

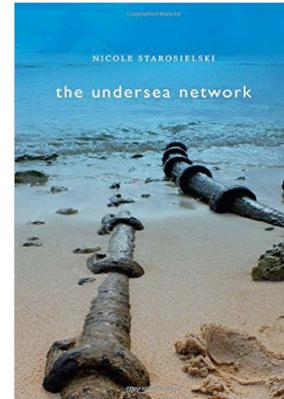
Nicole Starosielski, *The Undersea Network (Sign, Storage, Transmission)*, Durham, NC and London, UK: Duke University Press, 312 pp., \$23.36 (paperback).

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Nicole Starosielski's masterful *The Undersea Network* surfaces the material infrastructure underpinning the global information economy: the fiber optic cables that carry information—data, voice, and multimedia content—between continents. The book starts with two conceptual chapters that discuss the history of transoceanic communication cables and the narrative tropes through which the cables are understood. The remaining chapters are structured as a "transmission narrative," each one telling a story about the history of a different kind of node: the literal nodes of the cable station, the pressure points of cable landings, the islands that mediate network traffic, and the ocean environment itself.



Chapter 1, "Circuitous Routes: From Topology to Topography," explores why and how transoceanic cables were laid where and when they were. For Starosielski,

in order to understand the geography of signal traffic, we must move beyond network topology, the observation of the geometric or mathematical distribution of nodes and links, to consider network topography, the way that infrastructures are embedded into existing natural and cultural environments. (p. 28)

By and large, present-day cables follow the routes initially charted by the 19th century copper telegraph wires, which struck "a balance between the need to interconnect with existing populations and infrastructures and the affordances of an area's natural and social topography" (p. 31). The chapter "shows that even though terrestrial, urban, or demand-driven logics may at times play a role in determining cable routes, our global infrastructure has been constructed in relation to historically specific social and environmental imaginations" (p. 29).

In chapter 2, "Short-Circuiting Discursive Infrastructure: From Connection to Transmission," Starosielski introduces the two narrative frames within which virtually all discourse about Internet cables fall. Connection narratives "focus on the design and technological development of an undersea cable," while disruption narratives "describe an unexpected disconnection of the cable and detail the threats not only to transmission but also to a broader cultural order" (p. 67). This leitmotif of connection and disruption is carried throughout the book, for example, in the distinction drawn between what Starosielski

calls "strategies of insulation" and "strategies of interconnection": strategies of spatial organization that, respectively, "transform turbulent ecologies into frictionless ones" and "ground transoceanic traffic in local circulations" (p. 19).

Chapter 3, "Gateway: From Cable Colony to Network Operations Center," traces the historical evolution of the physical and human infrastructure that links the cables to each other and to population centers. Cable landings—the point at which the cable emerges from the ocean—are the focus of chapter 4, "Pressure Point: Turbulent Ecologies of the Cable Landing." Chapter 5, "A Network of Islands: Interconnecting the Pacific," uses four case studies (Guam, Fiji, Yap, and Tahiti) to illustrate the varying relationships that different islands have had with the cable industry. Finally, chapter 6, "Cabled Depths: The Aquatic Afterlives of Signal Traffic,"

traces how the knowledge of topography, currents, and the marine environment have been key to the extension of undersea networks and how disparate institutions and organizations, because of their shared investments in the ocean and their development of technologies of aquatic knowledge production, have shaped the deepest sections of our undersea networks. (p. 201)

The theme of (perceived) threats, and companies' responses to them, is interwoven throughout the book. For example, in the 19th century "companies moved from a concern about protection from the ocean to a preference for using the ocean's depths as a layer of protection from potential colonial unrest, rival nations, and ships' anchors" (p. 37). In the postcolonial period, "the focus of securing the cable network shifted from routing via one's territory or colonial holdings to having national control over the processes of building, operating, and maintaining the cable network" (p. 41).

The book's companion website, accessible at www.surfaceing.in, allows the reader to explore Starosielski's rich archival material—including a number of stunning photographs—in a nonlinear fashion, jumping from point to point much as Internet traffic zips across the globe. The site is a useful companion, and one that might be more accessible to some students (notably undergraduates) than the book itself. Elegantly written, *The Undersea Network* is essential reading for anyone wishing to better understand the Internet as a technology rooted in both time and in place.