

[121] Chagos Opinion, *supra* note 108 at 177–181.

[122] G.A. Res. 73/295 (May 22, 2019).

[123] Andrew Harding, *UK misses deadline to return Chagos Islands*, November 22, 2019, https://www.bbc.com/news/uk-50511847 (last visited Jan 3, 2020).

[124] Summary of Recommendations of the Commission on the Limits of the Continental Shelf in Regard to the Submission Made by the United Kingdom of Great Britain and Northern Ireland in Respect of Ascension Island on May 9, 2008, available at: https://www.un.org/depts/los/clcs_new/submissions_files/gbr08/gbr_asc_isl_rec_summ.pdf (last accessed January 3, 2019).

[125] Mainwaring and Aldrich, *supra* note 116 at 12.

A. Cable Cutting

Bright believed that telegraphy would be an improved method of conducting diplomatic relations, and thus, would help avert war. But he also warned that Great Britain, with its colonies and territories scattered around the world, might be vulnerable to cable cutting. He was optimistic that the experience of the first few decades of telegraphy had "distinctly pronounce[d] in favour of the pacific effects of telegraphy."[126] His beliefs quickly changed after the Spanish-American War.

The Spanish-American War (1898), otherwise known as the "war of coals and cables," became the first instance where cable cutting was used as a warfare tactic. Only after the War did the nationality of the cable company become important,[127] as it could potentially create legal and monetary obligations for states to other states for the destruction of cables if the cable company is operating as a public service on behalf of a state, or as a private, neutral party.

As far back as 1923, there were international arbitral cases regarding the permissibility of destruction of undersea cables during warfare and whether there was a duty to compensate, which not only illustrated their strategic importance, but also how these actions were seen under the gaze of international law. These cases brought the materiality of the cables to the foreground, as well as issues regarding ownership, authority, and their status during warfare under the Cable Convention that was applicable at the time. In the *Eastern Extension* arbitration, the tribunal held that the destruction of cables owned by a neutral party during war was recognized by Article 15 of the Cable Convention and no duty of compensation was owed to the company

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[126] CHARLES BRIGHT, SUBMARINE TELEGRAPHS: THEIR HISTORY, CONSTRUCTION, AND WORKING. FOUNDED IN PART ON WÜNSCHENDORFF'S "TRAITÉ DE TÉLEGRAPHIE SOUS-MARINE" AND COMPILED FROM AUTHORITATIVE AND EXCLUSIVE SOURCES 171 (1898).

[127] Müller-Pohl, *supra* note 63 at 116.

owning the cables, since it was actually operating as a public service on behalf of a state.[128] In the case, the United States had cut a submarine telegraphic cable during the Spanish-American War in 1898, and the Eastern Extension Company sought compensation for the destruction of its telegraph cables linking Manila to Hong Kong and Manila to Capiz. The parties disputed whether the United States owed damages to the company. The tribunal recognized that international law recognized a right to block communications of an enemy during sea warfare, as the high seas afford this privilege by their character as *res nullius* or *res communis*.[129] But the tribunal decided against a compensatory award on the basis that the Spanish government actually held control and authority over the cables and the Eastern Extension Company was operating as a Spanish public service rather than a private neutral commercial enterprise.[130]

A second arbitral case involving the cutting of cables by the United States during the Spanish-American War was decided in 1923, this time at the Cienfuegos Harbour and the San Juan Channel, Cuba, interrupting communications with Cuba.[131] In contrast to the *Eastern Extension* case, the cutting of the cables took place in enemy territorial waters, rather than the high seas. In this case, the tribunal was to decide the same issue as the *Eastern Extension* case, namely, whether the United states owed compensation for the cutting of cables. Again the tribunal denied a compensation award, holding that the status of the Cuba Submarine Telegraph Company as a Spanish public service was even more apparent than in the *Eastern Extension* case because,

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[128] *Eastern Extension, Australasia and China Telegraph Company, Ltd. (Great Britain) v. United States*, United Nations Reports of International Arbitral Awards, Volume VI 112-118 (Nov. 9, 1923).

[129] *Id.* at 115.

[130] *Id.* at 116.

[131] *Cuba Submarine Telegraph Company, Ltd. (Great Britain) v. United States*, United Nations Reports of International Arbitral Awards, Volume VI 118-120, 119 (Nov. 9, 1923).

among other things, its managers and directors were appointed by the government, and the Spanish authorities had the right to inspect and block the transmission of dispatches it deemed would be against its security interests, exercising a high degree of control over the communications.[132] Thus, as the cables were seen in both cases to be owned by companies that were operating as a public service for the Spanish government, no duty of compensation was owed for their destruction in warfare. Had the companies been truly neutral parties in the warfare, the cases may have turned out differently. What is interesting to note, however, aside from the issue of compensation is how the tribunals decided the issue of neutrality and whether the companies were operating as a public service for a state on the basis of how the company was operating (on the basis of Spanish concessions), and on the basis of the degree of control and authority the state was exercising over the telegraphic transmissions through the cables.

Cutting cables as a tactic of warfare continued during the First World War, when Britain cut five of Germany's undersea cables in 1914. By doing so, Germany was unable have direct communications outside of Europe, and Britain could intercept its cables. This proved to be fateful in the war when Britain intercepted the Zimmerman Telegram. The telegram to the Germany Ambassador to Mexico instructed him that in the case the United States was to go to war with Germany, he should offer the Mexicans an alliance in exchange for them receiving Texas, New Mexico and Arizona.[133] When the United States learned of the contents of the telegraph and it was distributed in the press, it helped provide the impetus for it to fight against Germany

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[132] *Id.* at 119-120.

[133] HEADRICK, *supra* note 80 at 167–69.

in the war, as the telegram had "forced the hand" of President Wilson and isolationists to join the war.[134]

B. Intercepting Cables

The entanglement between cables, communications, intelligence, territorial sovereignty, and international political affairs also came to a head when Edward Snowden revelations in 2013 revealed the extent of government surveillance by the NSA and the GCHQ around the world. The GCHQ strategically tapped into and intercepted submarine fiber-optic cables in the Persian Gulf to obtain intelligence information from the Middle East and South Asia, including Iran, Iraq, Afghanistan, and India.[135] GCHQ tapped into these cables from three secret bases in Oman located on its northern coast.[136]

The strategic importance of undersea cables points toward a shift away from the territorially based empires of the past to "exploitation of the world's oceans" as they "tapping into fibre-optic cables overcomes potentially problematic areas of 'boundaries' and 'sovereignty'."[137] Indeed, according to the Tallinn Manual, tapping cables "in the territorial or archipelagic waters of another State constitutes a violation of that State's sovereignty," but "tapping operations beyond waters subject to the sovereignty of the coastal or archipelagic State do not constitute a violation of sovereignty."[138] Due to their location in the high seas, undersea cables enable politics to play out in spaces where the limitations of formal claims of sovereignty do not apply.

V. The Role of Corporations and Private Legal Regimes

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[134] *Id.* at 169.

[135] Mainwaring and Aldrich, *supra* note 116 at 13.

[136] *Id.* at 12–13.

[137] *Id.* at 13.

[138] TALLINN MANUAL 2.0 ON THE INTERNATIONAL LAW APPLICABLE TO CYBER OPERATIONS, 257 (Michael N. Schmitt ed., Second ed. 2017).

The role of corporations in exercising authority and control over communications and data through undersea cables cannot be overstated. From their participation in the meetings of the International Telegraph Union and the International Telecommunication Union, to the privately owned cableships that lay the cables down on the seafloor, and the private technology corporations today that are expanding their network of privately-owned cables, corporations have played a central role in the development of undersea cables.

A. The Rise of Corporations and Privately-Owned Cables

In addition to the role of IOs in the development of undersea cable networks, corporations have played a strong role in their development. Claims of state sovereignty and territorial politics helped private corporations gain an increasingly prominent role in telecommunication and data networks. Since state-owned cables were not permitted to cross into the territories of other countries in the early years of the submarine telegraphic cable, the structure of the international communication network developed outside the state-owned telegraph systems[139] that operated primarily within their own borders, colonial territories, or in the high seas. If a government wanted to land a state-owned cable on the territory of a state, it would need to "obtain authorization for the landing, as well as [for] their cable staff on foreign territory and hence ask for territorial status within another nation state's territoriality and jurisdiction."[140] To avoid such difficulties, privately-owned cables became more common as they were run on the assumption that they would be considered neutral in times of war and they would not be attributed with the nationality of their owners.[141] In the early years, governments could grant access to their territories for cable landing

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[139] HILLS, *supra* note 47 at 282.

[140] Müller-Pohl, *supra* note 63 at 111–112.

[141] *Id.* at 111–112.

points, including by allowing cable companies to purchase land on their territory, but they would not do so for foreign governments.[142]   This also served to prevent complications that might arise from having foreign cables on their territory during war.[143]   Indeed, having a foreign government's publicly-owned cable touching on a country's shores or lands was akin to having a permanent foreign government presence that could potentially access or disrupt the movement of commercially and politically sensitive communications. As a result, some countries started developing state-owned private telegraph companies to operate international networks to overcome the limitations imposed by state sovereignty. Thus, by the end of the nineteenth century, 90% of cables were run by private entities.[144]

Moreover, the United States' engagement with the ITU reflected its desire to maintain control over its telegraph and telecommunication networks without intergovernmental interference or oversight.   This was also reflected in its past engagement with the Telegraph Union.   The United States refused to join the Telegraph Union because, unlike most other countries, it had not nationalized its telegraph and telephone networks and did not want to be subject to international regulations of its networks.[145]

The idea of a publicly owned and operated telegraph system was the subject of debate in the United States in the late nineteenth century, with proponents for public ownership claiming it was the only way to fight the monopoly of the Western Union Telegraph Company and to reduce rates for telegraph transmissions.[146] Opponents of

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[142] MÜLLER, *supra* note 81 at 190.

[143] *Id.* at 190.

[144] Müller-Pohl, *supra* note 63 at 112 (citing CHARLES BRIGHT, SUBMARINE TELEGRAPHS: THEIR HISTORY, CONSTRUCTION AND WORKING 154 (1898)).

[145] CODDING, JR. AND RUTKOWSKI, *supra* note 61 at 11.

[146] William M. Springer, *The Telegraph Monopoly*, 132 THE NORTH AMERICAN REVIEW 369 (1881).

public ownership claimed that it would grant the government too much power and make the telegraph a tool of political oppression.[147]

By maintaining a strong stance of sovereignty over the development of its telegraph and telecommunication networks, private corporations proliferated in this area. In the 1970s and 1980s, the United States' engagement with the ITU set the stage for the development of the internet and the significant role of corporations.[148] By attempting to limit the ITU's jurisdiction over new data networks, it set the stage for private corporations and experts based in the United States to develop these data networks privately across borders.[149] Moreover, the 1990s witnessed the liberalization and privatization of many countries' publicly-owned telecommunications sectors. One analysis of 158 countries has shown that privatization of their telecommunications sectors since the 1990s was due in part to their membership in the WTO and the Organisation for Economic Co-operation and Development (OECD), which had set pro-market trade liberalization schemes affecting, among other things, telecommunications policy.[150]

Indeed, while telecommunication companies, or consortia of companies, are the primary owners of undersea cables today, companies like Google are increasingly laying down their own intercontinental cables in order to exercise more control over them and to have a competitive edge to keep up with the growth of traffic, data, and

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[147] *See, e.g.,* DAVID A. WELLS, THE RELATION OF THE GOVERNMENT TO THE TELEGRAPH; OR, A REVIEW OF THE TWO PROPOSITIONS NOW PENDING BEFORE CONGRESS FOR CHANGING THE TELEGRAPHIC SERVICES OF THE COUNTRY (1873).

[148] Sarah Nelson, RUSSIA ISN'T THE FIRST COUNTRY TO PROTEST WESTERN CONTROL OVER GLOBAL TELECOMMUNICATIONS THE CONVERSATION, http://theconversation.com/russia-isnt-the-first-country-to-protest-western-control-over-global-telecommunications-114793 (last visited Apr 20, 2019).

[149] JILL HILLS, TELECOMMUNICATIONS AND EMPIRE (1 edition ed. 2007).

[150] Kirsten Rodine-Hardy, *Globalization, International Organizations, and Telecommunications: Globalization, International Organizations, and Telecommunications*, 32 REVIEW OF POLICY RESEARCH 517–537 (2015).

online activity. Back in 2008, Google was in a consortium of companies to build a undersea cable linking the United States and Japan. The company stated then:

> If you're wondering whether we're going into the undersea cable business, the answer is **no**. We're not competing with telecom providers, but the volume of data we need to move around the world has grown to the point where in some cases we've exceeded the ability traditional players can offer.[151]

A decade later, Google started investing in its own private intercontinental cables. According to the company's blog, having its own private cable allows it to:

> [H]elp improve global connectivity while providing value to our customers. Owning the cable ourselves has some distinct benefits. Since we control the design and construction process, we can fully define the cable's technical specifications, streamline deployment and deliver service to users and customers faster. Also, once the cable is deployed, we can make routing decisions that optimize for latency and availability.[152]

The company continues to expand its network of privately-owned intercontinental undersea cables. Of the major technology companies, Google owns the largest share of both private cables and partially owned consortium cables.[153] While the company's rhetoric around this decision revolves around maintaining connectivity speeds in light

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[151] About the Unity bandwidth consortium, OFFICIAL GOOGLE BLOG, https://googleblog.blogspot.com/2008/02/about-unity-bandwidth-consortium.html (last visited May 4, 2019).

[152] Ben Traynor Sloss, Expanding our global infrastructure with new regions and subsea cables, Jan. 16, 2019 https://www.blog.google/products/google-cloud/expanding-our-global-infrastructure-new-regions-and-subsea-cables/ (last accessed May 1, 2019).

[153] Jameson Zimmer, GOOGLE OWNS 63,605 MILES AND 8.5% OF SUBMARINE CABLES WORLDWIDE BROADBAND NOW (2018), https://broadbandnow.com/report/google-content-providers-submarine-cable-ownership/ (last visited May 1, 2019).

of increased data flows,[154] it also gives the company a considerable amount of control over these networks, and not just from a technical standpoint. Given the importance of these cables in global communications, it gives the already powerful company even more power, since it fully owns and controls an increasing number of hubs and nodes of the network. This falls in line with the trend of what some scholars have identified as the increasingly centralized structure of authority exercised over data flows facilitated by "cloud computing."[155] The physical infrastructure of the cables represents a "chokepoint" of access to data flows. These chokepoints grant a considerable amount of decision-making power and authority to those who control them.[156]

While there was a move toward deregulation and privatization in the 1980s, contemporary scholars have argued for alternative means of governing undersea cables, such as public ownership.[157] Nevertheless, the reality today is that private actors are dominant in governing and controlling undersea cable networks, and in addition to the international frameworks identified, private legal regimes govern their relations without being confined to the limits of territorial logics.

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[154] Ron Miller, GOOGLE'S LATEST UNDERSEA CABLE PROJECT WILL CONNECT JAPAN TO AUSTRALIA TECHCRUNCH, http://social.techcrunch.com/2018/04/04/googles-latest-undersea-cable-project-will-connect-japan-to-australia/ (last visited May 1, 2019).

[155] Primavera De Filippi & Smari Mccarthy, *Cloud Computing: Centralization and Data Sovereignty*, 3 EUROPEAN JOURNAL OF LAW AND TECHNOLOGY (2012).

[156] ROBERT J. DOMANSKI, WHO GOVERNS THE INTERNET?: A POLITICAL ARCHITECTURE 45 (2015).

[157] Ben Tarnoff, PLATFORMS DON'T EXIST, https://bentarnoff.substack.com/p/platforms-dont-exist (last visited Feb 26, 2020).
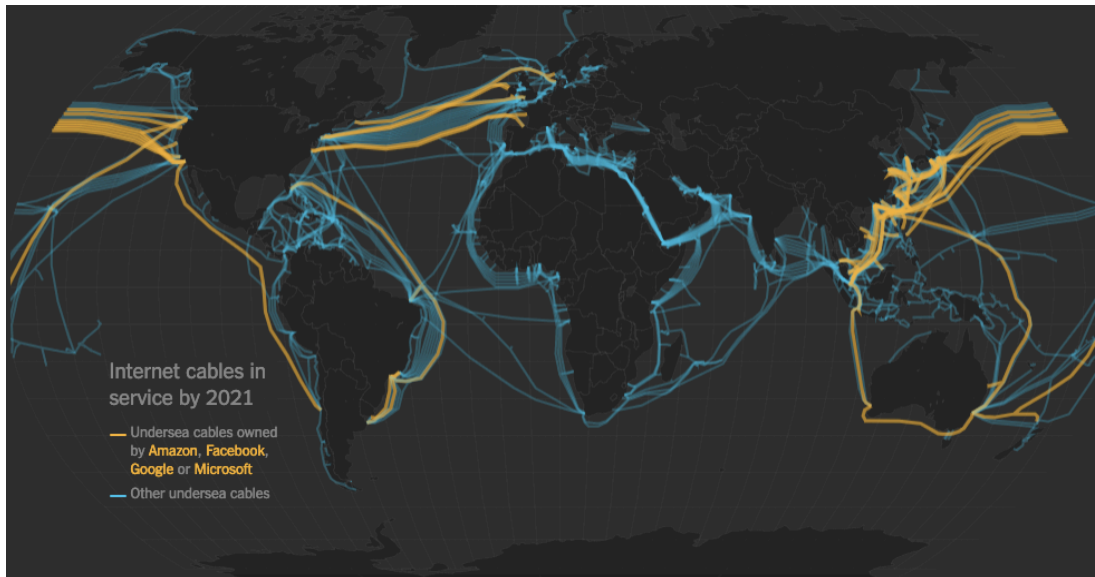
Figure 5.1. Map of internet cables in service by 2021.[158]

B. Private Legal Regimes

In addition to the international legal regimes that facilitate and help construct the network of undersea cables around the world, private legal regimes such as property and contract law also shape their dynamics. Indeed, as construction, laying, and maintenance of cables is often done by a number of diverse actors, contractual arrangements play a significant role in shaping their relations.[159] As we have seen, some corporations are starting to invest in laying cables that they own from end to end. However, it remains common practice for several parties to act together in consortia to construct and maintain cables, such as investors and telecommunications companies, both public and private.[160] These agreements normally allocate the landing

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[158] Adam Satariano et al., *How the Internet Travels Across Oceans*, THE NEW YORK TIMES, March 10, 2019, https://www.nytimes.com/interactive/2019/03/10/technology/internet-cables-oceans.html, https://www.nytimes.com/interactive/2019/03/10/technology/internet-cables-oceans.html (last visited Mar 13, 2019).

[159] Karavias, *supra* note 17 at 866.

[160] *Id.* at 867.

party role to a national telecommunications carrier, which typically shares the nationality of the coastal state,[161] and removes the need of obtaining concessions for landing rights. In other cases, the foreign landing company must obtain a concession from the coastal state for landing rights. International investment law could also apply to the cables as a type of asset that could amount to a covered investment, but determining the territorial nexus to a state creates challenges in ABNJ in the seabed.[162]

So while international legal regimes like UNCLOS have played a largely facilitative role for undersea cable laying, giving coastal states rights to object to cable laying in their territorial seas, and have some provisions regarding obligations for damage to cables, private legal regimes such as contract law and property law are more tailored to structuring the balance of relationships between the different parties involved in a multi-party cable laying and maintaining consortium.

VI. Rethinking Sovereignty as a Technological Project

As corporations privately own most of the undersea cables and are laying down new cables on the deep seafloor in spaces that are not under the exclusive domain of any sovereign state's jurisdiction, they might be seen as Leviathans in the sea[163] exercising a form of sovereignty over data flows and their infrastructures. In fact, the *Great Eastern*, the privately-owned steamship that carried the first successful transatlantic cable of 1866, was initially called the *Leviathan*.[164] Named as such due to its size, the name also evokes Hobbes' metaphorical figure for the absolute sovereign. While Hobbes' theory was one of the social contract and the monopoly on violence, typically held by the state, in another oft-cited conceptualization of sovereignty,

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[161] *Id.* at 879.

[162] *Id.* at 881–884.

[163] On early theorizations of the Leviathan as a biblical sea monster, *see* PIER GIUSEPPE MONATERI, DOMINUS MUNDI: POLITICAL SUBLIME AND THE WORLD ORDER (2018).

[164] HILLS, *supra* note 47 at 24.

sovereignty was based on the monopoly of decision. In Schmitt's theory, decisions on friend and enemy, the exception, and inclusion and exclusion were all part of the sovereign's prerogative, and were what distinguished the sovereign's power from other kinds.[165] With the amount of power that comes with the control over communications and data today, technology companies like Google who are increasingly becoming dominant players through ownership and control of the all parts of the network, from the software to the hardware (e.g., cables, servers, and data centers), can be seen to hold a form of sovereignty over the cable infrastructures and those communications and data that pass through them. As they are the ones who control the different hubs and nodes of the network, they have the power to decide what types and whose data they will process, where they will store it, to whom they will offer access to the data, and can make the flows of data stop altogether. In the process, they are making and remaking boundaries and deciding between what and who is inside and outside their networks, decisions which are always subject to change by them, the sovereign decision-makers. These decisions can have distributive effects, both for those who are included in the "polity" of their users, and those who are excluded.

Bratton terms the powers exercised by platforms as "platform sovereignty," or a combination of political subjectivity and infrastructural sovereignty.[166] According to Busch, "[t]he 'unwritten' space of the Cloud becomes a site for the construction of new devices for exclusion, expulsion, and extraction."[167] The exercises of power that undersea cable infrastructures enable, in conjunction with the legal privileges granted by property law, international law, and the 'exceptional' legal spaces outside of the

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[165] CARL SCHMITT, POLITICAL THEOLOGY: FOUR CHAPTERS ON THE CONCEPT OF SOVEREIGNTY 5-13 (trans. George Schwab 1985).

[166] BENJAMIN H. BRATTON, THE STACK: ON SOFTWARE AND SOVEREIGNTY (1 edition ed. 2016).

[167] Benjamin T. Busch, SELF-MANAGEMENT AND THE STACK, MAKING AND BREAKING, https://makingandbreaking.org/article/self-management-and-the-stack/ (last visited Apr 14, 2019).

exclusive territorial jurisdiction of any state, such as the high seas, require a reorientation of the concept of sovereignty – one in which authority is decoupled from a strictly territorial spatiality and which accounts for the role of corporations and technologies in exercises of authority.

A number of scholars have highlighted that the continuing centrality of territoriality in the realm of cyberspace and data is not the right way forward.[168] Indeed, as noted by Hildebrandt, legal models for cyberspace "cannot . . . be grounded in the monopolistic spatiality of territorial sovereignty."[169] Moreover, as corporations take on increasingly powerful roles in this domain (as they are the ones who decide where to store data, where to establish headquarters, in which jurisdictions to establish data centers, on which person(s) they collect data, mediating disputes over data across borders, etc.),[170] a narrow focus on territoriality might overlook that:

> The age of the nomos of the code is always in danger of . . . replacement of the law (nomos) by the . . . code of de facto powers, which is a priori without that close relationship to borders and territories that characterize the political or legal nomos.[171]

Thus, the new epoch of the digital age might be shifting how space is apportioned in the world, and which actors are involved in those acts, as corporations, engineers, and technologies take on increasingly powerful roles.

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[168] *See* Paul De Hert & Johannes Thumfart, *The Microsoft Ireland Case and the Cyberspace Sovereignty Trilemma. Post-Territorial Technologies and Companies Question Territorial State Sovereignty and Regulatory State Monopolies*, *in* JURISDICTION, CONFLICT OF LAWS AND DATA PROTECTION IN CYBERSPACE , 13 (Burkhard Hess & Christopher Kuner eds., 2018). *See also*, Daskal, *supra* note 13.

[169] Mireille Hildebrandt, *Extraterritorial Jurisdiction to Enforce in Cyberspace? Bodin, Schmitt, Grotius in Cyberspace*, 63 UNIVERSITY OF TORONTO LAW JOURNAL 196, 224 (2013).

[170] Jennifer Daskal, *Borders and Bits*, 71 VANDERBILT LAW REVIEW 179–240 (2018).

[171] Johannes Thumfart, *Francisco de Vitoria and the Nomos of the Code: The Digital Commons and Natural Law, Digital Communication as a Human Right, Just Cyber-Warfare*, *in* AT THE ORIGINS OF MODERNITY 197–217, 214 (2017).

Despite the attempts by various jurisdictions to territorialize digital data, there is nothing static about it, especially when considering transfers and flows of data across borders. Indeed, the territorial / extraterritorial binary does not fit neatly in this context.[172] Even when data is stored within a particular territory, it does not mean that the state necessarily has access to or control over that data.[173] Thus, the idea that digital data located or stored within a physical territory gives the state sovereign power over it is an oversimplification, as "the real control and ability to actually govern the data exists but is obviously exercised by someone else . . ."[174] showing that "information sovereignty cannot always be implied from territorial sovereignty."[175] The picture becomes even more complex if the state depends on a private actor located in another territorial sovereign's jurisdiction to exercise sovereignty or control over information infrastructure.[176]

Rather than theorize sovereignty in terms of the rising or falling power of the state as the central locus of power and authority in international law, or theorize technology in a deterministic fashion competing with law as a source of authority or always preceding legal developments, we can consider the ways in which they co-produce one another. This can be done by examining how law is constitutive of sovereignty and jurisdiction, how authority manifests in the distribution and enablement of power to a variety of actors and agents, including technology, and how the law and the concept of sovereignty are then actively shaped and reshaped by them.

VII. Conclusion

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[172] *See* Roxana Vatanparast, *Data and the Elasticity of Sovereignty*, 46 Brooklyn J. Int'l L. __ (forthcoming, 2020).

[173] RADIM POLCAK & DAN JERKER B. SVANTESSON, INFORMATION SOVEREIGNTY: DATA PRIVACY, SOVEREIGN POWERS AND THE RULE OF LAW 172 (2017).

[174] *Id.* at 173.

[175] *Id.* at 175.

[176] *Id.* at 175–77.

Undesea cables became the site of political, economic, and legal contestation by a variety of actors, including states, individuals, and corporations—struggles which continue today. These contestations also involved issues of ownership, control, sovereignty, and territorial claim-making. Moreover, this Chapter has shown that international legal regimes both facilitated and helped construct the development of undersea cables. Limitations on state claims of sovereignty by the Law of the Sea gave significant leeway for the laying of cables on the seabed, as authorized by UNCLOS provisions and customary international law. At the same time, state claims of sovereignty and partnerships with private corporations in early developments of telegraphic cable infrastructures paved the way for corporations to play a significant role in having control over data infrastructures today. This dual dynamic illustrates some of the complexities of how international legal regimes, territory, and sovereignty claims helped shape submarine cable networks. Moreover, the cables were co-produced with international law, becoming the impetus for projects of developing new legal frameworks and institutions, while embedding certain notions of technological and social progress in international legal regimes. As such, cables provided motivations for reform and renewal of international law, and helped shape understandings of the relationship between land, sea, and sovereignty.

CONCLUSION

I. Summary of Thesis

By analyzing technological infrastructures of undersea cables using the concept of co-production, this thesis has shown how technology can directly and indirectly have global normative effects by co-creating knowledge. By linking distant territories together, undersea cables enabled significant transformations in international legal and political thought in the nineteenth and twentieth centuries through perceived time and space compressions and their 'global' geographies. In reshaping how people viewed the world, undersea cables helped shape normative infrastructures, institutions, legal regimes, and projects consistent with those visions. In particular, the thesis has discussed how undersea cables, and the communications they enabled, were co-produced with imperial projects in their construction and development, legal reform and codification projects that supported economic-positivism and liberal internationalism, the construction of global communities in the nineteenth century and in the interwar period with the League of Nations, and territorial sovereignty and the Law of the Sea.

Understandings of international law have evolved immensely over the course of the twentieth century and into the early decades of the twenty-first, along with changes in social context and technological developments. As international legal scholars have increasingly pointed to the creation of normative orders outside of the state and traditional sources doctrine in international law, broadly under what is called global governance, they have not yet fully captured the interaction between technology and international law. Even critical histories of international law, which seek to understand

the contingencies of how the world we live in today was shaped, how international law helped shape that world, and under which shadows of history we are living in, have not adequately captured the role of technology in these histories.

Moreover, these accounts tend to be premised on an idea of not only critique, but also renewal of the discipline of international law. Hohmann and Joyce note, for example, that examining international law's relationship with objects grants "significant opportunities for reflection, analysis, resistance, and renewal."[1] The "infrastructural turn," based on Kingsbury's recent scholarship, similarly recommends "thinking infrastructurally" in order to "reinvigorate" international law through projects involving deliberative forward-planning.[2] Thinking in this way, he argues, can help international law change direction from looking to remedy the past, *ex post*, to looking to the future, in order to better address new challenges raised by climate change and technological developments.[3] Even in these contemporary accounts, we see the dynamic of technology being used as an impetus for renewal of international law, something which this thesis has described as a recurring pattern in international law since the nineteenth century, rather than something unique to the current technological moment.

Moreover, this thesis has also made a methodological intervention for the field of international law. It has argued that histories of international law, in order to move beyond some of the limitations that exist even in critical accounts, such as linearity, embedding the progress narrative, Eurocentrism, focus on war and peace, diplomacy,

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[1] INTERNATIONAL LAW'S OBJECTS, 2 (Jessie Hohmann & Daniel Joyce eds., 2019).

[2] Benedict Kingsbury, *Infrastructure and InfraReg: On Rousing the International Law 'Wizards of Is,'* 8 CAMBRIDGE INTERNATIONAL LAW JOURNAL 171–186 (2019).

[3] *Id.*

and bias toward public law,[4] ought to look at the role of technology more closely. In doing so, histories of international law can benefit from incorporating concepts from STS and history of technology. Failure to do so is contributing to ahistorical scholarship and policy suggestions on the relationship between international law and technology. It is also contributing to a gap in knowledge about how our international legal order, and our world, has been constructed and shaped by technological developments as much as by formal normative frameworks such as law, through their co-productive interaction. While there is a gap in historical work in international law (and indeed also in histories of technology which do not foreground the role of law), this gap also exists in contemporary accounts of international law and global governance.

While this thesis has aimed to be comprehensive in covering the co-productive relationship between undersea cables, international law, and the social, it was not in itself a comprehensive history of international law. Nor is it a history or theorization of any particular international organization or international legal concept or rule. Rather, it has shown that technological developments like undersea cables both reflected and shaped understandings of the world, and in doing so, reflected and shaped ways of properly governing it. A better understanding of the co-productive dynamic between law, technology, and society may help people imagine and create alternative futures and forms of social life, and in doing so, remake the world. It may also be a first step towards identifying spaces for the exercise of agency required to prevent data and data-driven technologies from remaking our world in ways people find unjust or undesirable.

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[4] Martti Koskenniemi, *Why History of International Law Today?*, 2004 RECHTSGESCHICHTE - LEGAL HISTORY 61–66 (2004).

II. Recommendations for Future Research

Using STS as a broad frame for analysis of how materials, objects, infrastructures, and technologies "co-articulate agency and shape practices"[5] can be particularly fruitful for international legal scholarship, both as a powerful mode of critique and as a means of shaping alternative politics. As technology and digital data are increasingly being used to govern the world, and the normative effects of technologies are challenging traditional ideas of laws, sources, and subjects of international law, these questions are only becoming more urgent.

Going forward, there are several themes that ought to be explored to build on the arguments of this thesis. First, bringing the analysis to the present day context would be particularly ripe for examination because not only are technologies increasingly being used by international organizations and to effectuate international legal norms, but they have distributed power to technologists and technology corporations in ways that are reshaping economies, our social lives, and our futures.[6] Foregrounding material infrastructures could highlight issues that have been overlooked in the legal scholarship in this area. For example, if we look at infrastructures, we might also ask questions regarding how the environment might be affected by them and how law constructs and obscures those effects—questions which tend to be overlooked in discussions on the social implications of data collection, which tend to focus on data governance, privacy, and data's (un)territoriality.[7]

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[5] Martin Müller, *Assemblages and Actor-networks: Rethinking Socio-material Power, Politics and Space*, 9 GEOGRAPHY COMPASS 27–41, 34 (2015).

[6] NICK SRNICEK, PLATFORM CAPITALISM (2016); SHOSHANA ZUBOFF, THE AGE OF SURVEILLANCE CAPITALISM: THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER (2019); JULIE E. COHEN, BETWEEN TRUTH AND POWER: THE LEGAL CONSTRUCTIONS OF INFORMATIONAL CAPITALISM (2019).

[7] On this point *see* Elettra Bietti & Roxana Vatanparast, *Data Waste*, 61 Harvard Int'l L. J. Online (2020).

Moreover, examining infrastructures opens up a different debate in legal scholarship on current and potential regulatory frameworks for technologies.[8]

Second, highlighting transnational infrastructures, such as cables, railroads, bridges, roads, oil pipelines, and canals, among others, raises particularly interesting questions with regard to international organizations' infrastructural development projects in the interwar and decolonization period. Of particular importance is their relationship to global finance, markets, and trade, their roles in international conflicts, such as the Suez Crisis, their relationship to extraction of mineral resources such as copper, iron, carbon, and steel, as well as to public and private legal regimes.[9] In light of the analysis in this thesis, it would be especially interesting for future work to integrate international legal scholarship with the work of Benedict Anderson[10] to illuminate how technological infrastructures, both past and present, help co-produce national and global communities, as well as their exclusions.

Finally, examining infrastructures may open up new forms of critique of the discipline of international law. This critique can depart from the "methodological territorialism" that has dominated international legal thinking for centuries and better understand non-territorial authority.[11] This is especially pertinent in relation to some of the greatest challenges of our contemporary moment that defy territorial boundaries and which are closely related to the political economy of the world which defies the

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[8] *See, e.g.,* K. Sabeel Rahman, *Infrastructural Regulation and the New Utilities*, 35 YALE JOURNAL ON REGULATION 911 (2018).

[9] WALTER RODNEY, HOW EUROPE UNDERDEVELOPED AFRICA (2nd ed. 1982); TIMOTHY MITCHELL, CARBON DEMOCRACY: POLITICAL POWER IN THE AGE OF OIL (2013); ANDREW BARRY, MATERIAL POLITICS: DISPUTES ALONG THE PIPELINE (2013); LALEH KHALILI, SINEWS OF WAR AND TRADE: SHIPPING AND CAPITALISM IN THE ARABIAN PENINSULA (2020).

[10] BENEDICT ANDERSON, IMAGINED COMMUNITIES: REFLECTIONS ON THE ORIGIN AND SPREAD OF NATIONALISM (Revised ed. 2016).

[11] Nikolas M. Rajkovic, *The Visual Conquest of International Law: Brute Boundaries, the Map, and the Legacy of Cartogenesis*, 31 LEIDEN JOURNAL OF INTERNATIONAL LAW 267–288, 268–69 (2018).

territorially bounded limits of states[12]—such as global value chains, technologies of commercialized surveillance, and climate change.[13] It can also provide an alternative to looking at international legal doctrine, sources, texts, argumentative practices, and institutions, a way to step away from any implicit progress narratives[14] or linearity, and a way to highlight the contingencies of the way we live in the world today with a view to remaking it in the future.

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[12] David Kennedy, *Law and the Political Economy of the World*, 26 LEIDEN JOURNAL OF INTERNATIONAL LAW 7 (2013).

[13] Rajkovic, *supra* note 11 at 268–69.

[14] THOMAS SKOUTERIS, THE NOTION OF PROGRESS IN INTERNATIONAL LAW DISCOURSE (2009).