

Mediating the Tree: Infrastructures of Pulp and Paper Modernity in The Bowater Papers

Aleksandra Kaminska
Université de Montréal

Rafico Ruiz
Canadian Centre for Architecture

ABSTRACT

Background: Through a close reading of the four issues of *The Bowater Papers*, this article aims to understand the rise of a paper modernity and to reinsert it—as material and infrastructure—into media studies.

Analysis: Producing wood paper is a strain on the landscape and the environment. *The Bowater Papers* showcases the histories and material possibilities of paper media products. A paper-dependent modernity can be understood as an infrastructural assemblage of harvesting, production, circulation, and consumption.

Conclusion and implications: Paper calls for a natural history and geography of media. Thinking about the mediations from tree to paper through the encompassing notion of “xylomedia” is a way of articulating the intersection of the material, environmental, and infrastructural in media studies. Today is still a paper world, one that is also the age of lignin, package, and Amazon.

Keywords: paper; trees; media; materials; infrastructure; environment

RÉSUMÉ

Contexte : Par une lecture attentive des quatre numéros de *The Bowater Papers*, nous cherchons à comprendre l'essor de la forme moderne du papier. Se faisant, nous le réinsérerons—en tant que matériau et infrastructure—dans le champ des études médiatiques.

Analyse : La production de papier de bois est lourde de conséquences pour l'environnement. *The Bowater Papers* nous renseigne sur des aspects historiques et matériels du papier. La modernité, dépendante du papier, peut ainsi être appréhendée comme un assemblage infrastructurel liant récolte, production, circulation et consommation.

Conclusion et implications : Le papier appelle une histoire et une géographie naturelles des médias. Penser aux médiations de l'arbre au papier avec le concept de « xylomedia » est une façon d'articuler l'intersection du matériel, de l'environnement et de

Kaminska, Aleksandra, & Ruiz, Rafico. Mediating the Tree: Infrastructures of Pulp and Paper Modernity in *The Bowater Papers*. *Canadian Journal of Communication* 46(2), 315–343.

doi:10.22230/cjc.2021v46n2a3859

©2021 Aleksandra Kaminska & Rafico Ruiz. CC BY-NC-ND

l'infrastructure dans l'étude des médias. Nous vivons toujours dans un âge du papier, un âge qui est aussi celui de la lignine, des paquets, et d'Amazon.

Mots clés : papier, arbres, media, matériaux, infrastructure

Introduction

Despite the efficiency of electric, electronic, and digital communication systems that transform information into bits, blips, light, and waves, we continue to be avid paper consumers. Paper—with its inscriptions and weight, its materiality that must be stored and cared for, sensed and felt, carried, and held—has proven itself a resilient and versatile medium with distinctive and enduring characteristics. Even while a “paperless” society has been imagined for quite some time (Lancaster, 1978; Sellen & Harper, 2001), homes and offices are still full of paper—books, forms, receipts, boxes, envelopes, notebooks, paper towels, Post-it notes—that have yet to be entirely replaced by those markers of high-tech living: screens, buttons, speakers, drives (Plotnick, 2018; Unger, 2017). The mythos of paperless living goes hand in hand with an ideology of progress that supports the convergence of material culture into as few digital devices as possible. But digital media's increased efficiency has not yet entirely replaced older analogue options, and it is still difficult to imagine living entirely without paper. It might be the result of a personal preference—such as when some readers deliberately choose the sensorial experience that the printed page affords—or have a more instrumental rationale: students swayed by the evidence that note-taking on paper helps retention (Mueller & Oppenheimer, 2014); archivists insisting on the stability of paper; environmentalists approving of its recyclability; bureaucrats and lawyers commending the authoritative quality of the page. At the same time, paper also serves as an analogue, retro, or nostalgic “alternative” medium: book and printing fairs, slow movements (from slow publishing to slow reading), and a renaissance in paper-based practices such as calligraphy, collage, and colouring books are only some of the examples of paper's continuing cultural relevance (Rauch, 2015). As people look to tune out, disconnect, and detox from the digital (Harris, 2014; Kingwell, 2019; Morozov, 2013; Odell, 2019), paper has offered a way to respond to the cold and sleek world of electronic hardware with an intimate material reaffirmation of a tactile medium (Brillenburg Wurth, Driscoll, & Pressman, 2019; Mueller & Oppenheimer, 2014; Special Projects, 2019). Paper's material affordances are enmeshed in humanity's broad array of social formations, and its use and influence can hardly be overstated.

Paper is a complex material, full of contradictions and ambiguities. What we call “paper” stands in for a diverse range of things, made up of different materials and with different formal qualities. Some papers we discard easily (newspapers, popular magazines, tissue paper), while others are carefully looked after (diplomas, handmade papers); some we read (*the paper*), others we carry as extensions of

us (“hand me your papers”), and yet others are there to contain or circulate (envelopes, tickets, boxes). And this is just the tip of the papery iceberg. In general, paper refers to material that is naturally fibrous and contains cellulose, but it is only made possible because of technical processes; it requires human ingenuity and tools to transform something “raw” (the tree or wood) into the medium that is paper. Whether it is the simple vats of the Middle Ages or today’s industrial mills, multiple steps are required to transform a tree into paper or a paper derivative such as pulp or cardboard.¹ And no matter the method or desired end product, making paper requires water energy: for harvesting, milling, and pulping. As a consequence, pulp and paper mills must be located near both forests and a considerable stream of flowing water. This proximity to nature is, however, misleading: despite a natural connection to woodlands and waterways, industrial chemical mills² are major polluters (largely due to the bleaching that occurs when processing materials such as rags or wood), producing a noxious smell through smoke and fumes that can cover entire communities, as well as being prominent (dominant and disruptive, some might say) structures in what are otherwise sparsely built-up landscapes, often on or adjacent to land under Indigenous jurisdiction.³ While paper has a long history, this article will concentrate on the relatively recent pulp and paper industry that is based on trees and wood pulp.

Thinking of paper via the tree requires some new conceptualizations of environmental media theory. First, trees are a problematic model of an “extractive” logic, since they are not exactly extracted from the land but cleared, razed, felled, harvested, and exploited. This act of deforestation can—at least in theory—be followed by its opposite, reforestation: trees are an example of a resource that is not finite and that *can* be replaced. Second, paper provokes an expansion of what constitutes elemental media, broadening from the four elements (earth, water, fire, air) as used by John Durham Peters (2015), to include other primary matters, such as the tree.⁴ This might lead to the question: could there be a media philosophy of tree, or wood, or forest? Could we think of these together under a common rubric such as “xylomedia” (from the Greek “xylo” or “relating to wood”), and would such a material enfolding be a useful way to approach a materials-based media theory? And third, while paper in this case is articulated through the tree (and thus as grounded, metaphorically, to the Earth), the pulp and paper industry’s reliance on water as mixing agent, energy generator, and mode of transportation means it is also part of a hydraulic network and politics. Already in the nineteenth century, trees and water were considered in tandem as Canada’s “crucial raw materials” (Kuhlberg, 2006, para. 5), and as Harold Innis argues, lumber, pulp, and paper took their place as Canadian staple commodities, while waterways have allowed the flow of these and other staples across the vast settler Canadian territory.⁵ It is the expansive presence of both trees and water that makes it impossible to consider Canada’s pulp and paper production as separate from its geography.

The tree is a resource that is renewable and recyclable, malleable and organic. It can be processed to take on various forms and qualities, depending on its ultimate use: it can be as fine as tissue, as sturdy as cardboard, or even used as a building material or textile. The invention of wood-based paper in the mid-nineteenth century coincides with the Industrial Revolution and automated metal machinery, allowing for the mass production of standardized paper as well as an expansion of media produced using the cellulose fibres of the tree. This development of wood as a multi-purpose material runs in parallel with the expanding notion of media, which was shifting over time from referring narrowly to tools, surfaces, and containers (and other artefactual intermediaries) to more enveloping conceptualizations of ecologies, systems, and conditions that “determine our situation” (Kittler, 1999, p. 1), or, as Durham Peters (2015) has more recently put it, as “vessels and environments, containers of possibility that anchor our existence and make what we are doing possible” (p. 2). Indeed, thinking of the process from tree to wood to paper is an example of thinking environmentally and infrastructurally about media, and becomes a way for integrating the material expertise from other discourses and disciplines (such as material culture, art history, print studies, new materialisms, or forestry, to name just a few) into a xylomedia history and geography.

Even with the undoubted ubiquity of paper, media scholars have very sparsely attended to the supply chains that, in the example of newspapers, connect “trees to factories to readers” (Stamm, 2018, p. 11), or more broadly, to the politics, aesthetics, geographies, histories, and economies of media derived from the tree. The appearance of paper in media studies often draws from the histories of writing, books, and printing, focusing on specific paper artefacts and how they have allowed us to inscribe and circulate information and knowledge, whether in reading media such as manuscripts, newspapers, and books; in documents such as contracts, passports, or architectural drawings; or in ephemera such as postcards, calling cards, or tickets (Desan, 2015; Joshi & Zieger, 2017; Müller, 2015; Robertson, 2012, 2014; Taws, 2013; Wilson, 2005). Media scholars have also considered the paper-dependent developments of new cognitive forms and logics, such as those that occur during indexing and filing (Day, 2014; Kamin, 2018; Krajewski, 2011; Robertson, 2017, 2019; Vismann, 2008), as well as during the procedures of bureaucratic documentation, ordering, and paperwork (Bothwell, 2017; Day, 2019; Gitelman, 2014; Hunter, 2012; Kafka, 2012; Latour, 2002; Lubar, 1992). Ian Sansom (2013) goes so far as to say that, “as such paper logic relentlessly proceeds, so paper itself might be revealed to be the unlikely foundation of the world” (p. xv). Additional examples of media research on paper might include cases where there is a destruction or distortion of the physical form, with activities such as shredding (Constable, 2019), cutting (Heesan, 2014), or burning (Scott, 2007). Similarly, environmental media scholars, despite their growing attention to the resources that support communication, have yet to undertake a materially inflected analysis of

paper and its various origins or derivatives—or, by extension, of trees, wood, or forests—as they have with such problematic products as plastic and petroleum (Barney & Tollefson, 2019; Boetzkes, 2019). As media studies' recent turn toward the material and environmental has made the discipline more attuned to the natural resources needed to produce media artefacts and ecologies, there is a need for richer reflections of paper as technology and infrastructure, as practice and culture, and for a media history and geography of and through the tree.

Paper products were important to the imagination and reconstruction of the world in the 1950s. This period of great infrastructural growth was also a time of “unprecedented boom” for the Canadian forestry industry, a “golden era” as “the world’s appetite for wood products—everything from construction lumber to toilet paper—exploded” (Bourchier, Stanton, & Kuhlberg, 2012, para. 12). The pulp and paper industry presented its products as modern technologies, both in terms of how there were made and how they could be used. This paper modernity was articulated in trade publications by the coming together of these different facets of paper placed indiscriminately side by side: pictures and descriptions of the colossal industrial mills placed right next to the discussions of types of paper and their uses, including shipping, marketing, printing, packaging, and a whole host of other applications that made this new modern world go round. Paper, though a technology with a long and rich history, has not only itself become modern, it has become an essential infrastructure of modernity.

One such trade publication is closely examined here as a way to anchor this analysis of tree-derived paper infrastructures. *The Bowater Papers* are an ode to arboreal media. This small but rich set of magazines consists of four aesthetically striking issues produced by the Bowater Paper Corporation in the 1950s. The publication moves freely between lessons in forestry, manufacturing, arts and crafts, and much more—all the while marketing their various products. *The Bowater Papers* were published in the midst of a booming era for the company: “profits rose rapidly” between 1945 and 1960, and the company came to “maturity” (Reader, 1981, p. 197). Indeed, W. J. Reader (1981) calls the particular period of 1954–1956 the “zenith,” a time of “optimism unlimited,” when Bowater was the “largest producer of newsprint in the world” (p. 225). In addition, after the “diversification policy” (Reader, 191, p. 188) of the late 1940s, which ensured the company was producing a variety of paper commodities, the Bowater Paper Corporation could present paper as a lasting and essential commodity for the modern world. As a coherent set, the publication demonstrates the efficiency of the British company’s global supply chains and production process while also showcasing and educating readers on the ways paper can be made and used. As paper crosses the ocean into North America and is eventually made with trees rather than with rags, it forges a connection to the settler-claimed coniferous forest and becomes associated with notions of rawness, extractable nature, and the elemental. While his-

torians tend to emphasize the role of paper as a support for writing and information, as “the raw material of human communication,” the very *raison d’être* of *The Bowater Papers* is to demonstrate that “paper, the commodity, is not only for the chronicler” (1950, p. 2). Indeed, in a time when the apparent ubiquity and renewability of trees made it seem that paper was a limitless resource, there was an opportunity to pitch Bowater as not only the global purveyor of newsprint but of a variety of goods and solutions. *The Bowater Papers* offer a stylized recasting of pulp and paper as a high-quality, durable, sophisticated, and adaptable material that benefits from the ready availability of adequate trees in Canada’s vast boreal forest. Bowater’s largest North American mill was situated on the island of Newfoundland—the company’s operations rooted, literally, in the same trees it was there to exploit. Through *The Bowater Papers*, the company would present an infrastructural (paper) foundation for the prosperous, hopeful, and increasingly globalized and mobile world of the 1950s.

How then do we think of paper when the focus is not on the words on the page but rather on the fibrous page itself (Stamm, 2018)? By treating paper materially through the dual lenses of media history and environmental media studies, its importance as a resource, technology, and infrastructure can be restored. It is not uncommon, especially in media studies, to characterize social formations in terms of “ages” that correspond to dominant media (e.g., the age of print or the Gutenberg era, the information age, the golden age of television, etc.). In this vein, it could be tempting to speak of a singular “age of paper,” but what exactly would this refer to? After all, paper refers to a variety of materials, and it has been part of human culture for centuries, making it a very long “age” indeed. Rather, the “age of paper” can be fragmented into the “ages” that capture significant aspects of papermaking: the age of wood, the age of lignin, and the age of packaging. Thus, the first section here—the age of paper—provides a brief historical overview of “paper” as ambiguous material and terminology. The second section—the age of wood—focuses on paper made from trees and on the Bowater publication’s efforts to present a tree-paper modernity. A reading of the form and content of the four issues of the publication reveals much about the ways Bowater imagined the possibilities of “xylomedia.” The next section—the age of lignin—considers the serious environmental resources and impact of transforming trees into lumber, woodchips, and pulp, and the consequences of its passing from resource, to material, to commodity. The final section—the age of the package—considers the role of paper in today’s carbon-intensive infrastructures of circulation, mobility, and logistics. Using *The Bowater Papers* as a way to reinvest media studies with these historical, material, and environmental considerations of paper, infrastructures of arboreal paper are presented as part of a modern system of industrial capitalism that extends into contemporary conceptions of mobile digital economies.

The age of paper: Beginnings of a paper world

While the Bowater mill produced tree-based pulp and paper, paper can be produced using any material made from cellulose, a common organic compound that is found abundantly in plants, including papyrus, cotton, silk, bamboo, and wood. To release the cellulose, plants are processed using moisture, heat, and/or beating (Bloom, 2001). The use of wood pulp to make paper appears late in the history of paper and the context is unclear. Charles Fenerty is noted for having first made paper from wood in 1841, producing his first sheet in Halifax. He placed a notice in October 1844 in *The Acadian Recorder*, the local newspaper, that clearly captures the novelty of his product for him and potential readers (see Figure 1). He writes:

Enclosed is a small piece of PAPER, the result of an experiment I have made, in order to ascertain if that useful article might not be manufactured from WOOD. The result has proved that opinion to be correct, for—by the sample which I have send you, Gentlemen—you will perceive the feasibility of it. The enclosed, which is as firm in its texture as white, and to all appearance as durable as the common wrapping paper made from hemp, Cotton, or the ordinary materials of manufacture, is ACTUALLY COMPOSED OF SPRUCE WOOD, reduced to a pulp ...

Figure 1: Letter from Charles Fenerty

ion on
all lay
strange
re than
many
any way
, but I
nd has
ld that
or lim-
erience
cross
rossing
on this
re und
Boats
asks or
reagers

J.L.A.

I at the
atives"
on the
should
was to
ver the
of old,
ossible
ontinu-
ves" of
, of all
doubt-
ves and
s of the
ed has
of the
ils. A
e times

Their crusade against British freedom and British principles can never succeed at the present day and although their party may hang on for a few brief months, or perhaps years, their fall is inevitable, and their designs will be remembered, but only remembered with contempt.

October 24th, 1844. A LIBERAL.

FOR THE ACADIAN RECORDER.
Messrs. English & Blackadar.

Enclosed is a small piece of PAPER, the result of an experiment I have made, in order to ascertain if that useful article might not be manufactured from WOOD. The result has proved that opinion to be correct, for—by the sample which I have sent you, Gentlemen—you will perceive the feasibility of it. The enclosed, which is as firm in its texture as white, and to all appearance as durable as the common wrapping paper made from hemp, Cotton, or the ordinary materials of manufacture is ACTUALLY COMPOSED OF SPRUCE WOOD, reduced to a pulp, and subjected to the same treatment as paper is in course of being made, only with this exception, viz: my insufficient means of giving it the required pressure. I entertain an opinion that our common forest trees, either hard or soft wood, but more especially the fir, spruce, or poplar, on account of the fibrous quality of their wood, might easily be reduced by a chafing machine, and manufactured into paper of the finest kind. This opinion, Sirs, I think the experiment will justify, and leaving it to be prosecuted further by the scientific, or the curious. I remain, Gentlemen, your obdt. servant,
CHARLES FENERTY.

THE ACADIAN RECORDER.
HALIFAX, N. S.
SATURDAY, OCTOBER 26, 1844.

I am styled an enemy to the Press, and my denunciations of it are called personal. It is not so. The Press is an invaluable auxiliary to liberty and morals, when exercising its legitimate functions; but a debased Press is the greatest enemy to both. It is true that I have

more of
Messrs
and Migr

THE Pi
in conne
came off
the tampe
cloud to
present et
of fog and
at Willow
appropria
cal illustri
ries in re
a series o
any local
Colonial

competiti
animating
tators ec
observed
the Mayc
and Thor
distingui
ground p
was nearl
The C
stantial l
ploughm
doubt sh
invited ic
sisting o
Tulloch,
upon the
and to pr
kept in i
His W
clicity, in
ceremon
In introd
Mr. You
highest o
fitting p
Mr. V...

Source: *The Acadian Recorder*, vol 32, no. 43. Saturday, 26 October 1844. Section: Correspondence. Printed by Anthony H. Holland, Water Street, Halifax.

However, probably unbeknownst to Fenerty, a few European texts slightly pre-date his revelation: a Frenchman inspired by American wasp nests containing wood

saw its potential for paper; a British patent was granted to Matthias Koops in 1800–1801 for printing using, among a long list of materials, “different kinds of woods and bark” (via Bloom, 2001, p. 5), though the details have been lost. In 1840, a German named Friedrich Gottlob Keller obtained a patent for a machine that used wood for papermaking (Bloom, 2001; Sansom, 2013). Despite these initial proposals sprouting from various corners of the world, a variety of chemical experiments still had to take place to refine the process. It took until the late 1860s for wood pulp to become commonly used across the world for the mass production of paper.

Few have probably heard of Fenerty,⁶ Koops, or Gottlob Keller. They are, in their obscurity, emblematic of the limited place of paper in media studies; paper is an innovation whose impact cannot be overstated but one whose very ubiquity renders it unspectacular, quotidian, unnoticeable. In this way, it is an example of the sparsity of research devoted to the materials of media and infrastructure, or those inquiries that problematize the “raw” material of communication media. This is not for a lack of general interest in paper: there have been many popular and scholarly histories, both partial and comprehensive, written on the topic (Bloom, 2001; Gendron, 2018; Hills, 1988; Hunter, 2011; Innis, 2011; Kurlansky, 2016; Müller, 2014; Sansom, 2013). Yet surprisingly, even though Canada is a major paper producer and Canadians have mythologized their relationship to the forest, historians have until recently shown “a surprising lack of interest” (Kuhlberg, 2015, p. 4) in addressing the modern Canadian pulp and paper industry. The past few years have seen an uptick of research devoted to the topic, mostly written as case studies of particular mills, uses, or places affected by the severe environmental and local impacts of the industry (Baxter, 2017; Boothman, 2020; Kuhlberg, 2015; Stamm, 2018). But while these political, economic, and environmental stories are valuable additions to understanding the multidimensionality of paper, there is still a need to further examine what happens when the production of paper shifts from using one raw material to another, and to consider these developments as media scholars.

Media histories have tended to take paper for granted or to address it as a footnote in the rise of the mechanical printing press in the fifteenth century, situating the printing press and the printed book as “the perspectival anchor of modern media theory” (Müller, 2014, p. x). Paper takes a backseat in the story of the “Gutenberg era,” with only the most materially attuned scholars working through the physical elements of paper, printed and otherwise, and delving into the particulars of the vellum, gold, metals, and inks that Gutenberg used to produce his famous bibles. In general, however, as has been repeatedly remarked, “historians have tended to subsume the history of paper within the larger story of printing and the printed book” (Bloom, 2001, p. 2). As a consequence, paper has been very narrowly historicized, even while it has become ubiquitous. Media historians are in part responsible for this problem, emphasizing the cultural resonances of the printed, mechanically copied, and accessible word, and the resulting social and

political changes of this newfound accessibility of writing and reading. With few exceptions, paper remains a largely implied element, the “neutral” substrate or “empty slate” upon which history is written.

The broad strokes of the story of paper are familiar. It was invented in China a century or two before the Common Era and took almost a thousand years to get to Europe. The migration westward made its way first through the Middle East and northern Africa before the Moors made the leap onto the European continent via the Iberian Peninsula. As it moves westward, paper shows itself to be a remarkably versatile concept, and the raw materials from which it is made adapt in response to the availability of the resources at hand, becoming thin or sturdy; translucent or opaque; fibrous or smooth; kraft brown, white, or colourful depending on the materials in a given location. The first European papers in the eleventh and twelfth centuries were primarily made from linen rags that transformed into fibrous pulp through a process of beating by hand or mill, but up to that moment, paper had been made with a variety of other organic materials that contain cellulose, such as papyrus, cotton, or hemp. As rags become the prime raw material used to make paper in Europe (as opposed to, for example, the luxurious use of animal skin such as vellum or parchment), paper becomes common and widely accessible. No longer reserved for singular manuscripts, it could now be used for throwaway newspapers, the burgeoning paperwork bureaucracy of “registers, deeds, and commercial documents” and, increasingly, for a variety of common goods “from teabags to wallpaper” (Bloom, 2001, pp. 1–2). Despite this plethora of uses, newsprint was for a long time the most important product for paper-makers, so much so that by the early 1960s, Bowater’s increased capacity and capital investments came up against a global newsprint market that was drastically oversupplied. In the lead-up to this period the company produced *The Bowater Papers*: a trade publication that could show its clients the potential of paper commodities beyond newsprint, presenting paper as an aesthetic, practical, and flexible option for a wide variety of needs and products (e.g., marketing, shipping, building, etc.), all the while offering an education in paper production that is rooted it in the mythos of the Canadian landscape. Across the four issues, paper emerges as a term that encompasses a variety of commodities that can each have different material compositions and qualities depending on how they are used. As the editorial in the second issue remarks, “paper is, in the best sense, a truly cultural subject, touching at every point civilized existence” (1951, p. 2). Paper’s versatility is also captured in the *Dictionary of Paper* (1980):

This book is not a “final achievement.” As the industry and its operating environment continue to change, new scientific and engineering developments will result in additions to its [paper’s] language and with increasing frequency. Since the Third Edition was published, for example, there has been a literal explosion in the terminology as a result of

environmental developments alone. Thus, we expect that as soon as this volume is published, its obsolescence will already be under way. (pp. vii–viii)

Bowater and the age of wood: The golden era

By 1950, Canada had become by far the world's leading producer of newsprint (Stamm, 2012). Bowater, a British company, had struck gold (in a manner of speaking) with its investment in North America's forests. After World War II, Bowater relentlessly expanded its capacity in various ways, building and acquiring mills across the globe, from the American South to France and from New Zealand to Canada. North American forests would become key to the company's profitability over the decades leading out of the Great Depression; indeed, the United Kingdom was "dependent on imports of pulp, because there was no adequate [local] timber" (Reader, 1981, p. 5). One of Bowater's largest mills was located in the province (and former British colony) of Newfoundland and Labrador. As Reader describes in his 1981 corporate history of Bowater (a project solicited by the company's board in the late 1970s), the firm's international holdings began to take shape in the 1920s with their investments in Corner Brook, Newfoundland: initially by sitting on the board of the local Newfoundland Paper and Power Co. Ltd., then with the acquisition of Hudson Packing and Paper Co. in 1923 as the newly formed Bowater Paper Co. Inc., and ultimately, with the purchase of the Corner Brook mill in 1936. Wood was intensely important to the Canadian context, with much of the country covered by a boreal forest and a tradition of logging that took root in the earliest days of colonization (Innis, 1946). In his study of Canada, Innis included lumber, pulp, and paper on a list of the country's staple raw materials: resource-dependent commodities that drive the country's export-based economy and development. In the 1950s, the pulp and paper industry was still one of the most important industries in the country. As Michael Stamm (2018) puts it, "the exploitation and trade in trees would reorient Canada's relationship to the rest of the world" (p. 12).

The first issue of *The Bowater Papers* came out in 1950, and there was editorial optimism in the potential scale and scope of the magazine in these early days:

We do not intend to be tied to a regular schedule of publication, but we shall hope to produce about two issues a year, each to be complete in itself. Into every production we shall put as much work and as much time as may be necessary for its artistic and technical excellence. (p. 2)

This ambitious publication schedule proved to be just that. Over the course of the 1950s, Bowater would produce only three more issues of the magazine, in 1951, 1954, and 1958. While there are only a handful of issues, each is made up of around 65 hefty and carefully designed colourful pages that offer wide-ranging paper-centric content, including stories on harvesting; manufacturing and distribution; history; important figures; aesthetic options, such as the merits of certain

types or engravers; the cultural histories of everyday paper-based media, such as calendars, wallpaper, and newsprint; and how to use different kinds of paper, such as packaging or wrapping.

The publication is dedicated to showcasing the technical and sensory qualities of its paper products: the types of paper, inks, finishes, and coatings; elements such as French flaps and foldouts; and individual page inserts that use tracing paper, crinkled candy wrapping paper, or colourful transparencies (see Figure 2). In this, the magazine was firmly rooted in the corporate print culture of trade catalogues, with an intended audience of other paper producers and wholesale buyers. (Along with the example of other paper-industry trade publications,⁷ the unremarkable nature of this is perhaps revealed by the fact that Reader [1981] does not mention this publication in Bowater's corporate history.)

Figure 2: Feature on “Package and Prestige”



Source: *The Bowater Papers* no. 3, 1954. Reference photo by the authors, with permission. McCord Museum.

Looking through an issue is a discovery of the possibilities and extensions of paper in general, and a showcase of the products that Bowater has to offer its current and potential customers. This is clearly demonstrated in the final pages of each issue, which contain a detailed “Production Specifications” table with information on how each article was produced, including technique (letterpress, photogravure, etc.), paper (from Bowater products such as Pure Book Paper, Lithocote M/2, or Pure Unglazed Kraft, including their weight measurements in grams per square metre), typeface (with Baskerville and Perpetua predominating), blocks (specifying

tones and the degree of screening), and inks (with Winstone's B.S ink series 89 permeating the magazine's pages) (see Figure 3). Immediately following this table is a "Directory of Credits" indicating the British printers that undertook the letterpress, photogravure, or block printing, as well as the binding of the issue. And yet this foregrounding of the magazine's production process, techniques, and materials turns each issue into a performative argument for paper: both in terms of paper's malleability as a cellulose-based vegetal material that could be used as a surface or container, and also as what makes up the common, readable pages of the print industry. The four magazines thus accomplish a distinct folding together of semantic content (knowledge on paper and its natural and human histories) with sensory paper-based materiality. In this self-proclaimed example of "artistic and technical excellence" (1950, p. 2), medium and message support and demonstrate each other, working in unison to show the infrastructural possibilities of paper.

Figure 3: Production specifications, at the back of issue

ARTICLE	PROCESS	PAPER	TYPEFACE	BLOCKS	INK
Title and Contents (p. 1)	Letterpress	Pure Book Paper s/w 40 lbs. DC 500's (98 gm)	Except where otherwise stated headings here have set in Perpetua Bold, serifs in Perpetua Italic, text in Baskerville and captions in Baskerville Italic	2-col. line All h's are 133 screen unless otherwise stated	Winstone's Antique Block, Winstone's Ink
Second Thoughts on Paper (pp. 3-5)	ditto	ditto			ditto
The Bowater Mark (pp. 45)	ditto	ditto		2-col. line	ditto
Waste Product or Potential Wealth? (pp. 4-11)	ditto	ditto	Heading in Gill Extra Bold	p. 7 2-col. line; p. 9 coarse screen 1/16 and line; p. 11 line	ditto
Facts of the Case (pp. 12-14)	ditto	p. 12 in above pp. 13-14 Pure Lightest Kraft s/w 36 lbs. DC 400's (88 gm)	Heading hand-lettered	Line	ditto
'Starting from 7 Standard in Carlsbad' (pp. 17-21)	Photolithography	Lithocote M2 s/w 45 lbs. DC 500's (110 gm)	ditto		Lanflex and Baskerville Standard Inks
The Making of Newfoundland (pp. 24-31)	p. 24 Photolithography pp. 25-31 Photogravure	ditto			p. 24 ditto pp. 25-31 Sungrure Standard Inks
The Drapemore Press (pp. 32-35)	Photogravure	ditto			ditto
The Fourdriner Sags (pp. 36-41)	pp. 36-40 Photogravure p. 41 Letterpress	ditto Cotinox 238T s/w 45 lbs. DC 500's (110 gm)	pp. 36-39 Heading in Baskerville Bold	p. 41 4-col. h/t	pp. 36-40 ditto p. 41 Cray's Old Trocator Ink
Standard Process like a Symposium (pp. 42-45)	Letterpress	Cotinox 238T s/w 45 lbs. DC 500's (110 gm) Cotinox 238 (p. 49 only) s/w 45 lbs. DC 500's (110 gm)		p. 42-47 4-col. h/t; p. 48 2-col. h/t; pp. 43 and 44, line; p. 45 2-col. line	pp. 42-47 fine pp. 48-49 Coates' Yellow and 140 (line); p. 49 Coates' Yellow New Standard Inks
The Making of a Calendar (pp. 50-52)	ditto	Cotinox 238 s/w 45 lbs. DC 500's (110 gm)		Cream: line Red: comb. line and h/t Black: ditto	Shuckell, Edwards's New Standard Inks
Designed for Printing (pp. 53-59)	ditto	Cotinox 238 (pp. 53-56) s/w 45 lbs. DC 500's (110 gm) Pure Book Paper (pp. 57-59) s/w 40 lbs. DC 500's (98 gm)		pp. 53-54 (h/t) 80 line (h/t) 4-col. h/t; p. 54 (right) 4-col. h/t; p. 55 (bottom) 2-col. h/t; line (right) 2-col. line; p. 54 (col. line with make-up) line; pp. 57 and 58 line	pp. 53-56 ditto
Production Specifications (p. 49)	ditto	ditto	Text in Gill Bold and Gills Sans		ditto
Directories of Credits and Printing Companies (pp. 61-63)	ditto	ditto			ditto
Announcements (pp. 64 and III of cover)	ditto	ditto	p. 64 Caption headings in Perpetua Bold p. III Text in Gill Bold and Gill Sans	p. 64 line	ditto

Source: *The Bowater Papers* no. 2, 1951. Reference photo by the authors, with permission. McCord Museum.

The connection between land and human activity, between the rawness of the tree as a "green" resource and the complexity of capitalist forms of organiza-

tion that require paper, is something that recurs in the magazine. In one editorial, the storage medium of paper is linked back to Canada's forests:

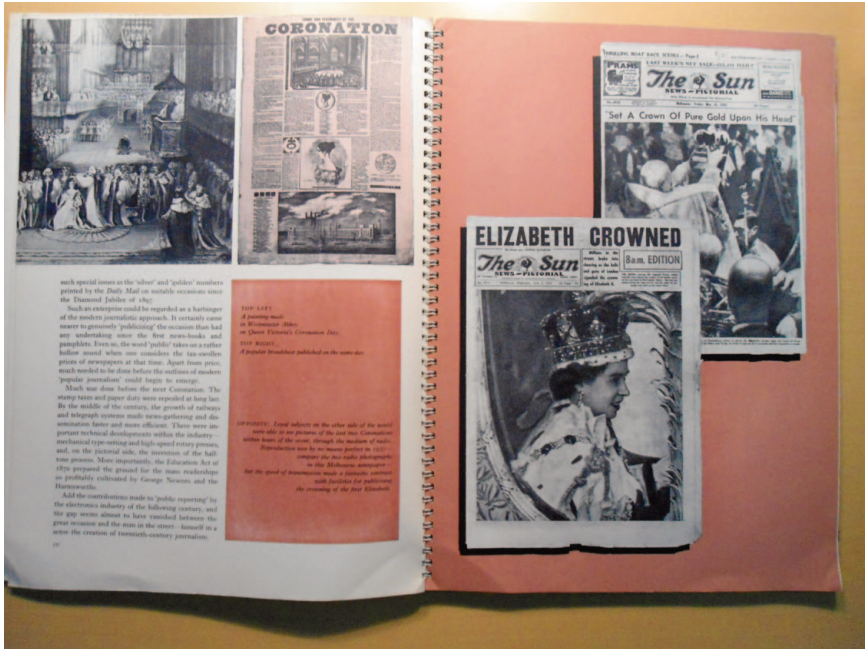
paper is the substance upon which human memory is stored. ... It is to transmit this vital experience that forests (which replant and replace themselves with the aid of man) are felled in Canada throughout the coniferous belt of the North; that machines are invented and improved; and that a vast industry serves the largest ranges of customers in the world. It is certainly for this reason that the ramifications of paper are almost as wide, its lore almost as rich, and its contacts almost as multifarious as agriculture—the cultivation of soil and care of animals. (*The Bowater Papers*, 1951, p. 3)

In drawing a parallel between the commodity of paper and the work of forestry, the text inadvertently gestures toward rethinking of paper through something conceived as a “raw” material for the circulation of human culture.

Throughout the issues, the message of a modern and futuristic paper-dependent connectivity is presented alongside a historicization of Bowater and of wood paper that places them within British imperial print culture and the broader project of settler-colonial cohesion: a treatment of printed road maps from Elizabethan England (1951) for example, or an article on “Canada’s ‘Maritimes’” that seeks to demonstrate the region’s longstanding ties with European settlers (1958). Put differently, the publication is not merely selling paper; it is writing Bowater and its paper into history, cementing the company’s ties to the essential dimensions of the imperial British project as a part of the infrastructure of empire that could record, relay, and recirculate information. In an article entitled “Reporting the Great Occasion” (*The Bowater Papers*, 1954), the opening paragraph muses on the recent coronation of Queen Elizabeth II, an event famous in part as being one of the first televisual media events (Dayan & Katz, 1992) (see Figure 4). Even here, the royal family’s special relationship with print media manages to reverberate. While the article acknowledges that “technological advances in the methods of collecting and transmitting current news—notably the development of radio valves and the cathode-ray tube—meant that millions more than the privileged few in Westminster Abbey were able to ‘attend’ the ceremony itself,” they quickly add that “the role of the Press remains equally important for those remoter sections of a public, which on this occasion was by no means limited to Britain” (*The Bowater Papers*, 1954, p. 5). *The Bowater Papers* uses the event of the coronation to provide a sweeping account of the rise of the public press from the sixteenth century onward, particularly centring on the coronation of kings and queens and the “domestication” of the British throne. There is, however, a significant paradox at play here, a tension between the reach of empire and the underdog colony rich enough in resources to imagine a different kind of modernity. Bowater is firmly

committed to its Canadian investment and to the medial possibilities of its prime papermaking trees, but it also seeks to present itself as having British “credibility,” very much in keeping with its corporate lineage in British paper production (Reader, 1981).

Figure 4: Double-page spread on “Reporting the Great Occasion” to tie in with the coronation of Queen Elizabeth



Source: *The Bowater Papers* no. 3, 1954. Reference photo by the authors, with permission. McCord Museum.

While the British Empire is among the topics recurring across the issues (e.g., articles on major figures of British culture, including Shakespeare and the British monarchy), Newfoundland’s social, cultural, and political economic history are too. The province is the subject of a trilogy of articles that appear in the first three issues of the magazine. The first begins with “The Making of Newfoundland,” which brings the former colony’s history into the present while emphasizing Bowater’s consequential role in the province’s economy. It was a convenient story to tell: long-standing claims of Anglo settler-colonial dominion that aligned with the corporation’s reliance on the former “possessions” of Britain’s imperial economy. The second article of the trilogy lands on the town of Corner Brook, the site of a newsprint mill that was one of the most important in Bowater’s international network. The narrative follows the relative decline of the province’s international fishery and the rise of its newsprint industry in the early decades of the twentieth century: “it was the coming of the pulp mills which really turned Newfoundland’s forests to a

https://cjc.utpjournals.press/doi/pdf/10.22230/cjc.2021v46n2a3859 - Thursday, August 15, 2024 2:48:18 AM - IP Address:2a02:1210:3e7f:5b00:6459:1472:a537:8fe5

profit” (*The Bowater Papers*, 1954, p. 26). The Corner Brook mill was in many ways Bowater’s Canadian base of operations, and the company emphasized these ties (equally historical as infrastructural) as a means of legitimating the clearing and harvesting of the country’s boreal forest. Historic maps, woodcuts, and contemporary illustrations by the British firm Kempster/Evans depict Newfoundland as colour-saturated labour environments in full swing. This content, which was sustained across the run of the magazine, strengthened British claims to Canadian arboreal resources while always keeping in the foreground the image of wood as a “raw” and “natural” material. The final article in the trilogy emphasizes Newfoundland’s strategic importance in the emerging era of aerial connection, with the airport at Gander ensuring that the town, thanks to the economic activity of the nearby mill, was now integrated into the spatio-temporal flows of global mobility (see figure 5). The Bowater mill, in other words, would be the metaphorical connector between empire and colony, between the resources of the Canadian forest and the commodity-hungry modern world.

Figure 5: “Newfoundland in the 20th Century”



Source: *The Bowater Papers*, no. 3, 1954. Reference photo by the authors, with permission. McCord Museum.

The fourth and final issue of the magazine, published in 1958, differs in approach from the first three. While the latter integrate that anonymous, corporate “we” as the editor and author of all content, the fourth issue contains content provided by writers, journalists, editors, and other cultural producers invited by Bowater to contribute. From the well-known British novelist Leonard Strong to the sole female contributor, Daphne Rands, a journalist and editor of *Sales Appeal*,

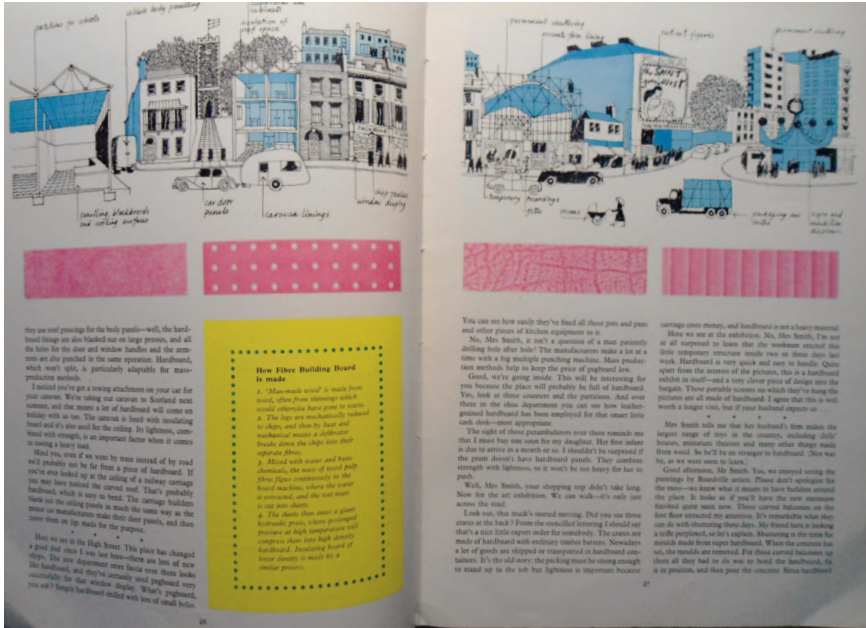
a trade magazine that qualified her “to analyse and discuss the undeniably bright future for fibreboard containers of all kinds” (*The Bowater Papers*, 1958, p. 3), the nine contributors suggest that the onus of producing the magazine, and particularly writing the content, had become too difficult to sustain. The issue’s editorial suggests as much, noting that they were, after all, just “papermakers” (*The Bowater Papers*, 1958, p. 2). Moreover, the issue specifies that it was edited by Ellic Howe, the author of several books on printing history and a public relations consultant in the printing industry. Despite this, many of the same themes from the first three issues do resurface. The Newfoundland thread continues with an article by John Osborne, a British teacher and amateur expert on corn growing in England. “The Deepening Green” is written from the perspective of one convinced that “natural resources were being squandered to provide the raw material for newspapers” (Osborne, 1958, p. 3), but it nonetheless extolls the work Bowater is doing to create agricultural plantations of monocrop pines, which are carefully managed and destined for production as pulp. Osborne saw how “coniferous vitality” (p. 22) could be made to rise from Newfoundland’s sparse soil through human engineering and need. However, despite some similarities at the level of content, there is a discernible shift in pronoun and perspective. In going from the bird’s eye view of corporate interest to the partial perspective of individual authors, the magazine reinforces its status as a media artefact that can be both expert-driven and broadly informative, and in which the papery future of the North Atlantic world is imagined collectively, even while the company’s fortunes had at this time started to reflect the economic downturn (Reader, 1981).

The consistency of content reflects a desire to address *pulp* and *paper*, both the Bowater Corporation’s clearing and harvesting processes and its practices of commodification. The anonymized editor works to tie together a set of “paper values” (the title of the third issue’s editorial) that could make claims for how “we talk of paper and find that the whole world is our oyster” (*The Bowater Papers*, 1954, p. 2). These values speak through paper as an “international material” that could be British-owned, capitalist in orientation, and move across well-trodden communication routes that were relics of the United Kingdom’s colonial domain. “The cycle of any one of its products, may well circumnavigate the world,” the same editorial continues, “from a forest in Newfoundland to, say, a school text-book in the Straits Settlement or a paper dragon in some Far Eastern festival of the New Year” (*The Bowater Papers*, 1954, p. 3). Paper as a ubiquitous commodity derived from trees presents the possibility of tracing over formerly colonial networks of trade and control—a literal chain of commodified connections that could maintain relations between former colonies, such as Newfoundland and Singapore.

The Bowater Papers are, therefore, much more than a performative display of paper or an advertisement for Bowater’s products. Rather, the publication presents

an argument for wood paper as the infrastructural material for building the modern world (see figure 6). As was being pointed out as early as the 1920s, “when one considers the part which wood plays in modern life—housing, transportation, manufacture, and particularly the dissemination of knowledge by means of books and newspapers, this is truly an Age of Wood” (Gifford Pinchot cited in Stamm, 2018, p. 10).

Figure 6: Spread from “All Aboard,” showing the infrastructural potential of trees



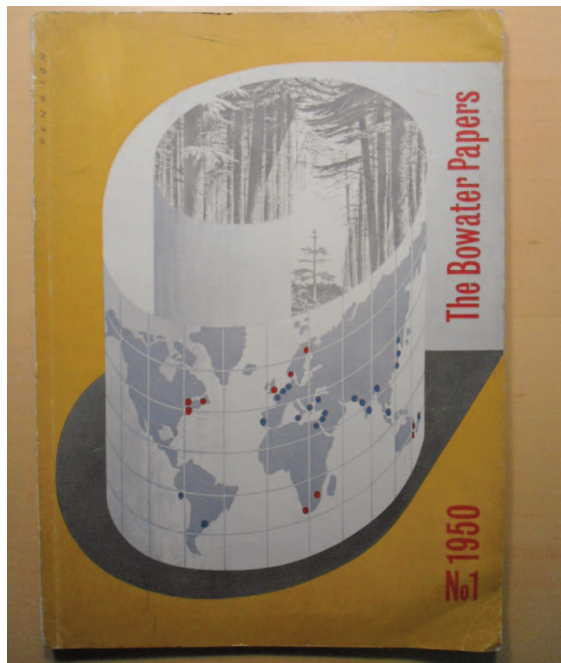
Source: *The Bowater Papers*, no. 4, 1958. Reference photo by the authors, with permission. McCord Museum.

Articulated around paper as both pulp and inscriptive surface, both material and content, the magazines provide vivid examples of how to imagine the wide-ranging uses of the infrastructural mediated tree. This vision of arboreal vitalism is predicated on having readers come to see trees on their full infrastructural spectrum—from sapling to the actual page on which Usborne’s words were printed. “The truth of the matter is that the devoted teams of experts involved have long known that in the perfect state of nature—that is to say with man co-operating—nothing is lost or spoiled except waste and, with waste removed,” Usborne (1958) writes, “the elements which interact for the benefit of man are enhanced and glorified” (p. 23). Seedling, pine, and pulp become a single element that can be turned to human purpose, making Usborne’s article emblematic of how the magazine knitted together an infrastructural treatment of pulp and paper that was predicated on the creation of a third “element,” wood fibre, that was neither “natural” nor “human” but charged with meeting the global demand for paper.

The age of lignin: From cellulose to dead media

By-products of pulp and paper come with long-lasting environmental costs. Mills have a colossal impact, requiring the harvesting of forests (often the result of monocrop planting) and the intensive use of hydro energy, all while producing an abundance of waste and pollutants. Papermaking thus leaves a complicated mark on the Canadian landscape, something that is reflected in the pages of *The Bowater Papers*: images show the natural bounty of the forest next to industrial harvesting and mills. A good example is the cover of the inaugural issue, which depicts a loosely unfurled sheet of paper. On its front is a gridded map of what is presumably Bowater's network of production (red) and distribution (blue) centres (see Figure 7). On its back, a dense coniferous forest lets in a slanted shaft of daylight that gives a sort of benediction to a growing tree. The image is a succinct summary of the magazine's abiding concern: how a "naturally" occurring material such as wood pulp is integral to a globalized paper infrastructure. This inaugural cover acknowledges the forests behind the roll and hints at the behind-the-scenes information the magazine will share. The coniferous tree becomes a material base and original container for the open-ended future that white rolls of paper suggest.

Figure 7: Cover, *The Bowater Papers*, no. 1, 1950



Source: Reference photo by the authors, with permission. McCord Museum.

Cellulose is a polysaccharide that consumes air and minerals found in soil, and eventually forms bonds that become tensile plant matter. When it comes into

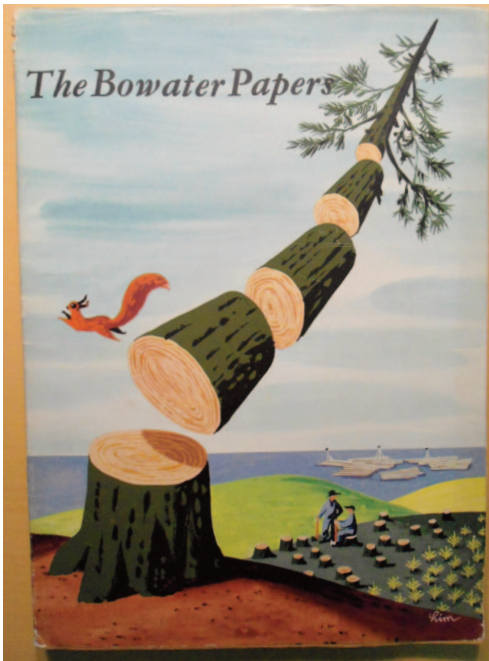
being as, for instance, a southern pine located in a Bowater monocrop plantation (a species particularly well-suited to the production of pulp, given its ability to grow quickly in adverse climate conditions), then it becomes part of a process of mediation in which contemporary forestry and paper industries are end points. In this reading, cellulose becomes part of a more consequential accounting of paper as infrastructure that is rooted in the planet's arboreal vitalism, whereby wood fibres become paper-based commodities. The intent here is not to point to the spectre of the monocrop sapling that permeates our fading reliance on paper as a storage medium. Rather, it is to sustain a focus on the malleability of cellulose that gets shaped into exploitable wood-based media that then exceed their function of information exchange and storage, and, in turn, become materials of mobility. What *The Bowater Papers* helps us see, through the lens of a 1950s British corporation surfing a fading wave of colonial capitalism, is a still very much present vision of ubiquity that mobilizes paper as an infrastructural commodity that demands the creation of a supply chain from tree to world using water, road, and rail. As the authors of *Wood Pulp and Its Uses* published in 1911 proclaim, "(t)he world has had its Stone age and its Bronze age: later its Iron age, and the present is a Cellulose age" (Cross, Bevan, & Sindall, 1911, p. v). *The Bowater Papers* is a set of media artefacts that articulate how this paper has not yet faded but has rather become embedded across a range of wood-based media.

This article's treatment of *The Bowater Papers* mobilizes the issues as media artefacts that help parse historical and contemporary questions around the material constitution of the media of communication. The past decade has seen an energetic expansion and increased malleability of the category of "media." Following work by Durham Peters (2012) and others, it is no longer an epistemological leap to support the claim that environmental phenomena, including trees, send and receive messages, store information, and more generally participate in broad practices of mediation that enter into relation with human-centred forms of communication. Environmental media studies is now entering an exciting phase of analysis that can assume the legitimacy of a broad range of milieux as co-shaping human and more-than-human interactions. Melody Jue and Rafico Ruiz (2021) suggest that all environments are "ontologically dense situations" (p. 2) in which multiple elements co-saturate one another, and thus demand a mode of analysis that attends to a condition of co-presence where anthropo- and eco-genesis merge, blur, and coalesce. What *The Bowater Papers* show is that "raw paper" is neither strictly the product of extractive processes nor the result of planetary conditions that produce and sustain elements in a chemical sense. Broken down into its constituent components, the disaggregation of paper becomes a dendrological clock running in reverse: from hard bark to cellulose. It is renewable, in that new seeds and trees can be cyclically grown and harvested on a plot of land up until that soil has been extracted of its nutrients. Raw paper demonstrates how

even “renewable” resources, particularly those reliant on the cyclical character of hydrological or other ecological systems, can hit a limit, particularly under the damaging conditions of global warming .

The final issue of *The Bowater Papers*, produced in 1958, exemplifies the full spectrum of possibilities for tree mediations. The front cover is a jarring one for environmentally aware twenty-first century eyes (see Figure 8). The cutting of the tree, presented with a joyful looking hopping squirrel, reminds us of paper as a natural resource connected to land and habitat, the Canadian settler forest and nature. There is a beautiful simplicity to the graphic arrangement, with this spontaneously felled tree in the foreground, lumberjacks resting on their newly cut stumps adjacent to monocrop saplings in the middle ground, and a flotilla of long trunks awaiting transport in the deep background. The long, arcing diagonal of the cut tree invites the reader to open the magazine’s cover. The inside flap features a more caricaturized version of that same tree, with “Bowaters” cursively spelled out in its root system and its bunches of needle-strewn branches containing the corporation’s wide array of soon-to-be manufactured products, from multiwall sacks to acoustic panels. But the chain of associations does not end there. Inside the flap is a schematic blueprint for the design of a large-scale paper mill—the next step in the production process for those severed pieces of tree (see Figure 9).

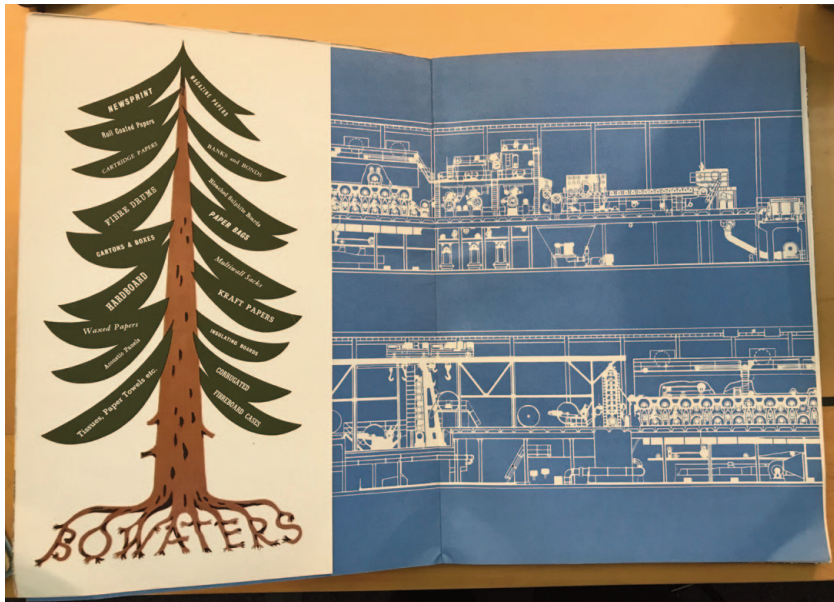
Figure 8: Cover, *The Bowater Papers*, no. 4, 1958



Source: Reference photo by the authors, with permission. McCord Museum.

As the tree branches show, paper’s infrastructural networking effect makes it a prime material of modernity’s mantras of efficiency, progress, and growth. The Bowater Paper Corporation makes a pitch for paper as a useful all-around material to build this better world, and allows us to peek into the making—literal and imagined—of a structuring medium that bears the hallmarks of infrastructural influence.⁸ Paper infrastructures are thus a way to characterize the collection of materials and systems that rely on wood and the generative power of cellulose to maintain modernity’s focus on a mobile and growth-based model of capitalism.

Figure 9: Inside front cover with fold over flap listing the company's many paper products



Source: *The Bowater Papers*, no. 4, 1958. Reference photo by the authors, with permission. McCord Museum.

This elaborate design corresponds to a feature article titled “How Do You Build a Paper Mill?” that attends to the elaborate work undertaken by Bowater’s engineering division in the siting and construction of mills. The close of the issue picks up the chain of production, with the continuation of the linear blueprint and a back cover that echoes the severed pieces of tree in atmospheric transit. Paper is thus an infrastructural commodity that mimics the malleability of the tree, and particularly of cellulose as a vital material. This final issue of *The Bowater Papers* plays up these impressive manufacturing and infrastructural exploits of transforming the tree as “raw” resource into paper commodities that are essential material supports of everyday life, and of creating the networks that connect the forest to the consumer.

Creating the illusion of *paper’s* rawness as a natural form of communication masks the environmental impact of Bowater’s chain of production and of the energy and infrastructures required to transform the tree into “xylomedia.” By-products such as lignin, as well as the intensive use and pollution of waterways in the manufacturing process, particularly due to bleaching, are the subject of occasional features on the environment in the magazine. A lengthy article on lignin, “Waste Product or Potential Wealth?” (*The Bowater Papers*, 1951), frames the discussion as an example of “progressive industries” turning these “waste products” (p. 6) to good use. For example, the article notes that lignin can be used as a dis-

persant in the production of ceramics, a natural alternative to more harmful tanning chemicals, and a road surface binder and dust-laying agent. Lignin is the derivate of this “raw” paper that is not so natural or unmediated after all, and it is produced in substantial quantities: an average day for a chemical pulp mill, the article notes, makes use of 200 tons of wood, from which 60 tons of lignin remain. It serves as a counterweight to the “coniferous vitality” that Usborne saw emerging from the “deepening green” of Newfoundland’s profitable forests. Lignin, water, and energy are a case of eco-genesis and anthropogenesis folding together and becoming articulated through a practice of “infrastructural mediation” (Ruiz, 2021).

In many respects, the contemporary decline of the newspaper as a paper medium at once extends and reverses Stamm’s (2018) framing of trees as “dead media”; trees have become both inert matter, their roots severed and rendered into pulp by a growing “smart” forestry industry, but also antiquated media forms that no longer represent the future, nor hold the nearly-sole responsibility (and profitability) of containing the wide range of human practices of communication. However, this does not mean that paper and trees have become obsolete as media of inscription, nor that they are no longer made to perform other modes of containment: soundproofing and trapping heat within the interior of buildings, ensuring the viability of food products in the form of kraft sacks, or containing mundane objects of everyday life (i.e., a paper bag). Similar to the better-known case of an infrastructural politics of “flow” that the oil-bitumen nexus generates (Barney & Tollefson, 2019), the mediated tree, as showcased throughout *The Bowater Papers*, likewise flows across a process of mediation that begins, at least symbolically, with timber logs streaming down the river current toward the mill to begin their cycle of material transformations, or as a “paper trail [that] flows majestically over about a five-hundred year period” (Sansom, 2013, p. 13) from China to Europe. As Darin Barney and Hannah Tollefson (2019) point out, practices of extraction and commodification force materials to be on the move and become bound up in the creation of infrastructural networks of production and exchange. The large-scale processing and manufacturing of tree to wood to pulp to cellulose to paper entails a reification in distinct media forms that continue to support contemporary infrastructures of capitalism, mobility, and containment for trade. One of its most ubiquitous contemporary artefacts is the rectilinear corrugated cardboard box, which facilitates the circulation of international flows of wood fibre-based commercial exchange.

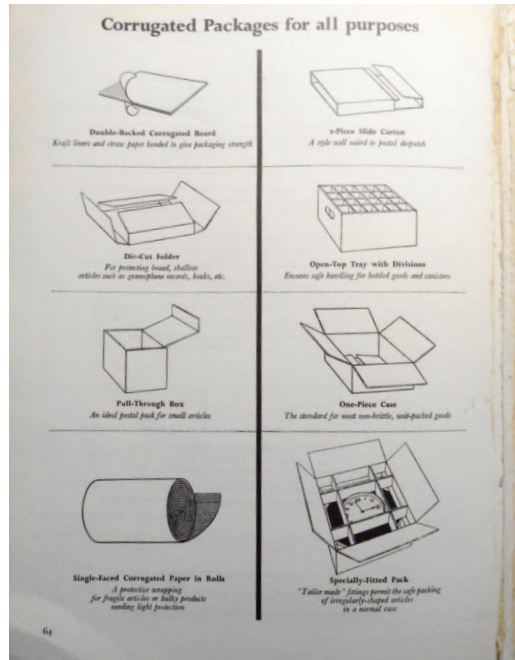
The age of the package: Cellulose on the move

The Bowater Papers and its claims to shoring up a universal wood fibre culture in the 1950s also begins to mark a nebulous shift toward distributed computing and the foreshortening of paper as a storage medium. The containment of solid-phase bitumen becomes a charged mediating practice that relies on generating particular container technologies, such as pucks or pellets, that manage all the risks that

come with moving and selling such an environmentally damaging and politically loaded substance (Barney & Tollefson, 2019). By way of contrast, paper and its industrialization, both through its longevity and its pervasiveness, has placed particular species of trees, their wood pulp, and the ways of cutting and sometimes replanting them, as the damaging and renewable figure at the base of its clearing and harvesting logic. Lignin is the substance that must, similar to bitumen, ensure an infrastructure of production and consumption that both embraces and mitigates its status as a noxious by-product. Seen through its manifold possibilities of cellulose bonds forming and disaggregating, trees, similar to oil, are not only made to flow toward points of consumption, they must also support the material movement of goods through the cardboard circulation of at-a-distance digital capitalism (see Figure 10). The Amazon box is perhaps the most prominent contemporary manifestation of this arboreal politics of containment trees have become bound up with. Whereas paper has usually been considered a storage medium because of the inscriptions it “carries” (e.g., books as archives of knowledge), wood pulp also makes up the containers of packaging that are used to hold and circulate information and commodities across the networks of postage and shipment that are designed to make paper move (see Figure 11). The banal ubiquity of envelopes and boxes littered across largely Western porches, doorsteps, and mail trucks conceals the question: why are they made of trees?

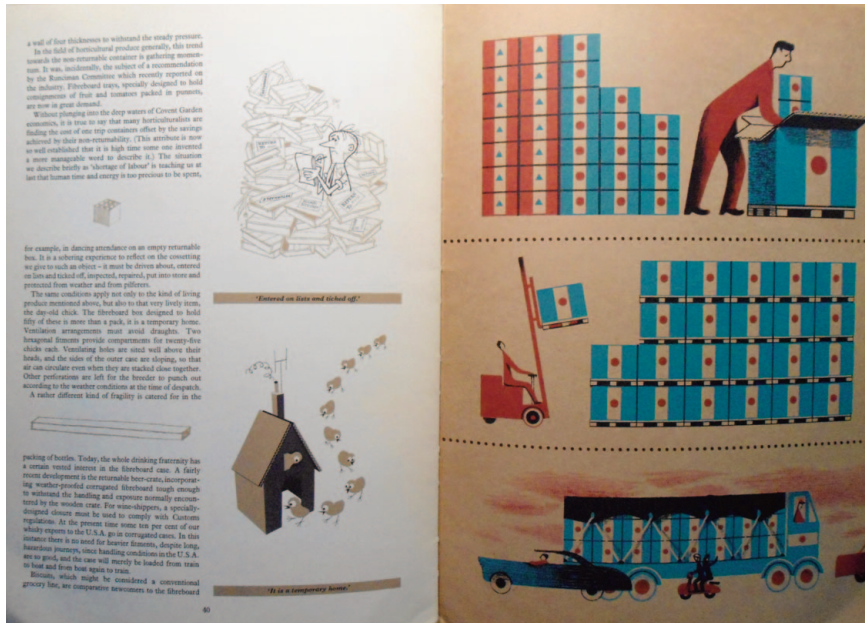
The paper package is part of the culture and infrastructure *The Bowater Papers* has participated in and helped shape, or what Susan Leigh Star and Karen Ruhleder (1996) describe as creating an infrastructural smoothness. The article “Package and Prestige” (*The Bowater Papers*, 1953) offers a historical perspective on the build-up of material infrastructures meant to deliver goods directly to the home. It suggests that the creation of the mail order business is the result of the

Figure 10: Spread from “Corrugated is Contemporary”



Source: *The Bowater Papers*, no. 4, 1958. Reference photo by the authors, with permission. McCord Museum.

Figure 11: "Corrugated Packages for All Purposes"



Source: *The Bowater Papers*, no. 2, 1951. Reference photo by the authors, with permission. McCord Museum.

so-called American "frontier," where the distance between consumer and producer was expanding and where new services and products were needed to supply these far-flung settler communities. This was a settler-colonial context that required new forms of light and cheap packaging to support new nodes in networks of circulation. As the editorial from the third issue of *The Bowater Papers* (1954) claims:

important as this use [as a writing surface] of paper continues to be in the instruction or entertainment of civilized men, a more specifically modern function of paper is being perfected in altogether different fields. If in a sense it is permissible to think of this century as the Age of the Package (it is the 'Age' of a good many other things too, of course), scientific developments in paper as a packaging medium do lend some weight to the catch-phrase. (p. 3)

It does not take much to jump from packaging in historical mail-order businesses to a contemporary reliance on paper in the quotidian performance of infrastructure: "Amazon," which began with books, as a river-like flow of commodities, highlights the essential link between circulation, pulp and paper, and of the infrastructural and material production of a lifestyle of convenience from the 1950s onward. From the mail-order catalogue to the envelope, papy media are essential components of the consumption of things that move from

“somewhere” right to our front door, so that “package and prestige” go hand in hand:

Nowadays we buy merchandise of every kind produced in distant places packaged and protected as often as not in paper or a kindred material. But packaging must do more than protect. It must speak for the quality of the product and bridge the gap between producer and consumer. In these competitive times first impressions count for everything in the struggle for public favour. (*The Bowater Papers*, 1954, p. 29)

The final issue of *The Bowater Papers* itself contains a short article called “Cardboard is Contemporary.” Daphne Rands (1958) extols the archaeological weight that humble corrugated fibreboard could hold as a technology dating from the 1860s and as “one of the finest flowers of our civilization” (p. 41). Rands is writing from a moment in time when cardboard was expanding: production increased eighty percent in the U.K. between 1950 and 1958. These are long echoes that continue to reverberate today with the re-opening of brown paper mills to meet current global demand (Corkery, 2019). “For, like some other eminent Victorians,” Rands (1958) perceived that “the corrugated fibre board case has proved itself almost miraculously adaptable to the needs of our fast-moving, fast-selling, fast-spending century” (p. 42). She forecasted that these characteristics of her contemporary economy would only increase, and that the strong, light, and cheap corrugated fibreboard box would continue to support the exponential growth in volume of goods that are being manufactured, shipped, and consumed.

Conclusion: Seeing trees in the age of Amazon

In the age of Amazon, industrial mass production is the norm. Paper products are standardized and machine-made, leaving no trace of their material origins: the fibres have become a smooth surface, unnoticeable. The vitality of trees, the possibilities of regrowth and recycling, are what generates the ubiquity and enduring use of such industrial and modern paper infrastructures. Wood paper has become the accessible mass-produced branch of papermaking, but while such paper helps maintain the protocols and pace of modern living (e.g., bureaucracy), it is also a paper that reminds us of the sensorial and temporally inefficient pleasures of analogue media consumption (e.g., reading books).

Analogue and sensorial qualities are reminders of the materiality of paper, a product of woodlands and waterways that calls for a natural history and geography of media. This approach into paper products, which understands the “environmental origins and the industrial processes involved in manufacturing trees” (Stamm, 2018, p. 12) is a way of articulating the intersection of the material, environmental, and infrastructural in media studies. Trees have the particular condition of a harvested material; they are renewable yet vulnerable. Producing wood paper is a strain on the settler-claimed landscape and the environment, requires

massive amounts of hydro energy, and generates industrial waste and pollution. While avoiding critical perspectives, *The Bowater Papers* captures many of these infrastructural facets of papermaking from trees as well as the more material presentations of its paper media products: the issues are very intentionally paper products advertising paper products for a complex paper-dependent modernity that can be understood as an infrastructural assemblage of harvesting, production, circulation, and consumption. *The Bowater Papers* might well have been published in the modernizing era of the 1950s, but following the paper trail to the present day reveals that much of the same still holds true: despite the projections and expectations of digital and smart media artefacts and ecologies, it is still a wood-paper world, an age of lignin, packages, and Amazon.

Notes

1. Paper is used in a broad sense to indicate commodities that are produced by the pulp and paper industry, which “consists of manufacturing enterprises that convert predominantly woody plant material into a wide variety of pulps, papers and paperboards” (Kuhlberg, 2015, para. 1). We therefore take paper to include everything from tissue to cardboard.
2. As opposed to papermaking that relies on friction only.
3. Susan Leigh Star (1999) describes infrastructures as largely invisible. In thinking of paper mills, we can see that they are an example of the way the visibility of infrastructures can become a matter of equity.
4. For instance, in the Chinese philosophy of the wuxing—also known as the Five Elements or Five Phases—the world is divided into five basic “energies” or processes, one of which is the symbol mù, which is translated as both tree and wood. See Wang, Bao, & Guan (2020).
5. For more on this, see Robert Babe (2015) on Innis.
6. Fenerty’s name in particular is largely absent from most accounts of the history of paper.
7. Many of the characteristics discussed here regarding *The Bowater Papers* can be found in other pulp-and-paper trade publications, such as the *Canadian Printer Publisher, Paper & Ink Paper Maker*, and the *Inland Printer*, including the juxtaposition of natural imagery with the industrial machinery of the mill.
8. For instance, the 1996 edition of the Lockwood-Post’s Directory of Products of Pulp, Paper Mills, Converters and Merchants, a guide to the U.S. paper industry, lists over 400 distinct uses for paper (Bloom, 2001).

Aleksandra Kaminska is Associate Professor in the Department of Communication at the Université de Montréal. Email: a.kaminska@umontreal.ca **Rafico Ruiz** is Associate Director, Research, at the Canadian Centre for Architecture. Email: rruiz@cca.qc.ca

References

- Babe, Robert E. (2015). Innis’s great transformation: Staples thesis/medium theory. *Canadian Journal of Communication*, 40(3), 489–501.
- Barney, Darin, & Tollefson, Hannah. (2019). More liquid than liquid: Solid-phase bitumen and its forms. *Grey Room*, 77, 38–57.
- Baxter, Joan. (2018). *The mill: Fifty years of pulp and protest*. East Lawrenceton, NS: Pottersfield Press.
- Boetzkes, Amanda. (2019). *Plastic capitalism: Contemporary art and the drive to waste*. Cambridge, MA: MIT Press.

- Bloom, Jonathan. (2001). *Paper before print: The history and impact of paper in the Islamic world*. New Haven, CT: Yale University Press.
- Boothman, Barry. (2020). *Corporate cataclysm: Abitibi power and paper and the collapse of the news-print industry*. Toronto, ON: University of Toronto Press.
- Bothwell, Ellie. (2007). American reams: Why a “paperless world” still hasn’t happened. *The Guardian*. URL: <https://www.theguardian.com/news/2017/dec/29/american-reams-why-the-paperless-world-hasnt-happened> [April 21, 2020].
- Bourchier, R.J., Stanton, C.R., & Kuhlberg, Mark. (2012). Forestry. *The Canadian Encyclopedia*. URL: <https://www.thecanadianencyclopedia.ca/en/article/forestry> [May 20, 2020].
- Brillenburt Würth, Kiene, Driscoll, Kári, & Pressman, Jessica (Eds.). (2019). *Book presence in a digital age*. New York, NY: Bloomsbury.
- Corkery, Michael. (2019, March 22). The great American cardboard comeback. *The New York Times*. URL: <https://www.nytimes.com/2019/03/22/business/cardboard.html> [May 2, 2020].
- Constable, Marianne. (2019). The paper shredder: Trails of law. *Law Text Culture*, 23(1), 276–293.
- Cross, Charles F., Bevan, Edward J., & Sindall, Robert W. (1911). *Wood pulp and its uses*. New York, NY: D. van Nostrand company.
- Day, Ronald E. (2014). *Indexing it all: The subject in the age of documentation, information, and data*. Cambridge, MA: The MIT Press.
- Day, Ronald E. (2019). *Documentarity: Evidence, ontology, and inscription*. Cambridge, MA: MIT Press.
- Dayan, Daniel, & Katz, Elihu. (1992). *Media events: The live broadcasting of history*. Cambridge, MA: Harvard University Press.
- Desan, Christine. (2015). *Making money: Coin, currency, and the coming of capitalism*. Oxford, UK: Oxford University Press.
- Dictionary of Paper*. (1980). 4th edition. The American Institute of Paper, Inc.
- Durham Peters, John. (2012). *Marvelous clouds: Toward a philosophy of elemental media*. Chicago, IL: University of Chicago Press.
- Gendron, Céline. (2018). *Le papier voyageur. Provenance, circulation et utilisation en Nouvelle-France au XVIIIe siècle*. Québec, QC: Presse de l’Université Laval.
- Gitelman, Lisa. (2014). *Paper knowledge: Toward a media history of documents*. Durham, NC: Duke University Press.
- Joshi, Priti, & Zieger, Susan (Eds.). (2017). *AModern 7: Ephemera and ephemerality*. URL: <https://amodern.net/issues/amodern-7-ephemera-ephemerality/> [March 3, 2020].
- Jue, Melody, & Rafico, Ruiz. (2021). *Saturation: An elemental politics*. Durham, NC: Duke University Press.
- Heesen, Anke te. (2014). *The newspaper clipping: A modern paper object*. Manchester, UK: Manchester University Press.
- Harris, Michael. (2014). *The end of absence: Reclaiming what we’ve lost in a world of constant connection*. Toronto: HarperCollins.
- Hills, Richard Leslie. (1988). *Papermaking in Britain, 1488–1988: A short history*. London, UK: Athlone Press, 1988.
- Hunter, Dard. (2011). *Papermaking: The history and technique of an ancient craft*. New York, NY: Dover Editions.
- Hunter, Matthew S. (2012). Documents and bureaucracy. *Annual Review of Anthropology* 41, 251–267.
- Innis, Harold. (1946). *Political economy in the modern state*. Toronto, ON: Ryerson University Press.
- Innis, Harold. (2011, Spring). The coming of paper. *Intermedialités/Intermediality* 17, 232–255.
- Kafka, Ben. (2012). *The demon of writing: Powers and failures of paperwork*. New York, NY: Zone Books.
- Kamin, Diana. (2018). Mid-century visions, programmed affinities: The enduring challenges of image classification. *Journal of Visual Culture*, 16(3), 310–336.
- Kittler, Friedrich. (1999). *Gramophone, film, typewriter*. Stanford, CA: Stanford University Press.
- Kingwell, Mark. (2019). *Wish I were here: Boredom and the interface*. Montréal/Kingston: McGill-Queen’s University Press.
- Krajewski, Markus. (2011). *Paper machines: About cards and catalogs, 1548–1929*. Cambridge, MA: MIT Press.

- Kuhlberg, Mark. (2015). *In the power of the government: The rise and fall of newsprint in Ontario, 1894–1932*. Toronto, ON: University of Toronto Press.
- Kuhlberg, Mark. (2006). Pulp and paper industry. *The Canadian Encyclopedia*. URL: <https://www.the.canadianencyclopedia.ca/en/article/pulp-and-paper-industry> [April 1, 2020].
- Kurlanster, Marc. (2016). *Paper: Paging though history*. New York, NY: W.W. Norton.
- Lancaster, Frederick W. (1978). *Toward paperless information systems*. New York, NY: Academic Press.
- Latour, Bruno. (2002). *La fabrique du droit : Une ethnographie du Conseil d'État*. Paris, FR : La Découverte.
- Lubar, Steven. (1992). “Do not fold, spindle or mutilate”: A cultural history of the punch card. *Journal of American Culture*, 15, 43–56.
- Lubar, Steven. (2017). *Code and clay, data and dirt*. Minneapolis, MN: University of Minnesota Press.
- Morozov, Evgeny. (2013). Only disconnect: Boredom reconsidered. *The New Yorker* (October 28), 33–37.
- Mueller, Pamela A., & Oppenheimer, Daniel. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop note taking. *Psychological Science*, 25(6), 1159–1168. doi:10.1177/0956797614524581
- Müller, Lothar. (2015). *White magic: The age of paper*. Cambridge, UK; Malden, MA: Polity.
- Odell, Jenny. (2019). *How to do nothing: Resisting the attention economy*. Brooklyn, NY: Melville House.
- Plotnick, Rachel. (2018). *Power button: A history of pleasure, panic, and the politics of pushing*. Cambridge, MA: The MIT Press.
- Rand, Daphne. (1958). Cardboard is contemporary. *The Bowater Papers*, 4. London, UK: Bowater Corporation, 37–41.
- Rauch, Jennifer. (2015). Slow media as alternative media: Cultural resistance through print and analog revivals. In C. Atton, (Ed), *The Routledge companion to alternative & community media* (pp. 571–581). Abingdon, UK, & New York: Routledge.
- Reader, W. J. (1981). *Bowater: A history*. Cambridge, UK: Cambridge University Press.
- Robertson, Craig. (2012). *The passport in America: The history of a document*. New York, NY: Oxford University Press.
- Robertson, Craig. (2014). “You lie!” Identity, paper, and the materiality of information. *The Communication Review*, 17(2), 69–90.
- Robertson, Craig. (2017). Learning to file: Reconfiguring information and information work in the early twentieth century. *Technology and Culture*, 58(4), 955–981.
- Robertson, Craig. (2019). Granular certainty, the vertical filing cabinet, and the transformation of files. *Administrative Science Quarterly*, 64(1), 71–86. doi:10.2478/adhi-2019-0005
- Ruiz, Rafico. (2021). *Slow disturbance: Infrastructural mediation on the settler colonial resource frontier*. Durham, NC, & London, UK: Duke University Press.
- Sansom, Ian. (2013). *Paper: An elegy*. London, UK: Fourth Estate, HarperCollins.
- Scott, Janet Lee. (2007). *For gods, ghosts and ancestors: The Chinese tradition of paper offerings*. Hong Kong: Hong Kong University Press.
- Sellen, Abigail J., & Harper, Richard H.R. (2001). *The myth of the paperless office*. Cambridge, MA: MIT Press.
- Special Projects. (2019). Paper phone by Special Projects. Experiments with Google. URL: <https://experiments.withgoogle.com/paper-phone> [April 21, 2020].
- Stamm, Michael. (2018). *Dead tree media: Manufacturing the newspaper in twentieth-century North America*. Baltimore, MA: Johns Hopkins University Press.
- Star, Susan Leigh. (1999). The ethnography of infrastructure. *American Behavioral Science*, 43(3), 377–339.
- Star, Susan Leigh, & Ruhleder, Karen. (1996). Steps toward an ecology of infrastructure: Design and access for large information spaces. *Information Systems Research*, 7(1), 1111–1114.
- Taws, Richard. (2013). *The politics of the provisional: Art and ephemera in revolutionary France*. University Park, PA: Penn State University Press.
- The Bowater Papers*. (1950). *The Bowater Papers*, 1. London, UK: The Bowater Corporation.
- The Bowater Papers*. (1952). *The Bowater Papers*, 2. London, UK: The Bowater Corporation.

- The Bowater Papers*. (1954). *The Bowater Papers*, 3. London, UK: The Bowater Corporation.
- The Bowater Papers*. (1958). *The Bowater Papers*, 4. London, UK: The Bowater Corporation.
- Unger, David J. (2017, December 29). American reams: Why a “paperless world” still hasn’t happened. *The Guardian*. URL: <https://www.theguardian.com/news/2017/dec/29/american-reams-why-the-paperless-world-hasnt-happened> [May 10, 2020].
- Usborne, John. (1958). The deepening green. *The Bowater Papers*, 4 (pp. 17–23). London, UK: The Bowater Corporation.
- Vismann, Cornelia. (2008). *Files: Law and media technology* [G. Winthrop-Young, Trans.]. Stanford, CA: Stanford University Press.
- Wang Yueqing, Qinggang Bao, & Guan, Guoxing. (2020). The five phases (*wuxing*, 五行). In *History of Chinese philosophy through its key terms* (pp. 211–220). [S. Xiang, Trans.]. Singapore: Springer.
- Wilson, Bronwen. (2015). *The world in Venice: Print, the city, and modern identity*. Toronto, ON: University of Toronto Press.