The Religious Roots of Communication Revolutions[1]

Robert D. Woodberry
Version Aug 31, 2026
rdwoodberry@gmail.com

Between ~500 and 1500 CE European technology and economic development either lagged behind or matched East Asia and many regions of South Asia, Central Asia, and the Near East. Europe imported technology, mathematical concepts, and proto-scientific theories developed elsewhere. However, by the 19th century segments of Europe rocketed past these societies in technology, economic development, military might, physical height, life expectancy, etc., (Greif, Mokyr, and Tabellini 2025:26–69; Koyama and Rubin 2022; Parthasarathi 2011; Scheidel 2019). Along the way, parts of Europe participated in the Scientific Revolution and England birthed the Industrial Revolution, creating the first sustained economic growth that outpaced population growth and thus radically altered living conditions among non-elites. Scholars have proffered many theories to explain the Great Divergence (or Great Reversal) based on geography, colonial exploitation, conflict, secularization, the Enlightenment, etc. (Greif et al. 2025; Koyama and Rubin 2022; Parthasarathi 2011; Rubin 2017; Scheidel 2019; Van Zanden 2009).

However, it is difficult to demonstrate causation for singular events. For example, why did the Industrial Revolution begin in England? Could it have developed somewhere else? It is hard to know. Thus, I take a different tack. I focus on a concrete technology: printing. Printing was arguably necessary for the Scientific Revolution, the Industrial Revolution, and transformative economic growth, as well as many other developments; e.g., mass education, nationalism, the public sphere, etc. (Anderson 2006; Baten and Zanden 2008; Eisenstein 1980; Febvre and Martin 1976; Habermas 1989; McLuhan et al. 2011; Rubin 2017; Van Zanden 2009). It is hard to imagine any of these outcomes emerging without printing.

Moreover, the beginnings, spread, and uses of printing are both measurable and repeated, which helps us assess causation. We can usually determine when each society adopted printing, who introduced it, and how they used it. The timing of when different printing technologies developed, who copied them, and how different groups used identical (or virtually identical) technology varies by hundreds or even thousands of years. Thus, we can analyze the patterns. Most scholars think printing technology transformed society, a careful global analysis of printing

[1] The research was supported by a grant from the Templeton Religion Trust (TRT0433)

history suggests that printing technology did not cause much on its own. I argue that religious ideas shaped the origins, spread, uses, and social impact of printing. We cannot explain the Great Reversal or rise of "modernity" without paying attention to the beliefs and practices of religious traditions.

Mahayana Buddhists, Tantric Buddhists, Christians, Jews, and Parsis/Zoroastrians typically printed books shortly after learning how to print. Conversely, Muslims, Hindus, Theravada Buddhists used comparable technology to print amulets, images, and designs for hundreds of years before they printed books. With few exceptions, only Protestant conversion-focused printing convinced Muslims, Hindus, and Theravada Buddhists to print books or newspapers prior to 1875.

Moreover, the social impact of printing was radically different in different religious contexts. In Tantric Buddhist societies, neither non-religious printing nor for-profit printing develop before the 20th century. In Confucian/Mahayana Buddhist societies, printing and literacy expanded more broadly, but expanded slowly and remained almost entirely in a classical language (Literary Sinitic / *Wenyen*) far removed from spoken vernaculars. This fostered elite communication between societies that spoke mutually unintelligible languages/'dialects,' but hampered literacy among non-elites. In Catholic societies, printing spread more rapidly and shifted more quickly to both non-religious and vernacular texts than in Orthodox, Buddhist, and Confucian societies. However, Protestantism and religious competition with Protestants seem to have transformed the uses and social impact of printing among Catholics, Eastern Christians, Mahayana/Tantric Buddhists, and Confucianists. Protestantism amplified a vernacular shift; fostered the global spread of punctuation, word spacing, phonetic writing systems, and consistent spelling; accelerated printing and mass education; and birthed printed vernacular newspapers and libraries open to non-elites. I refer to these transformations as the "Accessibility Revolution." Because the Industrial Revolution developed among skilled workers, not traditional educated elites (Greif et al. 2025:392–402), I speculate that the Industrial Revolution and transformative economic growth would have been unlikely without the Accessibility Revolution.

However, in this paper I focus on the spread and social impact of printing, not the origins of the Industrial Revolution. I divide the history of printing into three waves: the Mesopotamian wave (on clay), the Asian wave (on paper, and eventually with moveable font type), and the Europe waves (with little new technology, but different outcomes). I then follow the post-

European spread of both printing and these new 'European-origin' outcomes. These waves of printing reveal that technological knowhow, economic market forces, class structure, etc. are insufficient to explain either the spread or social consequences of printing. Printing initially developed for religious reasons, spread along religious channels, and its social consequences were shaped by religious context, regardless of economic contexts. Market forces only kicked in after religious groups created markets and absorbed startup costs. Thus, my explanation is conjunctural: printing technology enabled many social transformations, but religious ideas initially motivated the creation, adoption, uses, and social consequences of the technology.

Many previous theories about printings social impact were developed to explain patterns in Europe (e.g., Eisenstein 1980; Febvre and Martin 1976; McLuhan et al. 2011). The major religious and colonial changes that coincided with the explosion of printing in Europe, makes differentiating religious, economic, technological, and other explanations difficult. Even though there is a strong correlation between religion and the Accessibility Revolution in Europe, perhaps some unmeasured factors influence both the spread of Protestantism and spread of mass *vernacular* printing, newspapers, etc. Some comparative research exists, but it tends to compare Europe with one alternative at a time; typically China or the Ottoman Empire/Muslim World. Economic histories that compare Europe with China tend to emphasize Europe's greater distance from the Central Asian Steppe (and thus less invasion by nomad cavalries), greater interstate competition, and the supposedly greater ability of intellectuals to escape to neighboring states (although China also had neighbors that used the same elite language). Comparisons with the Ottoman Empire/Muslim World often view either Islam or religion as a barrier to printing or development (e.g., Lewis 1961; Rubin 2017). These explanations may be true, or partially true, but the case selection determines which explanations seem most plausible. To escape the difficulty of isolating causation in one area (Europe), or with non-random case selection, I study the plausible causes of printing, etc., in the universe of cases. The goal is to see if any explanations work everywhere, or almost everywhere.

First, I analyze the mechanical reproduction of texts prior to European printing. From about 2000 BCE, many Asian societies used woodblocks to mechanically reproduced texts, first on clay, then on paper. Eventually they also developed moveable-font type, including metal moveably-font type. Printing books on paper spread to virtually all Mahayana and Tantric

Buddhist societies, but nowhere else. The uses and social impact of printing also varied by religious context, but did not lead to newspapers or an 'Accessibility Revolution.'

Next, I analyze the spread and social impact of printing in Europe and her settler colonies. Again the spread and social impact of printing varied by religious tradition.

Finally, I analyze the spread of printing, newspapers, and the Accessibility Revolution to the rest of the world to see if religious mechanisms consistently explain the patterns. I compare the impact of three vectors for European influence: European traders, colonial officials, and missionaries. I further divide these European groups into Protestants, Catholics, and, whenever possible, Eastern Orthodox. I repeat this analysis in three broad contexts: (1) areas without a written language, (2) areas with a written language but no pre-mission book printing, and (3) areas that printed books before Europe. I further sub-divide these broad contexts by continent and dominant religion. By the mid-1500s all European groups had comparable access to identical printing technology, this technology remained virtually unchanged until the early 1800s. Even after 1800, simple hand-press technology spread first, not steam presses. Thus, all these groups had a comparable chance to spread hand-presses, newspapers, and accessible writing styles. Yet, in every sub-context, missionaries, almost always Protestant missionaries, initiate printing, newspapers, and the 'Accessibility Revolution.'

The plausible unmeasured causes of both the spread of Protestantism and the Accessibility Revolution in Europe are not used to explain either the spread of Protestant missionaries outside Europe or the differential spread of Protestant missionaries relative to each of these other European groups outside Europe. Moreover, the Protestant missionary movement developed quite late. Catholic missionaries and various types of business people, officials, and settlers from Protestant and Catholic societies generally arrived hundreds of years before Protestant missionaries did. Yet Protestant missionaries almost universally created the written versions of unwritten languages, convinced others to print, changed how others printed, shifted the written language towards the spoken language, and initiate the social transformations attributed to printing in Europe. Catholic missionaries and European traders/colonizers/settlers occasionally printed before Protestant missionaries arrived, but they almost never created new written languages, or spurred others to print, or changed how pre-existing writing and printing were done, or initiated an 'Accessibility Revolution.'

This suggests the Accessibility Revolution had deep religious roots, even in Europe. A non-religious explanation for this pattern would require someone to posit a non-religious cause that explains the spread of Protestantism in Europe and her settler colonies and that simultaneously covaries almost perfectly with the geographic spread and arrival time of Protestant missionaries, but has almost no correlation with the geographic spread and arrival time of Catholic missionaries, Orthodox missionaries, or any other European group. This seems implausible. Moreover, this alternative theory would have to explain why it is almost universally possible to find a direct link between Protestant missionaries and the first local printers, newspaper editors, and pioneers of vernacular prose. If religion had such a profound influence on the spread and social impact of printing, and if the accessibility of practical information helped spur the Industrial Revolution (Greif et al. 2025:365–423), then explanations for long-term development that ignore religion are likely false. Similarly, formal models that treat 'religion' as generic category without reference to specific religious beliefs and behaviors, are likely false.

A Note on Methods: Demonstrating causality is hard and every approach has assumptions, strengths, and weaknesses. Many quantitative articles emphasize identification strategies like instrumental variable (IV) regression or regression discontinuity. Identification strategies are helpful, but require strong assumptions and detailed knowledge about context. There are several pitfalls to avoid. First, many instrumenting strategies inadvertently favor models with high leverage, especially when errors are not independent and identically distributed (iid). Consequently, the majority of IV regressions published in the *American Economic Review* and *American Economic Journals* become insignificant after dropping 2 cases or clusters and are not less biased than OLS (Young 2022). Second, 'distance from __' instruments are particularly problematic and have garnered substantial criticism (Conley and Kelly 2025; Dieterle and Snell 2016; Dippel and Leonard 2021; Edwards 2021; Kersting, Wohnsiedler, and Wolf 2020; Zhao 2026). Third, recent scholarship demonstrates a strong pattern of p-hacking in published research, i.e., either testing multiple models, but only publishing models that are statistically significant and support the author's theory, or creating a theory after seeing the results (Brodeur, Cook, and Heyes 2020). Instrumenting and historical data creation (where data is often scarce and requires interpretation), add additional ways for authors to manipulate results (Albouy 2012).

Fourth, many identification strategies (including IV regression) only give *Local Area Treatment Effects* (LATE). Even if the exclusion restriction and other assumptions are met, they

give us the treatment effect for those 'randomly' switched between treatment states by the instrument. This is context specific, not the average effect of the treatment on all cases, or the average effect of the treatment on the treated cases. If there are causal interactions (as this article demonstrates), the different effects of religion and printing cannot be easily disentangled, and LATE coefficients from one religious context may not generalized to other contexts.

Multiple articles have tried to measure (and differentiate) the impact of printing and Protestantism on economically relevant outcomes in Europe (or the Holy Roman Empire) using distance from Mainz to instrument printing, and distance from Wittenberg to instrument Protestantism (Becker and Woessmann 2009; Boerner, Rubin, and Severgnini 2021; Dittmar 2011; Rubin 2014). Others critique the plausibility of these instruments historically and/or show they are not robust to corrections for problems created by 'distance from' instruments (Conley and Kelly 2025; Dieterle and Snell 2016; Dippel and Leonard 2021; Edwards 2021; Kersting et al. 2020; Zhao 2026). Finally, if Protestantism transformed the impact of printing, the exclusion restriction between the two instruments is violated and even accurate LATE coefficients from Protestant or mixed Protestant/Catholic areas may not generalize to other contexts.

The previous critiques do not mean all the arguments made by historical persistence studies or using geographic instruments are wrong. Nor should we abandon the goal of trying to identify the long-term impact of the past. However, these critiques do mean that research that uses instruments is not inherently superior to research that does not. I attempt an approach that can plausibly isolate causation with fewer assumptions.

Historically oriented scholars typically worry less about identification strategies and more about historical detail and nuance. However, doing careful historical analysis over large areas and periods is time consuming and can create problems dealing with complexity. When there are multiple causes of an outcome, statistics are helpful to isolate them. For example, on average, people who get more education earn more income. Proffering examples of highly educated people with low incomes and less educated people with high incomes does not automatically disprove a causal relationship between education and income. Counter examples may merely demonstrate that education is *not the only* route to greater income. Conversely, when there are few causes of an outcome, we can discuss necessary, sufficient, and conjunctural conditions.

To make this type of logic manageable, comparative historians typically add 'scope conditions,' limiting the analysis to a few cases and/or limited time period. However, adding

scope conditions can mask alternative explanations. Moreover, non-random case selection is always dangerous and can bias findings, particularly if scholars select cases to highlight their preferred mechanism or undermine alternative explanations. For example, it would be easy to select people to 'demonstrate' that education has no influence on income. In studies of long-term development, scholars often compare Europe and China (Greif et al. 2025; Scheidel 2019). The Europe/China comparison highlights Europe's greater interstate conflict or distance from the Central Asian Steppe more than comparing Europe with Southeast Asia or South Asia does. This purposive case selection may distort which causes seem most plausible.

To mitigate these problems, I analyze the universe of cases, removing all geographic scope conditions and all pre-1875 temporal scope conditions. After ~1875, secondary diffusion becomes important. I spent 22 years studying the history of printing in almost every 'country'[2] and large religious group, although research on some is sparse. I employed research assistants to search and translate research from Arabic, Turkish, Persian, Chinese, Japanese, Spanish, German, French, and so on. I attempted to find the proximate causes of printing in each 'country,' and then check if the proximate causes are consistent regardless of context.

I. Printing on Clay: The 'Mesopotamian Wave' (~2,400 BCE to ~1,000 CE)

Scholars typically begin print history in East Asia and only discuss the antecedents of printing there, but mechanical reproduction of texts began in Mesopotamia using both seals and stamped texts on clay. Stamped seals began about 7,000 years ago. Early seals were pictorial, but after writing became fully functional circa 2400 BCE, some seals added reverse-carved texts, e.g., in the Sargonic period (2334-2154 BCE). Initially, texts were short, but they expanded until by the Kassite period (1595-1155 BCE), some included extended blessings and prayers (Tanaka 2024). Seals with text spread both to the Eastern Mediterranean and the borders of China[3] before Chinese began using seals in the Shang Dynasty (1600-1046 BCE) (Huang 2017:70, 2024:50).

Mesopotamian rulers also 'printed' up to 30 lines of text on bricks used to build *ziggurats*. The texts told *the gods* who commissioned the temple and/or cursed anyone who tampered with it (Hallo 1982:113; Suter 2010:329). The 'stamps' were reverse-carved in wood or stone, some incuse, others in relief (Millard 2011:468). The Cambridge University Fitzwilliam Museum has

[2] I use the modern names of countries for simplicity.
[3] For a Bactrian (Central Asian) seal with text circa 2200-1900 BC see https://www.christies.com/en/lot/lot-5425490 and Salvatori (2000).

stamped bricks from ~2094 BCE to ~542 BCE.[4] Thus, Mesopotamian reverse-carved wood-block printing is both earlier and longer than any precursors scholars use to explain the rise of printing in East Asia. Mesopotamian printed bricks were used for construction and were intended for gods to read, not people (Millard 2011:468). Mesopotamian societies wrote cuneiform texts on clay tablets, so they could have block-printed books for people, but they did not. Moreover, papyrus was used in the Eastern Mediterranean since at least 2900 BCE (Roemer 2007:84) and could have been used for printing.[5] However, rather than making writing accessible, a small literate elite jealously guarded access to literacy and made an already fearsomely complex writing system more complex over time (Robson 2007:69, 80–81).

Probably copying Mesopotamians, Greeks also printed short texts on bricks. The Romans copied the Greeks (Bodel 1983:1). Printed bricks conferred civic honor and signified 'brand' quality. Thus, both the Greeks and Romans knew how to print with woodblocks, had access to papyrus, and commissioned mass produced *manuscripts*, e.g., 'books of the dead,' leaving blank spaces to fill in the names of the diseased (Eliot 2007), but neither printed books or documents.

From at least the 5th or 6th century CE, Buddhists began printing images and texts on clay to make merit.[6] At least one woodblock used for clay-stamping texts survives (Lerner 2018:241, 252). It is plausible that Greeks or Romans transferred the clay-printing technique to Buddhists in South and Central Asia either after Alexander the Great conquered parts of Central and South Asia (leaving Greek rulers in place for hundreds of years) or as part of the massive trade between the Roman Empire and South Asia (Halkias 2014; Scheidel 2019:455–58, 592 n.89; Stoneman 2019). Greeks introduced coin stamping techniques to South Asia, which included words (Cribb 2003). The first stamped images on clay appear during the Hellenistic period. Greco-Romans introduced plaster molds and mass production of molded clay objects (Brancaccio 2005; Mairs 2014). Scholars widely recognize the Greco-Roman influence on Buddhist sculpture and painting (Nehru 1989; Stewart 2024). Greek conquests and Buddhist empires may have spurred the beginning of writing by Buddhists and Hindus (Stoneman 2019:383, 385, 392, 396, 399, 401–4, 427–60); at a minimum, "between the arrival of the Greeks and their departure, India became a literate culture" (Stoneman 2019:404). Moreover, Mahayana Buddhism developed in Greek-

[4] For other examples see Gabbay et al. (2013). The literature typically refers to this as 'stamping' rather than 'printing,' although the technology was comparable to later printing on paper, minus paper and ink.
[5] In the 800s CE, Muslims block printed amulets on papyrus (D'Ottone 2013:69), so printing on papyrus is possible.
[6] Formigatti (2016:77) suggests the earliest example may be from the 1st century BCE.

influenced societies in the 1st and 2nd centuries CE and shows many indicators of Greek influence (Halkias 2014:103–7; Salomon 2018:362–63). Greek deities "find their parallels in the cultic pantheon of Mahayana Buddhism," e.g., Hercules became Vajrapani, the guardian of the Buddha (Halkias 2014:103). Thus, Mesopotamian clay-printing *may* have influenced Buddhist clay-printing via Greek or Roman conduits. The Greeks and Romans also transferred ideas, technologies, and products back to the Mediterranean world, but that is not relevant to the history of printing.

Most Buddhist clay texts are *dhārani*, magical Sanskrit incantations that promise a long life, a better rebirth, and blessing to those who copy them and perform specific rituals. Archeologists have found *dhārani* printed on clay across much of the ancient Buddhist world, including multiple sites in India, Afghanistan, Sri Lanka, Thailand, Cambodia, Vietnam and Indonesia. Some of these clay texts are long, including the *Dhārani of Undefiled Pure Light* (McBride 2005:87; Skilling 2011; Strauch 2009). However, most scholars of printing ignore 'stamping' on clay and begin the history of 'printing' in East Asia, when the *Dhārani of Undefiled Pure Light* was first printed *on paper*. Still, the 'Mesopotamian Wave' demonstrates that societies can print pages of texts with woodblocks for thousands of years in dozens of societies with little social transformation.

II. Buddhism and Printing: The 'Asian Wave' (8th – 19th century CE)

A. **Printing on Paper**: Seals with Chinese characters began in the Shang Dynasty (1600-1046 BCE) and functioned like a signature to authenticate and secure property. From the 1st century CE (before the arrival of Buddhism),Taoists began using printed seals to drive off demons, heal people, and magically protect places. However, all evidence suggests the stamps were only used on peoples' bodies or on clay (Strickmann 1993:32–33).

In the early centuries CE, Buddhism began spreading from Central Asia into China. This spurred intense competition, imitation, and persecution by Confucians and Daoists. By the 5th and 6th century CE, both Buddhist and Taoist texts describe virtually identical healing/exorcism rituals in which priests stamped the bodies of patients to drive out sickness/evil spirits. Even the procedures for making and empowering the stamps are virtually identical (Strickmann 1993:7–32). Finally, a text that *may* date from the 6th century, includes the first reference to stamping *on paper*, which the patient was supposed to swallow (Strickmann 1993:41–43).

In the early Tang Dynasty (618-907 CE), Buddhists, Taoists, and Confucianists vied for imperial patronage, with "fierce competition between Buddhists and Taoists in the field of efficacious spells" (McBride 2005:92). The Tang elite initially favored Taoism – which promised blessing and long life through elixirs and printed charms. Judging from later examples, Taoist stamps typically contained text, mirroring signature-stamps of officials. Some texts were legible, but most used 'heavenly script' not legible to the uninitiated (Huang 2018). Early Buddhist seals found in Dunhuang are similar (Huang 2017:94).

In this context, Buddhists promulgated a 'superior spiritual technology' for blessing and long life: *dhārani*. The *Dhārani of Undefiled Pure Light* (*Uṣṇīṣavijayā Dhāraṇī*) was *transliterated* using Chinese characters in 704.[7] The *sutra* that contains the *dhārani* instructs devotees to mass-reproduce the text, insert them in stupas, etc. Buddhists outside East Asia 'stamped' this *dhārani on clay*, but East Asian rulers began 'printing' it *on paper*. The earliest surviving printing on paper are *dhārani* from China, Korea, and Japan, transliterated versions from circa 751 and 770 CE, and a less securely dated Sanskrit version from 704 CE or earlier (Barrett 2008; Brokaw 2026:107). For the first ~100-200 years of East Asian printing (depending on the 'country'), all surviving printed texts are *dhārani* and all were enclosed in stupas or reliquaries where no human could read them (Barrett 2008). The earliest *dhārani* were either printed by rulers worried about protecting their power or used like amulets to protect buildings and the dead (Johnston 1996:15, 48–50).

We treat *printing on paper* as more important than 'stamping' identical texts on clay because East Asians later printed books designed for people to read. Shifting from clay to paper does not seem revolutionary, but changing the purpose of printing from mechanical merit-production to mechanical multiplying or reading material was revolutionary.[8] This transition happened almost 3,000 years after wood-block printing of texts began.

B. **Printing Books**: The transition to printing *books* probably began after a major persecution of 'foreign cults' in 845 CE by China's Daoist/Confucian rulers. This persecution wiped out Chinese Christianity and decimated Chinese Buddhism. Buddhists seem to have begun printing

[7] Understanding the meaning of *dhārani* is not important. The ritual reproduction and *sound* of the Sanskrit unleash its spiritual power. Thus, the sounds were transliterated rather than the meaning translated (Tuladhar-Douglas 2009).
[8] Even after Buddhist books became readably, they retained a core merit-making function, reproducing, touching, or hearing them recited created merit, whether or not one understood the text (Rawski 2005:319).

books to restore manuscripts lost in the persecution (Barrett 2005, 2012). The earliest dateable printed book is the *Diamond Sutra* (868 CE). China's Confucian context may have incentivized book printing. Outside East Asia, Buddhism's main competitor was Hinduism/Brahminism. Brahmin ritual specialists used secret Sanskrit incantations and rituals to manipulate spiritual power. Buddhists from Southeast Asia to Afghanistan competed with Brahmin ritual specialists using their own Sanskrit incantations and rituals, including stamped clay *dhārani* (McBride 2005, 2011; Skilling 2011). Because the 'Hindu' Vedas were private and passed down orally, Buddhists did not need to create readable texts to compete with Brahmins. However, in East Asia their main competitor was Confucianism. Confucians used readable texts. Thus, Buddhists needed to compete with readable texts of their own.

The earliest books in China, Korea, and Japan are all Buddhist, mostly sutras (Mair 1994:736–37). These books were worshiped and had a merit-making function, but could also be read (Tuladhar-Douglas 2009). Next, the Chinese printed calendars (which had a religious function for picking auspicious dates), prayer books, and books on astrology, dream divination, and geomancy. The first printing of the Confucian Classics in China was in 953 CE, about a hundred years after the earliest extant Buddhists printed books. It was commissioned by the Emperor to minimize textual corruption (Johnston 1996:13–19, 30–31, 50). In Japan, a Zen monastery printed the first Confucian text in the 14th century, about 500 years after Japanese began printing Buddhist texts (Sewell 1978:90). Printed texts were almost entirely Buddhist texts written in Literary Sinitic[9] and printed in monasteries until Catholic missionary began printing in Japanese in the 1590s.

C. **Moveable-Font Type**: East Asians invented moveable-font type, including metal moveable-font type, well before Europeans. However, it had little influence on the amount, usage, or spread of printing. It was primarily used for texts with small print-runs and many repeated characters, especially imperial printing and genealogies. Even in societies with phonetic writing systems that used moveable-font type (Tibetans, Jurchin, Mongols, Manchu, Koreans, and Uighur),[10] it was

[9] Literary Sinitic/*Wenyen* is a formal, abbreviated language used in the Confucian classics. It was probably never spoken. Many words have identical pronunciation, so it is necessary to see the characters to interpret the meaning.
[10] The Tangut used moveable-font, but had a logographic script; the Liao had phonetic script, but used woodblocks (Pan 2025:173, 178, 182, 260–62). On most issues I cite Pan tentatively because of his strong nationalist tone. He makes strong claims about Chinese priority on almost everything that other scholars do not corroborate.

never the dominant version of printing until the 20th centuries (Allsen 2001:176–77; Ledyard 1966:87; McCloy 1978:99–101; Oh 2026; Pan 2025:183, 262–63, 294–97, 304–8).

D. **Religion & the Early Spread of Printing**: In the Asian wave, religion seems to have influenced where book printing spread. Almost every Mahayana and Tantric Buddhist society printed books; no Theravada Buddhist society did and no non-Buddhist societies did (*see Table 1*).

Table 1: The Association between Mahayana/Tantric Buddhism and Book Printing Prior to European Contact

		Mahayana & Tantric Buddhists		Other Religions (Excluding Christians and Jews)
		No Brahmin Elite	With Brahmin Elite	
Printed books before Europeans Arrived	Yes	Chinese, Koreans, Japanese, Vietnamese, Jurchen, Tibetans, Tangut, Khitan, Mongols, Manchus, Liao, Buryat, Bhutanese, Ladakhi?[11], Buddhist Uyghurs	None	None
	No	Small, nomadic, & recently converted non-imperial groups.	Buddhists in Kashmir, North India, Southeast Asia and Indonesian, Pakistan & Afghanistan	All

Brahminism seems to have been an additional barrier to printing. For hundreds of years after the invention of East Asian printing, both Tantric and Mahayana Buddhist communities existed in areas of South and Southeast Asia that had Brahminic elites (Bronkhorst 2011). However, we have no evidence that they printed anything other than *dhārani* and votive images *on clay*.[12] Similarly, even Theravada Buddhist societies in Southeast Asia had Brahmin ritual experts and did not print. In non-Hindu areas, only small Mahayana/Tantric Buddhist societies that never administered a significant geographic area did not print, i.e., the Bunan, Manchand,

[11] Personal correspondents with John Bray (historian of printing in Ladakh) and Nawang Jinpa (a Drukpa monk) suggests that woodblock printing was practiced in the 19th century, probably before missionary contact, but no research has determined the earliest printing in Ladakh. Some Tantric Buddhist societies may have begun printing after Gutenberg (~1450), but before European contact.

[12] Brahmins were averse to paper. Central Asian paper was made from rags and Brahmins feared rags may have touched low-caste people. Thus, 'Hindus' rejected paper until after the Muslim conquests (Bloom 2001:41–42; Gupta 2013:554). In 'Hindu-majority' contexts (other than Nepal), Buddhists did not use paper either. Muslims introduced paper in South Asia, but Buddhism disappeared shortly after the Muslim conquests.

Tinan, and Kinnauri never wrote or printed their own language prior to the arrival of Protestant missionaries (Beszterda 2014:186–87, 217–25).

Why did book printing only spread to Mahayana and Tantric Buddhist societies without a Brahmin elite? It was not because of low religious competition. In Southeast Asia, Theravada Buddhists, Tantric/ Mahayana Buddhists, Hindus, and Muslims competed (Manguin, Mani, and Wade 2011), but only Mahayana Buddhists in northern Vietnam printed. North Vietnam had a Mahayana and Confucian elite; at the time, South Vietnam, Cambodia, and Laos did not. In South Asia, Hindus, Jains, Muslims, and various Buddhist groups competed, but no one printed. In Central Asia and the Middle East, Muslims converted Christians, Buddhists, Zoroastrians, and Hindus, but only Mahayana and Tantric Buddhists printed books.

It was also not because of lack of technical knowhow. Many societies copied papermaking from China and printed with woodblocks on cloth (Bloom 2001; Riello 2013). In 1307, a Muslim scholar wrote the earliest accurate description of woodblock book-printing (Allsen 2001:177–80). Moreover, Muslims used woodblocks to print paper money, book covers, amulets, hajj certificates, and government forms. Amulets and hajj certificates included long quotations from the Quran. Examples survive from Persia, Syria, Iraq, Turkey, Egypt, North Africa, and Spain from the 800s through the 1300s,[13] so block-printing in Arabic script was neither isolated nor short-lived (Aksoy and Milstein 2000; D'Ottone Rambach 2020; Sabev 2025a; Schaefer 2006). Some amulets were designed for the inexpensive mass market; other amulets and hajj certificates used multiple colors and had beautiful calligraphy. This high quality printing was designed for elite Muslims. Thus, book owners were aware of the technology. Still, Muslims did not print books prior to contact with European Christian missionaries, even in China and Tibet.

Similarly, Hindus, Muslims, and Theravada Buddhists had extensive contact with China. There were large, long-lived Chinese trading communities in Southeast Asia and a short-lived community in southern India. Southeast Asians sent regular embassies to China. Indian scholars helped correct and translate texts in the Tangut, Mongol/Yuan, and Tibetan empires, where they would have seen book printing. One Indian scholar even lived in Dunhuang, the monastery in Western China where the earliest printed books were discovered. Expatriate Muslim and Hindu trading communities in China were large and sustained enough to build many mosques and a

[13] The Chinese and Koreans banned private trade and expelled coastal Muslim trading communities in the late 1300s (Siu 2022). This may have cut off the supply of woodblock printers to the Muslim world, ending the practice.

Hindu Temple (Chaffee 2018; Kulke, Kesavapany, and Sakhuja 2009; Pollock 2016:86–87; Sen 2014, 2017). Moreover, Buddhists throughout Asia used woodblocks to print *dhārani* on clay, including in Theravada Buddhist areas of Southeast Asia and Sri Lanka. Yet, despite hundreds of years of exposure to printing technology, no Hindu, Theravada Buddhist, or Muslim society printed books, including those who lived in China and Tibet.

Even within the same ethnic group, Mahayana and Tantric Buddhists printed and others did not. For example, Mongols who converted to Buddhism printed books, while Mongols who converted to Islam did not (Allsen 2001; Kara 2005). Similarly, in the mid-14th century, Uyghurs converted from Buddhism, Christianity, and Manichaeism to Islam. Uyghur Buddhists printed; Uyghurs Muslims stopped. Uyghurs did not print again until the early 20th century, when Protestant missionaries and a Muslim pilgrim returning from the hajj reintroduced it (Bellér-Hann, Schlyter, and Sugawara 2016; Lipman 1997; Yakup 2016). This stoppage was not because the script became more complicated, the number of copyists increased, an Ottoman Sultan made a decree, or Uyghurs forgot how to use woodblocks. For some reason what was once religiously valuable, was no longer valuable.

Why was printing both conceivable and appealing to Mahayana and Tantric Buddhists, but not to others? Why did the transition from magical printing to 'for-reading' printing seem plausible and necessary for Mahayana and Tantric Buddhists? Why did Confucianists and Daoists eventually copy Buddhists, although after a significant delay? Conversely, why did Muslims in China, Tibet, Korea, Mongolia, and Central Asia decide not to print despite living in communities where printing was common?

E. **Religion & Early Uses of Printing**: Religion also influenced *how* people used printing. The earliest printing served ritual purposes (Barrett 2001, 2008; Wilkinson 2018:1030). It took generations for East Asians to print either non-Buddhist texts or books designed to be read. It also took hundreds of years to shift from imperial and monastic printing to for-profit printing.

Non-Confucian/Tantric Buddhist societies like Tibet, Bhutan, and Mongolia printed before Europe did, but printing remained exclusively Buddhist and had less economic and social impact than elsewhere (Bray 1988; Diemberger, Ehrhard, and Kornicki 2016; Elverskog 2016; Kiripolská 1996). Tibetans and Bhutanese did *not* print either non-Buddhist or secular texts until

the 20th century. Printing remained tied to religious-merit making,[14] was intended for limited circulation, and was written in a distinct language that took years to learn. Printed texts were donated, not sold, because receiving payment prevented the accrual of spiritual merit. Thus, no commercial printing developed until after the 1950s (Shakya 2004:17, 38–40, 48–55, 60–62; Willock 2016).[15] Yet, printing was so important to Tantric Buddhists that Ladakhis and Tibetans imported wood to make woodblocks from across the Himalayas and even nomadic Tantric Buddhists transported printing technology with them as they followed their herds (Kara 2005).

Tantric Buddhists knew about secular and for-profit printing. When Mongols controlled China during the Yuan Dynasty (1279–1368), they had Confucian exams and sponsored secular and Confucian printing. However, after the Mongols stopped ruling China, they 'reverted' to the Tantric Buddhist pattern for 555 years, i.e., printing Buddhist texts in Buddhist monasteries and circulating non-Buddhist texts as manuscripts (Kara 2005:285; Riftin 2013:132–33).[16]

Conversely, Confucian societies (i.e., China, Korea, Japan, and Vietnam) printed non-Buddhist, secular, Confucian, Daoist, and folk religious texts (McDermott and Burke 2015; Wilkinson 2018:1030–39). Typically, the emperor or shogun facilitated the transition to printing non-Buddhist texts (Kornicki 2013; McKillop 2013; Wolff 1978). Yet even imperial printing had a religious/legitimating function.[17]

The Confucian exam system expanded literacy; even those who failed the exams learned to read some characters (Wilkinson 2018:313–23). The exams also fostered private and for-profit printing. Yet, both the exam system and the rigidity of the class structure varied by country, and this probably influenced the prevalence of private and for-profit printing. In China, merchants and artisans could take the exam. Thus, wealthy families financed Confucian education for their sons and tried to buy more exam material than the state provided. This forced an end to the

[14] Printing's merit-making function is clear in practices like printing Buddhist texts on water (Schaeffer 2009:5–6). In this context, I count medical and astrological texts as religious because both were pervaded with religious content e.g., Rawski (2005:313).

[15] Protestant missionaries and Tibetan Christian converts like Gergan Tharchin were the first to print non-Buddhist books, secular books, textbooks, newspapers, books written closer to the spoken vernacular, books designed for mass circulation, and books using modern printing technology. They were also the first to sell books (Shakya 2004; Willock 2016).

[16] Until 1923, secular Mongolian texts were only printed in Beijing by Chinese, not by Mongolians (Kara 2005; Riftin 2013).

[17] When the Mongols invaded Korea, the Korean emperor funded the carving and printing of the entire Mahayana Tripitaka (over 80,000 woodblocks) hoping the accumulated merit would help expel the invaders (McCloy 1978:99–100). Calendars listed auspicious and inauspicious dates and reflected the Emperor's role as the 'Son of Heaven.'

imperial monopoly on Confucian texts in 1064 CE and fostered private and for-profit printing. In Korea, the government forbade children and grandchildren of merchants, artisans, slaves, etc., from taking the exam (Ch'oe 1974). Thus, wealthy merchants had no incentive to fund Confucian printing and the government dominated printing until Protestant missionaries arrived in the late 19th century (McCloy 1978:99; Pan 2025:323–24). In Japan, Confucian exams had minimal influence of placement in government positions (Nakayama 2008:699). This delayed Japan's transition to non-Buddhist printing for hundreds of years,[18] but freed wealthy merchants and artisans to fund an explosion of printing once non-Buddhist printing began in the 1600s.

Lack of Confucian exams may have also increased Japan's openness to European influence. Unlike other East Asian elites, Japanese elites did not need to preserve Confucianism to justify their status. Thus, compared to Korea, Vietnam, and China, Japan (1) used phonetic scripts more pervasively prior to the late 19th-century, (2) continually monitored Western technical developments during the period when all four societies excluded Europeans and persecuted Catholics, and (3) adapted Western technology and technical terms more rapidly. Thus, the Japanese copied and integrated Western ideas, science, and technology earlier than other Mahayana/Confucian societies and dominated their former mentors in Korea and China during the late 19th and early 20th centuries.

F. **Religion & the Vernacular**: Confucianism and Chinese Buddhism anchored writing and education in a language distant from spoken language (Literary Sinitic/*Wenyen*). Understanding *Wenyen* conferred status and opened access to prestigious and profitable government positions. Wealthy families privileged their sons by financing their studying of the classics; this took years and was beyond the means of most people. There was little effort by elites to make reading and writing (and thus access to elite status) more accessible prior to the 20th century.

Wenyen was so prestigious that before the 20th century most texts were never translated into Japanese, Korean, or Vietnamese, even if the text was originally translated into *Wenyen*. Moreover, these societies typically wrote either in *Wenyen* or using Sinitic characters to represent their language. Both *Wenyen* and spoken Chinese have different grammar, vocabulary,

[18] It took Japanese about 200 years to print texts intended to be read and about 800 years to print non-Buddhist texts in Japanese (Kornicki 2000:122–27, 2013:609). Buddhist monks printed several poems and medical texts in Literary Sinitic/*Wenyen*, but Catholic missionaries printed the first secular texts in Japanese, the first Japanese literature, and the first book printed in a Japanese phonetic writing system (Kornicki 2004; Sasaki 2022).

and word orders than Japanese, Korean, and Vietnamese. Thus, Sinicized Japanese, Korean, and Vietnamese are extremely difficult to read. 'Chinese' follows a subject-verb-object (SVO) word order, whereas Japanese and Korean typically use a SOV or OSV word order. Moreover, 'Chinese' has no verb tenses or cases, while both Korean and Japanese do. Tenses, cases, particles, etc., are lost when either language is written using Sinitic characters. Thus, Japanese, Koreans and Vietnamese had to first learn *Wenyen* to read their own languages.

Buddhist missions seem to have been central to the development of phonetic writing systems in East and Central Asia (Mair 1994:736–37). Koreans and Japanese developed phonetic writing systems and a complicated system of marks to aid pronunciation, indicate grammatical particles, or adjust word order. Thus, they could have written their languages phonetically. This would have made reading and writing much easier. But Confucian elites denigrated phonetic writing as too easy and called them 'women's language' or 'barbarian,' because they mirrored the phonetic writing systems of Central Asian Tantric Buddhists and Muslims. Thus, phonetic writing was seldom used by educated men and almost never printed outside of Christian circles until the early 20th century (Gottlieb 2018; Igunma 2013; Kornicki 2009, 2014, 2018; McKillop 2013; Oh 2026:170).[19] Some vernacular writing existed; some of it even used phonetic scripts or a mixture of phonetic and Sinitic characters, but almost none of it was printed (Kornicki 2004, 2009; Oh 2026). The dominant language of literature remained *Wenyen*. The 'Accessibility Revolution' happened much later.

East Asians also invented moveable-font type, including metal type, well before Gutenberg, and moveable font spread to Central Asian Tantric Buddhist societies, many of which used phonetic writing systems. Moveable font is ideal for phonetic writing systems, because it requires fewer characters, but moveable font did not increase printing of phonetic scripts in East Asia or change the pattern of printing among Tantric Buddhists. Before Christian missionaries arrived, moveable font was primarily used for small print-runs and paper money (McCloy 1978:99; Oh 2026:173; Pan 2025:322–24, 349).

[19] Aristocratic women in Korea and Japan used phonetic scripts. Some popular Buddhist texts intended for lay audiences and some popular novels used vernacular language and phonetic scripts. However, these texts were almost never printed. Before 1880, one of the few texts printed in Korean using phonetic script (Hangul) was Confucian advice to women advocating submission to husbands (Kornicki 2009:53). The few texts printed in Chinese 'dialects' are mostly songs and popular theater scripts (Chia 2011; Kornicki 2009).

Thus in the Asian wave, religion influenced printing's origin, spread, uses, and social consequences. Moreover, the patterns are consistent, only Tantric and Mahayana Buddhist societies that did not have Brahmin elites printed books, and only Mahayana Buddhist/Confucian societies printed secular books for themselves.[20] Using block printing and paper did not imply printing books; printing books did not imply secular books, newspapers, mass education, nationalism, or a shift in writing towards the vernacular. Developing moveable-font type did not encourage phonetic writing systems or mass printing, and printing did not spread the use of spacing between words, semantic punctuation, the codex book form, or increase the use of the vernacular or language closer to spoken language. Education remained focused on memorizing classic texts before learning to read and libraries were not open to the public.

III. Jewish & Christian Printing: The 'European Wave' (~1450 CE – present)

A. **Religion & the Rebirth of Printing**: Religion also shaped the European wave of printing. Almost every Christian and Jewish society printed shortly after exposure to printing (Suarez, S.J. and Woudhuysen 2013). Even Christians and Jews in Muslim- and Hindu-majority societies printed (Aslanian 2014a; Hanebutt-Benz, Glass, and Roper 2002; Nassi 2001; Thomas 2015).[21] For centuries, no other religious or secular group outside Europe copied them. Why were Christians and Jews interested in printing? Perhaps because both have long, non-poetic scriptures, complex liturgies, and lectionaries that mandate which texts to read each week. All are difficult to memorize. This complexity made book-access vital for each synagogue, church, and monastery. Finally, in Europe many of the scribes who copied books were monastics. The spread of printing did not threaten their livelihood, so they welcomed it.

The majority of early printing in Christian and Jewish societies was religious, regardless of country or region. Moreover, short religious texts such as prayer books and indulgencies made printing profitable (Erler 2014; Stallybrass 2007). These short texts helped fund the prestige projects like polyglot Bibles and the Greek/Latin Classics. Thus, religion influenced whether people printed, what they printed, and how they printed. The same printing technology was used

[20] In China, the Qing government printed some Confucian texts in Mongolian (Rawski 2005:313). The Mongol Yuan dynasty printed Confucian texts only when they ruled China (Kara 2005:285; Riftin 2013:132–33).
[21] Jews first printed in Ottoman Turkey (1493), Morrocco (1516), Egypt (1557), Israel/Palestine (~1577), Syria (1605), Tunisia (1768), etc. (Ben Naeh 2001; Rowland-Smith 1989:16). Armenians first printed in Ottoman Turkey (1567), Persia (1638), Armenia (1771), and India (1772) (Aslanian 2014b:443; Pehlivanian 2002:56, 76). Many other Eastern Christian groups printed in the Muslim world, but this should suffice to make the point.

across Europe and remained virtually unchanged from 1450 to the early 1800s. However, although the technology was consistent, the impact was not.

1. Quantity and Language of Printing: Religion seems to have influenced the amount societies printed. Even before the Reformation, printing spread much faster in Catholic areas than in Orthodox and Buddhist/Confucian areas. Within 50 years of Gutenberg printing, there were over a thousand printers in over 350 localities in Western Europe. They had printed about 30,000 titles and 9 million volumes for a European population of about 57 million (Füssel 2020:8). This level of diffusion took many centuries in East and Central Asia. Catholics also took less time to switch from religious, sacred-language printing, to secular and vernacular printing than East and Central Asia had.

Protestants further accelerated printing, mass education, and vernacularization. I do not wish to overstate distinctions between Protestants and Catholics or homogenize either group. Both were diverse and overlapped.[22] Still, there were mean/average differences between them: Compared to Catholics, Protestants de-emphasized the authority of tradition and sacraments and emphasized the final authority the Bible. Protestants believed that everyone needed access to the Bible in language they could understand, not merely educated priests and elites. Increasingly, this implied everyone needed to be literate and able to afford a Bible in their mother tongue. Thus, Protestants expanded formal education in the vernacular, increased the supply of books in the vernacular, and industrialized the process of printing so that books were affordable, especially non-state and conversionary Protestants. I lack space for a detailed history of this process, but there are many indicators of this Protestant 'Accessibility Revolution.' One way to think of this is as multiple measurable indicators of a latent 'accessibility' construct.

Before the Reformation, northern Italy, southern Germany, and France had the largest printing industries, whereas England, Scotland, Switzerland, and Scandinavia had little. After the

[22] Some Catholics advocated vernacular Bible reading (e.g., Erasmus) and the Catholic Church never universally banned vernacular Bible translations (bans varied by region). Before the Reformation, vernacular Bibles were allowed in northern Italy, Germany, and the Low Countries. After the Reformation, vernacular Bibles were allowed where Protestantism thrived: the UK, Germany, Netherlands, etc. However, the Catholic Church tried to constrain who had access to vernacular Bibles and how they interpreted them (Agten and François 2018; François 2018).

The emphasis on vernacular Bible reading varied between Protestants. Initially, Protestants lacked resources for rapid mass education and some Protestant princes feared the political consequences of teaching peasants and laborers to write (i.e., in Sweden). State Lutheran societies initially focused more on vernacular catechisms and vernacular Bible stories than on direct Bible reading. However, the emphasis on lay vernacular Bible reading was greater in Protestant societies than Catholic societies and greater for Calvinists, Pietists, and non-Conformists than for non-Pietist State-Church Lutherans and non-Evangelical Anglicans.

Reformation, printing shifted rapidly from Catholic to Protestant areas (Eisenstein 1980:312–452; Febvre and Martin 1976:287–319; Graff 1987:112–19; Melton 2001).[23] In Germany, roughly 90% of pamphlets were printed by Protestants. Because they were short, inexpensive, and in German, they helped create a new reading public (Pettegree 2014:69). Moreover, printing co-varied with the strength of Protestantism. In Hungary, the Czech Republic, Slovakia, and Poland printing surged with the spread of Protestantism and declined when the Habsburgs reimposed Catholicism (Guzner 2013; Pavlik 2013; Špániová 2021; Zmroczek 2013).

Religious competition also influenced Catholic and Orthodox printing more than Protestant printing. In both Protestant-dominated societies and societies where Protestants and Catholics competed, printing expanded rapidly. Conversely, in Catholic and Orthodox societies with little Protestant competition, printing expanded more slowly (Suarez, S.J. and Woudhuysen 2013).[24] In the Papal States, both literacy and demand for books was so low that in the 1860s, the region could not sustain mechanized paper making (Gargaro et al. 2019:145–47). The Papal States were directly under Church control. Thus, secular rulers did not prevent mass education and printing there. Conversely, in Protestant 'theocracies,' printing and newspapers thrived, i.e., Geneva, Puritan New England, Interregnum England, and Scotland. In fact, during the English Civil War and Interregnum (1640-1660), England experienced an explosion of printing and the emergence of English newspapers. The British Library has over 22,000 distinct printed items from this 20 year period – far more than before or immediately afterwards (Murphy 2010:293–94).

2. Religion & the Consequences of Printing: Religion also influenced the consequences of printing. Protestants printed a higher proportion of texts in the vernacular, they expanded education and literacy more quickly (Graff 1987:11–14, 115–25, 135–37, 147–48, 151–52, 174–84, 190– 92, 230–31, 244–50, 262, 266–78, 292–93.; Johansson 1977; Vincent 2000:28–32), they spread libraries open to the public (Bösch 2022:60–61), and they printed more in minority languages (e.g., Welsh, Manx, Gaelic, and Irish).[25] Conversionary Protestants were also central to the rise

[23] This shift was not because of greater access to Atlantic trade or resources extracted from colonies. The Protestant cantons of Switzerland had access to neither but became a major printing center. This shift was also not caused by greater interstate competition or distance from the Steppe; north Italian city states did not lose this advantage.
[24] Suarez and Woudhuysen do not make this argument, but it is clear in the chapters about individual countries.
[25] 'Minority languages' are the languages of people not in power. In the UK, the language of power is English and in France, French. Both societies have minority languages, but Protestants were more likely to print in these languages. Catholic countries typically had earlier and more powerful national academies that regulate 'correct language,' e.g., Italy (1583), Franch (1635), Portugal (1779). Other than Sweden, language associations did not develop in Protestant countries until the 20th century.

of *mass* printing in Europe and her settler colonies, e.g., industrializing book binding, pioneering national and global distribution networks, installing most of the early steam presses, using stereotyping more broadly than others, etc. (Batalden, Cann, and Dean 2004; Fea 2016; Howsam 1991; Nord 2004; Schantz 1997). Demand for the Bible was so great that the German *Canstein Bible Institute* and several printers in the Netherlands kept the entire Bible in standing type, including in English, and this demand for Bibles led to the earliest experiments with stereotyping (Black 2000:107; Gnirrep and Lane 1997; Stewart 1918:45).

However, to save space, I focus on one indicator of the Accessibility Revolution, the origin and spread of printed vernacular newspapers. I refer to state-sponsored periodicals as 'gazettes' and news-containing periodicals not published by the state as 'newspapers.' Protestantism's link to newspapers is less intuitive than Protestantism's link to mass literacy, etc., but the rise of newspaper is concrete and dateable across the world. Comparative literacy data is less trustworthy, especially prior to the mid-20th century. In addition, newspapers are central to theories about to the rise of nationalism, civil society, the public sphere, and democracy, e.g., Benedict Anderson, Habermas, etc. (Anderson 2006; Habermas 1989).

Printed vernacular pamphlets by Luther and other Reformers were so popular they created a new market for regular, short, inexpensive, vernacular texts. During the religious wars after the Reformation, activist Protestants wanted news about co-religionists. The far-away outcomes of battles and the conversions of princes had local relevance. Thus, religious 'imagined communities' developed earlier than national 'imagined communities.' The first newspaper was printed in 1605 in Strasbourg, a major Calvinist center.[26] From there, newspapers spread disproportionately to Protestant areas – particularly Germany, the Netherlands, and England. The earliest newspapers even copied the cover designs of Luther's pamphlets. Moreover, activist Protestants disproportionately published and read these newspapers (Blühm and Gebhardt 1987; Bösch 2022:41–43; Leth 1993; Melton 2001; Pettegree 2014:67–75, 2015:336–38; Zaret 2000).

Multiple independent newspapers flourished in areas with Protestant popular movements or where Protestants and Catholics competed, e.g., the Netherlands had 140 newspapers before 1626 (Oram 1983:21).[27] Similarly, Calvinists and non-conformists in the English Civil War and Interregnum (1640-1660) published dozens of newspapers, making English news media the most

[26] Princes and wealthy merchants already had access to *manuscript* newsletters, but these were extremely expensive.
[27] State-led reformations in Scandinavia promoted mass literacy, but not writing, and restricted newspapers.

powerful in Europe and birthing a public sphere before Habermas's coffeeshops opened (Bösch 2022:43, 45, 59; Calhoun 2011; Zaret 2000). However, in Catholic Europe, newspapers developed more slowly and often consisted of a single state-sponsored gazette (Bösch 2022:41–60; Hallewell 1982:13; Pettegree 2014:70–75, 182–248).[28] In Portugal, there was almost no periodical press until the 19th century – after British occupation (de Sousa and Veloso 1987:33).

Religious differences in the consequences of printing are even stronger in Eastern Orthodox areas. Most Orthodox societies had printing presses within 100 years of Gutenberg. The first book was printed in Croatia in 1494, in Romania in 1508, in Bosnian 1519, Serbia 1537, Russia 1553, etc. But Orthodox printing only marginally increased the number of books. Few titles were printed, print runs were small, and texts were disproportionately in liturgical languages, e.g., Church Slavonic. Most people remained illiterate, most of the social reforms attributed to printing in Western Europe did not occur until centuries later, and newspapers did not develop until centuries after Western Europe (Feodorov 2013; Marker 1982; Rogatchevskaia and Vraneš 2013; Thomas 2013).[29] The main exception is Romanian – an area where Protestants and Orthodox competed until the Catholic Habsburg's reconquest. In Romania, there was substantial vernacular publishing by the Orthodox in the 17th and 18th century (Feodorov 2013:235–39).

Limited printing in Orthodox areas was *not* caused by (Muslim) Ottoman or Persian occupation. Orthodox societies *outside* Muslim Empires acted similarly to Orthodox communities *inside* these Empires, and neither empire restricted printing by Eastern Christians.

[28] We see a similar pattern in the Americas and in European settler colonies. Printing began in Latin America in 1544, before settlers arrived in North America, but languished there. In North America, printing flourished in states settled for religious reasons (e.g., New England, Pennsylvania), but not in states founded for economic reasons (the U.S. South and Canada). The American newspaper was birthed in Puritan Boston. By 1741, Boston had 5 newspapers, whereas all of Central and South America had one gazette, the official *Gazeta de Mexico* (Hallewell 1982:13), and Canada did not even have a printing press (Rukavina 2019). Moreover, the rise of North American newspapers and mass media are closely linked to Protestant evangelistic movements (Fea 2016; Nord 1984, 2004; Williams 2000). Slavery is insufficient to explain the slow growth of printing in the US South. Slavery was uncommon in Canada, Australia, New Zealand, but these colonies were not settled for religious reasons, and both printing and the periodical press developed slowly, especially in Québec. In all three countries, early printing was dominated by the government, religious groups, and missions (Rukavina 2019).

[29] In Russia, the Protestant-initiated Russian Bible Society (1812-1826) pioneered mass printing and printed the first vernacular Bible translations. However, Bibles translated from Greek and Hebrew threatened the authority of Church Slavonic, so the Russian Orthodox Church pressured the Tsar to shut down the Bible Society (Batalden 2004). Protestant and sectarian movements in 19th century Russia and Ukraine also led to the spread of peasant literacy and book ownership (Zhuk 2004). Protestants pioneered printing vernacular Bible translations in almost every Slavic language, i.e., Bulgarian, Russian, Serbian/Croatian, Slovakian, Slovenian, Upper & Lower Wendish. (Darlow and Moule 1911:162–68, 1349–50, 1388, 1399, 1413–14, 1423, 1687–93).

This pattern was not caused by a lack of religious competition; Muslims and Catholics tried to convert Orthodox Christians. However, after Habsburg military victories in Central Europe, most Orthodox areas were isolated from active Protestant competition.

Similarly, Jews and Eastern Christians in the Ottoman Empire, Persian Empire, and Indian subcontinent printed, but printed small numbers of texts relative to the size of their populations. For example, Jews in the Ottoman Empire printed 714 titles in 447 years (1493-1940). Most were religious works (Ben Naeh 2001; Landau 2014). Most Eastern Christians initially printed with either the assistance of, or in response to, Catholic missions, but mostly printed small numbers of religious texts designed to be used by clergy or to preserve their heritage (Aslanian 2014b; Coakley 2002; Pehlivanian 2002). Only after Protestant missionaries arrived in the 19th century did mass printing, newspapers, and mass education develop.

B. **The Spread of Printing & Accessible Writing via Missionaries**:

Religion seems to have influenced the origin, spread, and social impact of printing in Europe, but the spread of Protestantism, printing, newspapers, and accessible language are all endogenous processes. Perhaps some other factor influenced both the spread of Protestantism and these other outcomes. To mitigate this concern, I analyze the behavior and impact of Protestant, Catholic, and Orthodox missionaries and of European settlers and colonizers in multiple contexts throughout the world. Although missionaries did not spread randomly, the factors that influenced where they went are not the factors scholars use to question religion's impact in Europe. Moreover, different types of missionaries, colonizers, and settlers arrived at different times. Thus, we can see who introduced vernacular printing, newspapers, word spacing, punctuation, etc., and who local people copied. If prior to the 20th century, Protestants had a distinct accessible, vernacular, and mass focus, then the religious differences found in post-Reformation Europe should *reappear* elsewhere when Protestant missionaries arrive, but not when others arrive. We should also see East Asian printing shift and more accessible writing forms develop when Protestant missionaries arrive, but *not* when others arrive.

However, one complexity is secondary diffusion. Even if Protestants initiated an Accessibility Revolution, they influenced their home societies first. Subsequently, 'Protestant' colonizers and merchants (e.g., the British) might be more open to vernacular printing and newspapers than 'Catholic' colonizers and merchants (e.g., the French and Spanish). If so, we

would expect more printing and newspapers by expatriates from 'Protestant-majority societies' than expatriates from 'Catholic-majority societies', regardless of their denomination or religiosity. Similarly, if missionaries spur local religious groups to print, these local groups might spur others to print without direct missionary involvement, i.e., secondary diffusion. Secondary diffusion does not mean Protestantism had no effect; Protestantism may merely be further up the causal chain. Over time, diffusion created a 'world culture' in which every 'well-dressed' country needed printing, newspapers, mass education, and an accessible form of writing (Lechner and Boli 2008). The current consistency of world culture may mask earlier causes and create the impression that technology and 'modernity' caused mass vernacular printing, mass education, etc. – as if there is one teleological modernity for all societies. My argument is more consistent with multiple, contingent modernities.

1. Societies with No Previous Written Language: To measure the predispositions of missionaries, traders, and colonial offcials, I first analyze societies with no written language before Europeans arrived. Missionaries had less incentive to print in non-literate societies because they did not need to compete with written religious texts. Moreover, initiating printing was more costly because missionaries had to first create a written language and teach people to read. Yet, Protestants consistently created writing systems, opened schools, and printed texts in previously non-literate societies; colonizers and settlers did not, and non-Protestant missionaries seldom did unless competing with Protestants. This suggests that, until recently, Protestants valued creating access to vernacular texts (i.e., the Bible) more than other groups. The pattern is consistent in the Pacific, Africa, and the Americas.

a. *Pacific Islands*: Catholics initiated Christian missions in the Pacific, but Protestant missionaries were consistently the first to create written languages and to print books and newspapers there (Cass 1997; Garrett 1985:25, 74, 105, 125, 128, 271; Lingenfelter 1967). For example, Catholic missionaries arrived in Guam and the Marianas in 1668. At the time, the islands had about 90,000 inhabitants (Hezel, S.J. 2008). Most inhabitants became Catholic and several religious orders kept well-staffed missions there, but none printed locally or printed the local language elsewhere (Carano and Sanchez 1964). Spanish colonial officials and traders did not print either. The Spanish banned Protestants, but following the US invasion of the Marianas in 1898, Protestant missionaries arrived in 1900 - 232 years after Catholic missionaries. Eight years later,

Protestant missionaries printed the first portion of the Bible in the local language, Chamorro (Nida 1972:63). Catholic printing in Chamorro began in 1924 (Le Pichon 2006:100). Similarly in Micronesia, Catholic missions began in 1696; Protestant missions in 1852; but in 1856, Protestants were first to print in a local language (Hezel, S.J. 2008; Lingenfelter 1967:97–98).

Whether or not Catholic missionaries initiated and sustained printing depended on Protestant competition. Catholic missionaries arrived in Wallis & Futuna in 1837 and made it their base for the central Pacific. Previously, two Tongan Methodist missionaries had established a small Protestant community. The Catholic missionaries asked French warships to block Protestant reinforcements and began competing with local Protestants. In 1844, the Catholic mission set up a press and printed religious texts. However, when the last Protestants left Wallis in 1850, the Catholic mission permanently shut down their press (Lingenfelter 1967:75–78). Protestants never regained a foothold on Wallis and Catholic missionaries never re-establish their press (Barrett, Kurian, and Johnson 2001:808–9; Lingenfelter 1967:78). The first Bible portion printed in the Wallisian language was in 1971 (Lupas and Rhodes 1992:74), and the full Wallisian Bible was finally published in 2011 by the [Protestant] Geneva Bible Society.

Conversely, the first Protestant mission in the Pacific began in Tahiti in 1797. By 1810, they printed the first book intended for Pacific-islanders, in Tahitian, but printed it in London. In 1817, they set up the first press in Oceania to print Tahitian Bibles and educational material. In 1826, they published the first newspaper in Oceania (Cass 1997:106–7; Lingenfelter 1967:1–20, 28; Wright 1976:49). This Protestant printing predated any local Catholic competition or foreign colonization. The French colonized Tahiti in 1880 and expelled Protestant missionaries, but by then there was already a large printed literature in Tahitian.

Protestants emphasized printing even for small societies. For example, when European Protestant missionaries arrived on Aneityum in 1848[30] it had about 4,000 inhabitants and no written language. The missionaries arrived with a printing press and printed an alphabet sheet the first year and an Aneityumese school book the next. In 1853, they printed an Aneityumese Gospel, in 1859 a New Testament, and in 1870 an Old Testament (Garrett 1985:172–77; Lingenfelter 1967:80–86; Nida 1972:11).[31]

[30] Protestant Samoan missionaries arrived in 1846 and helped the European missionaries translate into Aneityumese.
[31] Nida (1972) lists the date of the New Testament as 1863, and Old Testament at 1879, but Nida is incorrect.

Prior to the 20th century, Catholic missionaries printed before Protestants on only three Pacific islands: Mangareva in the Gambier Islands, Grande Terre in New Caledonia,[32] and Wallis Island. The French colonized all three islands and banned Protestant missionaries until the 20th century. However, when Catholic missionaries had a monopoly, their print runs were small and their presses short-lived. On Mangareva between 1837 and 1840, Catholic missionaries printed a broadside, some prayers, and a few copies of a small book, but when they ran out of paper, they permanently shut down the press. This neglect of printing was not because of lack of investment: Catholic missionaries constructed a convent, an extensive road network, and the largest church building in French Polynesia (Garrett 1985:88–96).

In 1854 on Grande Terre, Catholic missionaries lithographed several short books bound into one volume, but then stopped. Eventually, they gave their press to the French colonial government. As mentioned previously, the Catholic mission press on Wallis Island lasted from 1844-1850, but shut down when the last Protestants left (Garrett 1985:88–101, 1992:111–17, 222–26; Lingenfelter 1967:57–59, 75–96, 116–21).[33] Conversely, in New Zealand – where Catholic missionaries faced stiff Protestant competition – Catholics printed large numbers of texts for an extended period of time (Clisby 2001:18–39; Wiltgen 1979:210).

Protestant missionary presses lasted longer and printed more, regardless of Catholic competition. Mishaps – like running out of paper – did not cause permanent closures. Catastrophes – like the press burning down – were quickly remedied. Protestants believed that everyone needed to be able to read the Bible for themselves. Thus, neither the size and wealth of the indigenous population, nor the lack of Catholic competition, influenced whether Protestants printed. Printing primers, school books, tracts, and the Bible in the local language was standard procedure. Moreover, colonial governments and white settlers did not create written versions of indigenous languages or print in them before missionaries.

In the wake of Protestant mission printing, literacy spread rapidly throughout Polynesia.[34] Often Polynesians taught others to read and spread Christianity to other islands before European

[32] Protestant missionaries printed 2 years earlier (in 1852) on the neighboring New Caledonian island of Mare. Protestants were allowed on Mare, but not Grande Terre (Garrett 1992:111–17; Lingenfelter 1967:87–96, 120).
[33] Lingenfelter (1967) does not say they closed the press *because* the Protestants left, but the timing and permanence of the closing is suggestive.
[34] The main barrier to the spread of literacy and printing in Protestant mission areas was linguistic diversity and violence, which are probably related. The extraordinary linguistic diversity in Vanuatu and New Guinea constrained the spread of printing and literacy in indigenous languages

missionaries arrived. By the mid-19th century, probably a majority could read (Parsonson 1967). For example, Rarotonga had almost universal literacy by 1857 (Wright 1976:49) and Hawaii had ~91% literacy by1834 (Laimana 2011:10; Lindenfeld 2021:268). Conversely, in the Ottoman Empire literacy grew from ~1% in 1800 to 2-10% in 1900 (Findley 1989). Persia was similar (Marashi 2015:100) and Portugal had literacy below 30% in 1900 (Baten 2022:5). It is hard to argue that by the mid-19th century Polynesia had greater exposure to European influence or 'modernity' than Turkey, Iran, and Portugal in 1900. Moreover, Pacific literacy expanded disproportionately among Protestants. Even in 1930, 63.5% of missionaries in the Pacific were Catholic, but 67.5% of students attended Protestant schools (Burton 1930:91). In 1930, almost no indigenous education was conducted by white settlers or colonial governments.

Protestant missionaries also started newspapers before Catholics or settlers (Cass 1997; Wright 1976). In 1826, Protestant missionaries started the first newspaper in the Pacific, quickly followed by others in Hawaii (1834), Samoa (1839), Rarotonga (1841), etc.[35] By the late 1840s, nearly every island group had at least one Protestant periodical. Conversely, the first Catholic periodicals for Pacific-islanders were in Hawaii (1852) and Fiji (1894), which were both created in response to Protestant newspapers criticizing Catholicism (Cass 1997:107; Chapin 1996:22; Gribble 1963:134; Lingenfelter 1967:28; Richstad and McMillan 1978:99; Silva 2008; Wright 1976:49).

Mission-initiated newspapers gave Pacific Islanders a way to defend themselves against settlers and colonizers. Between 1842-1899, there were 41 Māori newspapers, which were often highly critical of European activity in New Zealand (Curnow, Hopa, and McRae 2002; McRae 2007).[36] During the same period, Morocco had only one Arabic newspaper, published in 1889 by two Lebanese Christians (Abdulrazak 1990:134). Thus, printing, newspapers, and literacy spread more rapidly in Polynesia than in the parts of Asia and North Africa isolated from Protestant missions, but not isolated from European colonial pressure or Catholic missions. This was not because Polynesia was wealthier or had a larger bourgeoisie, more sophisticated technology, or a larger population. Much of the spread of printing, newspapers, and literacy in Polynesia occurred

[35] Cass (1997) claims that Methodist missionaries printed a newspaper in Fiji in 1828, but this is a typo. Methodists arrived in Fiji in 1835 and set up their press in 1838 (Gribble 1963:130–32).
[36] Thus, European colonizers severely restricted the indigenous press (Wright 1976).

before any direct colonial involvement or significant European settlement. Arguments used in Europe to question religion's impact do not generalize to Oceania.

In summary, Catholic missionaries began sustained work in the Pacific 129 years before Protestant missionaries arrived. Yet, Protestant missionaries initiated printing and newspapers on almost every island. In the three islands where Catholics initiated printing, the French military barred Protestant missions, and Catholic printing was sparse and short-lived. Protestant printing spurred mass literacy, newspapers, etc., throughout Polynesia and Micronesia – often spread by Pacific-Islanders – well before either European colonizers or exposure to European 'modernity.' However one measures 'modernity' or 'development,' it is hard to argue that Polynesians had more in 1850 than Iran, Turkey, Morocco, or Portugal did in 1900, but Polynesians had much broader literacy and newspaper circulation.

b. <u>*Sub-Saharan Africa*</u>: Most Sub-Saharan African societies had no written language before missionary contact.[37] In these societies, missionaries almost universally created the written languages and introduced printing and newspapers. Where Protestants were allowed to print, they almost universally were the first to do so (Dixon 2001; Le Roux 2012; Namponya 1978; Pawliková-Vilhanová 2001; Smith 1971:53; Woeber 2012). The earliest vernacular language newspapers in Sub-Saharan Africa were all started by Protestant missionaries and their converts: *Umshumayeli Wendaba* in Xhosa (1837), *Iwe Irohin* in Yoruba (1859), *Leselinyana la Lesotho* in Sotho (1863), etc. (Oberst 2021). Protestant missions were restricted or banned in French, Spanish, Portuguese, Belgian, and Italian colonies. These 'Catholic' colonizers also restricted most printing and education in indigenous language. Thus, both printing and education lagged in these colonies relative to British colonies (Gallego and Woodberry 2010; Woodberry 2004).

In both British colonies and not-yet-colonized areas, Protestant missionaries usually began printing, education, and newspapers before colonizers, settlers, and Catholic missionaries did.

[37] The exceptions are Muslim and Ethiopian Orthodox societies that had writing, but no printing. Some Africans created their own writing systems in the 19th and 20th century (e.g., the Vai syllabary), but the script-creators had significant contact with both Protestant missionaries and 'repatriated' African-Americans (Daniels 2023:46; Tuchscherer and Hair 2002). Some Africans developed scripts based on Arabic, i.e., *Ajami*. Mumin identified 80 African languages that have used an *Ajami*, i.e., 3.8% of Africa's 2110 languages (2014:53). However, prior to the late 20th century, no *Ajami* ever developed consistent spelling or consistent ways to write sounds not found in Arabic. This 'ad hoc' nature makes *Ajami* extremely difficult to read without deep contextual knowledge and suggests they were never widely used (Hofheinz 2018:120; Ngom 2018:159–60).

Later, the British used the grant-in-aid system to incentivize English-language education, but they were never able to restrict either indigenous-language education or printing.

Protestant and Catholic missionaries had comparable access to Lesotho, Botswana, and Zimbabwe. All three territories were landlocked British colonies/protectorates with similar pre-colonial languages and social structure. In Lesotho and Botswana, local chiefs retained substantial power. In Zimbabwe, white settlers disempowered blacks. In Lesotho, Catholics gained more converts; in Botswana, Protestants gained more converts. In Zimbabwe, Catholics and Protestants began permanent mission work at roughly the same time and gained similar numbers of converts. Yet in *all* three, Protestant missionaries initiated vernacular writing, printing, and newspapers (Woodberry 2011).

c. *The Americas*: In Latin America, Catholic missions began hundreds of years before Protestant missions, but Protestant missions still created the writing systems and first printed texts in most indigenous languages, with four exceptions. Catholic missionaries opened early presses in the capitals of the Aztec and Inca Empires, i.e., in Mexico City (1544) and Lima, Peru (1585). The Spanish hoped to supplant these empires and their religions.[38] Initially, Catholic missionaries printed in the main languages of these empires: Nautel, Quechua, and Aymara. However, they replaced pre-Columbian writing systems with the Latin alphabet and destroyed virtually all pre-Columbian texts.[39] For 200 years, printing was almost entirely religious, but printing in indigenous languages was short-lived and designed to help missionaries communicate with indigenous people (Hallewell 1982:4–5; Johnson 1988:5–7, 55–58). Later printing was almost entirely in Spanish, Portuguese, and Latin. I have found no evidence that European settlers or colonial officials printed in indigenous languages or created written versions of them.

In areas without a large pre-Columbian empire (or where the empire collapsed before Spanish colonization), both colonizers and Catholic missionaries delayed printing, with one exception. From 1700-1727, Jesuits printed texts in Guarani, a previously unwritten language.

[38] The Maya had a writing system, but the Mayan Empire collapsed before the Spanish arrived. Catholic missionaries did not print in Guatemala until the 1660s, long after the 1524 conquest (Johnson 1988:48–50).
[39] The Philippines was like Latin America. Before Spanish colonization, Muslims used Arabic script, Chinese used Chinese characters, and others a Brāhmī-based script called Baybayin. Catholic missionaries printed several texts starting in 1593. They initially used Chinese and Baybayin, but soon shifted to Latin type, eventually eradicating Baybayin (Chia 2011). Printing expanded somewhat in the 19th century, but the explosion of printing, newspapers, and mass education happened only after US colonization and the arrival of Protestant missionaries (Calacday 2021; Javellana 1999:422, 431–35; Valenzuela, B.J. 1930). Thus, "The printing press in the Philippines had been turning out books almost three centuries before a real newspaper was published" (Valenzuela, B.J. 1930:1).

However, a coalition of pro-slavery elites and anti-clerical Enlightenment leaders, including the Marquis de Pombal, expelled the Jesuits and vernacular printing stopped. In 1754, to weaken Catholic influence, the Marquis de Pombal banned printing in all Portuguese colonies (Hallewell 1982:4–10, 1995:93; Johnson 1988:75–77). Consequently, with a few short-lived exceptions, printing did not develop in Brazil or reemerge in other Portuguese colonies until after 1807, when Napoleon invaded the Iberian Peninsula. The British military defeated the French, and administered Portugal until the end of the Napoleonic Wars. The dislocation of the Spanish and Portuguese crowns allowed Spanish colonies to gain independence and to print (Bastian 1992; Garza 2019; Hallewell 1982:8–10, 23–27).[40]

However, even in *independent* Latin American countries, neither the government, settlers, nor the Catholic Church printed or educated in indigenous languages. Throughout Latin America, Protestant missionaries created the written form of most indigenous languages, printed the first books in them, and opened the first schools that used them. Large-scale Catholic investments in indigenous communities followed large-scale conversions to Protestantism in the 20th century (Aldridge 2018; Smith 1991; Trejo 2012). North America was similar. Catholic missions in North America began in the late 1500s, and were firmly established in the 1600s. French colonization also began in the 1600s. However, there was no printing by Catholic missionaries or by settlers or colonial officials in French areas of North America until after they came under direct US or British control (Hallewell 1995:4).

Orthodox missions in Siberia and Alaska created written forms of some languages, but did little to spread literacy or printing except in Russian and Church Slavonic. From 1812-1826, the Tsar allowed the [Protestant initiated] Russian Bible Society to print in indigenous languages. However, Orthodox clergy reacted against printing and education in "non-Christian languages," and the government shut down the Bible Society in 1826 (Kan 2001:177–79).

Conversely, before 1685, Puritans used half of the paper in New England to print Bibles in Native American languages (Ryrie 2021). Protestant missionaries continued to create written forms for indigenous languages and to print in them throughout the 18th, 19th, and 20th centuries

[40] The first attempt to introduce printing in Brazil was made by the [Protestant] Dutch in the 1600s, during their short occupation of Brazil. The first Portuguese-languages Bibles were imported to Brazil in the 1850s by the British and Foreign Bible Society (Hallewell 1982:10–11, 20). Many histories of printing in Latin America ignore Protestant missionaries, so it is crucial to read them in conjunction with histories of Protestantism in Latin America (Bastian 1992; Helgen 2022; Racine 2008, 2010, 2017, 2020).

(Banks 2004; Round 2010). Typically, they used Roman script, but celebrated Sequoyah's Cherokee syllabary and used comparable syllabaries with some Native American languages (Banks 1983; Tuchscherer and Hair 2002). This does not negate Europeans' abuse of native peoples; I merely contrast the relative focus on creating written languages and printing texts.

d. *Summary of Societies without a Written Language*: In Oceania, Sub-Saharan Africa, and the Americas, settlers and governments did not create new written languages and almost never educated or printed books and newspapers in indigenous languages, regardless of colonizer. Catholic and Orthodox missionaries seldom did prior to the 20th century, but Protestant missionaries consistently did. These religious differences mirror historic Protestant, Catholic, and Orthodox differences in Europe, which suggests these religious differences are not coincidental. In fact, European colonizers generally banned, restricted, or disincentivized vernacular printing and education by missionaries. 'Catholic' colonizers were more restrictive than 'Protestant' colonizers were (Woodberry 2012). Yet in 1887, the US banned all education in indigenous languages and all speaking of indigenous languages at mission schools. Missionaries fought these restrictions, but lost (Fea 2016:105–7).

Non-European colonizers and non-Christian missionaries, e.g., Muslims in Africa, did not systematically study non-written languages or create written versions of them (Daniels 2023:52; Mumin 2014:43). Muslim education was in Quranic Arabic. However, African Muslims sometimes used knowledge of Arabic script to create informal writing systems for their local languages (i.e., *Ajami*).[41] The Greek, Roman, Chinese, and other Empires behaved similarly: they imposed their language and/or writing system on conquered peoples and did not develop writing systems for pre-conquest languages, although neighboring and successor states sometimes created writing systems based on the imperial script (Stoneman 2019:410, 416).

2. Societies with a Written Language: Next I analyze the spread of printing in societies that had a written language before Europeans arrived, but had not printed, e.g., Theravada Buddhist, Hindu, and Muslim societies. Here, barriers to printing were lower because texts already had religious authority and some people could already read. Complex writing systems were not a crucial barrier to printing, because everyone had access to woodblock printing and later lithography.

[41] Most early examples were comments on Arabic religious texts, i.e., "languages of religious explanation" (Brenner and Last 1985:433). *Ajami* are also used for mundane topics, but Arabic remains the 'sacred language.' Even magical segments of *Ajami* text are still written in Arabic (Ngom 2018:153).

Moreover, none of the languages was more complex to print than Chinese, Japanese, Tangut, Kitan, Mongols, Uighur, or Classical Tibetan. Catholic missionaries initially used woodblock printing in China and Japan and could have used it elsewhere. Literate societies also typically had the financial and technological ability to print, even if they did not. In this section, I focus on what induced local people to print, publish newspapers, begin mass education, introduce punctuation and word spacing, and shift written language closer to spoken language.

a. *Theravada Buddhists Societies* Theravada Buddhist societies printed *dhārani* on clay, and had regular exposure to East Asian book printing, access to both imported and locally-made paper, sustained competition between comparably sized polities within a shared cultural and elite language (Pali & Sanskrit), protection from the Central Asian Steppe, extensive maritime trade, and other factors used to explain the difference between Europea and Chinese outcomes. They had an extensive written literature before Europeans arrived; but none printed books before the 19th century. Theravada Buddhists also had extensive contact with Catholic missionaries and European traders, experienced various forms of European colonization, and sent diplomatic missions to Europe before Protestant missionaries arrived. There were no technical or financial reasons blocking them from printing. Yet we see consistent religious patterns in how printing developed in Thailand, Myanmar, Sri Lanka, Cambodia, and Laos.

(1) Thailand/Siam: Thailand is a crucial test case. Europeans never colonized Thailand, so Protestant/Catholic differences were not caused by colonial regulations. The Thai sent "tribute" missions to China and large Chinese and Japanese communities lived in the capital (Caprio and Matsuda 2017; Ribeiro 2017; Van der Cruyse 2002). Moreover, hard wood, Chinese paper, and locally made paper were widely available (Duverdier 1980:209–12; Hinüber 2015:945; Hunter 1978:111–14, 141–44, 240; Nordstrand 1961).

In 1554, Catholic missionaries arrived and gained broad influence at court. They founded a seminary, gave the king printed books, and escorted Thai embassies to Europe. One embassy toured the royal printing press in France and was told the press would be able to print Thai (Smithies and Bressan 2001; Van der Cruyse 2002:231, 383). In 1787, in Pondicherry (a French colony), Bishop Arnaud-Antoine Garnault printed a Thai primer and catechism using Roman script. In 1798, 244 years *after* Catholic missionaries arrived in Thailand, Garnault printed a small catechism in Bangkok, again using Roman script. Thai would need special training to read

Roman script, and it is unclear if any Thai used these texts. Most likely, new Catholic priests used them to communicate before they mastered the language. Regardless, the texts had no lasting impact. The next bishop to Thailand, Jean-Baptiste Pallegoix, was unaware of them. When he imported a printing press in response to Protestant missionary printing, he thought it was the first Catholic press. Pallegoix's press also only used Roman type and printed catechisms and pastoral letters for converts. In 1850, the Catholic mission acquired a Thai font from the Baptist Mission Press, but continued to print with Roman type (Duverdier 1980:214–16, 224–28; Winship 1986:46–47). Catholic printing had little impact and histories seldom mention it.

Conversely, in 1819 Baptist missionaries in Burma created the first Thai font and printed the first Thai-script book (Limapichart 2009: 368). In 1823, the London Missionary Society in Singapore also began printing Thai-script texts (Winship 1986:49–50). Protestant missionaries moved to Thailand in 1833. One of them, Daniel Beach Bradley, imported a printing press and Thai font, and in 1836 he printed the first Thai-script document printed in Thailand. A month later the Baptists sent a trained printer and several more presses. Protestant printing increased rapidly (Wells 1958:18; Winship 1986:51). This print-explosion spurred Catholic missionaries to import a press (Duverdier 1980:224–28). Protestants also encouraged Thais to print, although Protestant missions dominated Thai printing for over 40 years.

In 1839, the King printed a government decree on Bradley's press – the first printing commissioned by a Thai (Limapichart 2009:370; Smith 1981:22). The next year, the future king Mongkut started a press at a Buddhist monastery to advocate reforms in line with missionaries' critiques. He lithographed texts in *Pāli* (the language of the Theravada Buddhist canon), but none in Thai. The first book printed in Thai by Thais without missionary assistance was an 1868 book on reforming Buddhism. Mongkut also sent monks to Sri Lanka to obtain more accurate and complete copies of the *Pāli* cannon. He gave Sinhalese Buddhists in Sri Lanka a printing press, which they used to print the first non-missionary Sinhalese newspaper. In 1893, Mongkut's descendants printed the *Pāli* cannon for the first time anywhere (Duverdier 1980:241–42, 256; Emmrick 2021; Frederick and De Alwis 2009:63; Jory 2000:365; Vella 1957:35–42).

Protestant missionaries published the first ten Thai newspapers and first two Thai magazines. In 1874, some princes published a literary magazine, the first Thai magazine printed by Thais. In 1875, they published the first government gazette. However, as a publication of the royal court, it was not critical of official policy (Limapichart 2009; Senanan 1975:32–36). The

public sphere – including discussing government policy and critiquing official corruption – developed in missionary newspapers (Limapichart 2009).

Protestant missionaries also initiated Thai commercial printing. In 1850, Bradley became a self-supporting missionary and financed his work with commercial printing. In 1868, the Baptists closed their Thai mission. Consequently, J.H. Chander became the chief foreign advisor to the Thai court and S.J. Smith used the former 'Baptist Mission Press' for commercial printing. He also sold presses and fonts to early Thai and Chinese printers. Together Bradley and Smith helped pioneer a new Thai literary style (Duverdier 1980:235–36; McFarland 1999:33; Senanan 1975:27–28; Smith 1981:21, 42; Wells 1958:13).[42] This pattern was similar in northern Thailand, which was originally relatively independent from southern control. Protestant missionaries introduced both the press and newspapers there as well (Lord 1969:93–102; Swanson 1988).

(2) *Burma/Myanmar*: Prior to European contact, paper was made locally in Burma (Ghori and Rahman 1966; Hunter 1978:111–14, 141–44, 240; Ramaseshan 1989). Catholic missionaries arrived in 1721 and kept a consistent presence thereafter. In Rome, in 1786, they created a Burmese font and printed an alphabet, a small prayer book, and a catechism (Bigandet 1887:12, 23). They *may* have printed a Latin-Burmese dictionary in Burma, but this is uncertain. No other publications are mentioned anywhere (Finch 2017:330).[43]

Protestant missionaries entered Burma in 1813, imported a press, and created Burmese fonts in 1816. In 1817, they printed a Burmese translation of the Gospel of Matthew.[44] In 1842, they published the first indigenous-language newspaper (in the Karen language) and in 1843, the first Burmese newspaper (Lin 2018:313). Their influence was so pervasive that the print historian Dennis Rhodes writes "The story of the first printing-presses in Burma is really the story of the American Baptist missions" (1969:81). The British colonized Burma in three segments: in 1826, 1853, and 1885. Missionaries printed in both colonized and non-colonized areas. Secure conditions under British colonialism may have shifted the tone of missionary tracts, but did not influence whether Protestants printed.

Protestant mission printing spurred a Buddhist and Catholic response (Lin 2016; Rhodes 1969; Ruiz-Falqués 2017). In the 1850s, Catholic missionaries opened a press in Moulmain, but

[42] Protestant missionary kids developed and marketed the first Thai-script typewriters (Mullaney 2017:45–55).
[43] Most sources claim Protestant missionaries were the first to print in Burma (e.g., Emmrick 2021; Lin 2016).
[44] In 1810, Baptist missionaries in India (Serampore) began printing Christian texts in Burmese.

lacked Burmese fonts. In 1864, after the 2nd Anglo-Burmese War, King Mindon opened the first royal press. It printed almost only Buddhist works (Igunma 2013:633; Lin 2016). The king also commissioned a Burmese gazette in 1874 (Lin 2018:314). Virtually all other printing by Burmese occurred after British colonization. Until the 1920s, virtually all non-missionary printing was Buddhist, much of it spurred by Protestant mission printing, a desire to preserve Buddhist literature, and movements to spread a new, Protestant-like, lay-focused Buddhism. Buddhists even created organizations that imitated Protestant ones, such as the Young Men's Buddhist Association (YMBA) (Emmrick 2021; Lin 2016; Maung 1976; Ruiz-Falqués 2017).

(3) Sri Lanka (Ceylon): Catholic missionaries came to Sri Lanka in 1505 and the Portuguese colonized coastal areas from 1597 to 1658. It was a time of political and religious change, but eventually the Kingdom of Kandy consolidated control of the interior. Catholic missions birthed a thriving Christian community. By the end of Portuguese rule, perhaps a majority of Sri Lankans in coastal areas were Catholic. Missionaries set up a religious educational system using Portuguese. They imported texts in Latin and Portuguese, but did not print locally or import texts in local languages (Peiries, O.M.I. 1943; Somaratna 2016:41–205, 217, 349).

Muslims may have introduced paper to Sri Lanka, but if not, the Portuguese introduced it in the early 1500s. However, in imitation of early Buddhist practice, Buddhists continued to write on palm leaves until the 19th century. Starting in the 1600s, the Kingdom of Kandy made paper, but only used it for musket cartridges. Paper, pens, and ink spread to Buddhists and Hindus in the 19th century via Protestant mission schools (Kularatne 2006:7–8; Nordstrand 1961).

The Dutch East India Company (VOC) defeated the Portuguese (1639 - 1658) and tried to replace Catholicism with Calvinism by persecuting Catholics and funding some missions among Catholics. Simultaneously, the VOC feared opposition from the King of Kandy and so restricted missions to Buddhists (Emmer and Gommans 2021:95–96, 299–300; Somaratna 2016:213–14, 218, 226–29). The VOC's main concerns were stability and profit, not religious conversion. Thus, the VOC selected the clergy, paid their salaries (preventing them from getting funds from local congregations), transferred them regularly, censored their correspondence, and prevented them from associating closely with local people. Consequently, the VOC struggled to recruit and retain ministers. Most were older, few learned local languages, none studied Buddhism or Hinduism, and most left within a few years (Somaratna 2016:214–16, 232–39).

When Rev. Philippus Baldeaus mobilized ministers to evangelize Buddhists and Hindus, the VOC expelled him, constricted ministerial independence, removed all administrative control of churches, forbade ministers from traveling in Sri Lanka without company approval, and mandated that all correspondence between clergy go through government channels. When Moravians tried to establish a mission in Sri Lanka, the VOC expelled them. This quelled enthusiasm for converting Buddhists and Hindus (Somaratna 2016:282–84, 292, 303–5).

The VOC was also unwilling to pay many clergy. Thus, there were seldom 10 Protestant ministers on the island and never more than 20, i.e., less than 1/10th of the Catholic clergy during the Portuguese period. Despite persecution, Catholic priests from Goa secretly entered Sri Lanka. In fact, there were consistently more Catholic priests in Sri Lanka than Protestant clergy. Moreover, Catholic clergy stayed longer, knew the language better, and were closer to the people. During the Dutch period, Catholic clergy began writing and translating texts into Sinhala and Sri Lankan Tamil but did not print them (Kularatne 2006; Peiries, O.M.I. 1943; Somaratna 2016:234–35, 321–23, 338, 349–52, 356–58, 362, 366). The VOC expanded the Portuguese Catholic educational system and switched the language of instruction from Portuguese to Sinhala and Tamil, but had to rely on Catholic-background instructors (whom Protestant ministers visited about once a year). Still, literacy increased dramatically, becoming several times higher in Dutch areas than in the [Buddhist] Kingdom of Kandy (Somaratna 2016:251, 258, 300–302, 308).

Dutch clergy introduced Sinhalese printing in 1734 and Tamil printing in 1739, but the government constrained the press.[45] Most printing was religious, but the translations were poor and not distributed in Buddhist-controlled areas. The only polemic work, '*The Triumph of Truth*,' critiqued Catholicism, not Hinduism, Islam, or Buddhism; and the *Heidelberg Catechism* probably did not threaten or entice non-Christians either (De Leede and Wijesuriya 2021; Kularatne 2006; Somaratna 2016:311, 317–18). Regardless, Dutch printing did not spur a response (Bretfeld-Wolf 2017:339; Kularatne 2006:1–29).

When Napoleon conquered the Netherlands, the British took over Sri Lanka and the Dutch Reform Church almost immediately disappeared, leaving few traces (Somaratna 2016:299). In 1813, the mission lobby blocked the British East India Company (BEIC) charter and forced the British to allow missionaries in their colonies. When the British formally annexed Sri Lanka in 1815, Methodist missionaries imported a press. Six other Protestant mission presses soon

[45] Jesuits had Tamil fonts in India, but did not import a press or Tamil books to Sri Lanka (Kularatne 2006).

followed (Rhodes 1969). Protestants also printed Sinhalese and Tamil texts elsewhere and imported them, flooding the island with printing (Missionary Register 1815:291; Kesavan 1985:388). These new Protestant missionaries critiqued Hinduism and Buddhism, spurring a reaction. Hindus responded first, which I discuss in the Hindu section.[46] In 1862, the Buddhist monk Mohottivatte Gunānda founded the *Society for the Propagation of Buddhism* in imitation of the [Protestant] *Society for the Propagation of the Gospel*. He bought an old press from the *Church Missionary Society* and began printing Buddhist replies to mission tracts. This was the first printing by a Sinhalese Buddhist (Gombrich and Obeyesekere 1988:203; Kularatne 2006:xv). Buddhist printing expanded rapidly, and in direct reaction to Protestant mission printing (Bretfeld-Wolf 2017; Gombrich 1988:133–35; Holt 1981; Kularatne 2006).[47]

After 1813, missionaries felt more secure in British colonies than elsewhere and were more willing to critique their religious competitors. In Thailand, missionaries needed the king's permission to work in the country and many missionaries and missionary children worked as advisors to the King and royal family (Mullaney 2017:45, 50, 342; Smith 1981:21, 42; Wyatt 1984:183). Thus, missionaries critiqued Buddhism more harshly in Sri Lanka than in Thailand, and Buddhist printing grew more rapidly in Sri Lanka than in Thailand. Earlier Dutch Protestant printing in Sri Lanka was not focused on converting Buddhists and Buddhists did not copy it.

(4) Cambodia: Catholic missions began in Cambodia in 1719, but they did not print in the Khmer language for 175 years. Fr. Joseph Guesdon created the first Khmer type in Paris, circa 1894, and printed some prayers there. Catholic missionaries also printed a text with Roman type in 1895 and with Khmer type in 1902, both in Hong Kong (Le Pichon 2006:94; Nepote and Khing 1981:76). Protestant missionaries repeatedly sought permission to work in Cambodia, but the French government blocked them until 1923. Thus, Protestants tried to influence the country through printing elsewhere. The *British and Foreign Bible Society* (BFBS) created Khmer fonts and printed the Gospel of Luke in Singapore in 1899,[48] and the *American Bible Society* (ABS)

[46] I suspect Hindus responded more quickly than Buddhists because (1) Protestant work among Tamils in India started earlier (meaning texts and educational materials were already available), (2) missionaries attempted to undermine the caste system (Robinson 1867:119–21), and (3) Protestant work among Sri Lankan Tamils was so intense. Between 1816 and 1855, Protestant missionaries educated 30,000 students from a population of 120,000 in Jaffna. Thus, "Jaffna may have been among the most literate places on earth" (Bate 2021:16–17). Conversely, missionaries mostly ignored Sri Lanka Muslims, and Muslims did not print until 1882 (Wahab-Salman 2016).
[47] Eventually missions lost their monopoly on Western education. In 1869, a convert from Christianity to Buddhism (who trained in a mission school) opened a non-monastic Buddhist school (Gombrich and Obeyesekere 1988:208).
[48] Iversson claims the Gospel of Luke was lithographed (2008:76), so it may not have used the BFBS font.

printed Luke and Acts in New York in 1900. Starting in 1921, Protestants printed large numbers of Khmer texts in Shanghai and Hanoi for export to Cambodia, but the French restricted Protestant missionary education and printing in Cambodia. Only in 1954 could they print the Bible in Cambodia (Nepote and Khing 1981:77 n. 39; Nida 1972:58).

The French established a Cambodian protectorate in 1863, leaving the Cambodian royal family in place. In the 1860s, the French administration began lithographing in Khmer in Vietnam. Circa 1886, they installed a press in Cambodia, but only used it for official publications. Around 1871, a lithographic press was installed at the royal palace, but it was used for printing letterhead, programs for ceremonies, etc. The first printing by Cambodians outside the palace was in 1904. Palm leaf manuscripts remained the dominant form of publishing through the 1910s (Emmrick 2021; Nepote and Khing 1981).

In 1925, to reduce Thai influence in Cambodia, the French government began printing both a Khmer periodical and many Buddhist texts. This was two years after Protestant missionaries arrived. Initially, the Buddhist *sangha* resisted this printing,[49] and no Khmer printed a newspaper until 1936 (Emmrick 2021; Nepote and Khing 1981:61–64, 76–78). Thus, in Cambodia the French administration introduced printing and banned Protestant missionaries until 1923. Printing outside of official circles began only in the 20th century and grew slowly. Perhaps because the French kept Protestant missionaries and Protestant printing out of the country, Buddhist leaders did not feel threatened and fought the expansion of printing.

(5) Laos: Catholic missionaries worked among the Lao from 1630-1688 and again after 1858. They soon had a large and growing church. However in 1861, Protestant missionaries in Thailand lithographed the first Lao printed book (Duverdier 1980:256) and by the 1870s, began making short trips into Laos. In 1892, Protestant missionaries initiated movable-font printing in Tham Lao (Lanna script) at their press in northern Thailand. They printed Bibles, tracts, and textbooks and colporteurs distributed them in Lao areas (American Bible Society 1913:343–48; Igunma 2013:633).[50] Catholic missionaries at the Nazareth Press in Hong Kong created Laotian fonts in 1900 (Le Pichon 2006:92), but delayed printing Lao texts until 1924 (Le Pichon 2006:100).

[49] At first, Buddhist monks resisted printing Buddhist texts because they "had a symbolic value incompatible with wide dissemination." However, a few progressive monks like Chuon Nath and Huot That used print to advocate Buddhist reform (Emmrick 2021; Nepote and Khing 1981:62–63, 76).

[50] I have not yet been able to determine how much distribution was in Laos, as opposed to Lao areas of Thailand.

In 1902, the French allowed French-speaking Swiss Protestant missionaries to work in Laos, and they immediately began Bible translation. Other non-French missionaries were still banned. The BFBS created a Lao font (Būhān script) and printed the Gospels of John and Luke in Paris in 1906 and 1909, respectively (Audétat 1952; Jacquet, Jr. 1954; Nida 1972:249).[51] However, the BFBS font was large, so the Swiss Protestants cast a smaller font in Marseille, to print Gospel of Matthew in 1914 and the New Testament in 1926. Finally, they printed the whole Bible in Vietnam in 1932 (Audétat 1952, 1954).

In 1931, the French-government-sponsored *Buddhist Institute of Vientiane* began publishing Buddhist texts (Kourilsky 2018:171, 181) and in 1941, the French government printed the first Lao gazette. The French Propaganda Ministry initiated the *Buddhist Institute*, gazette, and Lao book printing to divert Laotians from reading Thai publications (Ivarsson 2008:133, 152, 181; Kourilsky 2018).[52] Because the French dominated Laos in 1886 and formally annexed it in 1898, Protestant and non-French missionaries had difficulty working there (Thomas 1954). Up through 1945, all printing inside Laos was conducted by the French colonial administration or the Japanese military.

(6) <u>*Overview of Theravada Buddhist Societies*</u>: One consistent pattern is that early Catholic education and printing was more likely to be in the European colonial language. Moreover, when they printed local languages, they were more likely to use Latin fonts than Protestants were. Table 2 shows the correlates of printing in Theravada Buddhist societies. The bottom two rows show the dates when a person from that 'country' first printed and first published a newspaper.

Table 2: The Dates of Local Printing and Newspaper Publishing relative to the dates of Colonization, Catholic Missions, and Protestant Missions

	Thailand	Myanmar	Sri Lanka	Cambodia	Laos
<u>Colonization</u>	<u>Never</u>	1826-1885	<u>1597</u>	1863	1884/1893
Catholic Missions	1554	1721	1505	1719	1630
Protestant Missions	1833	1813	1813[a]	1923	1902
Local Printing	1868	1864	1849/1862	1904	After 1945
Local Newspaper	1875[b]	1874[b]	1862	1936	After 1945

[a] This is the arrival date of non-state supported Protestant missionaries. Earlier Protestant chaplains employed by the Dutch East India Company (VOC) printed small numbers of texts but the VOC blocked missions to Buddhist & Hindus and they did not begin printing.
[b] Since they were published by the Thai and Burmese royal courts, they are technically official gazettes.

[51] Nida (1972) lists the place of publication as Song Khone (in central Laos). However, Fritz Audétat (1952) was directly involved in the translation and printing, but only mentions printing in France and Hanoi.
[52] French government printing began after Protestant missionaries arrived, but the sources I consulted do not mention missionaries as a driving factor. This may be an oversight.

The top three rows show possible vectors for the spread of printing: colonization, Catholic missions, and Protestant missions.

The dates of colonization and of Catholic missions have no correlation with printing or newspapers. However, the arrival of Protestant missionaries is tightly correlated with the beginning of both local printing and newspapers. In Thailand, Burma/Myanmar, and Sri Lanka, Protestant missionaries arrived in the 19th century and local people printed books and newspapers soon afterwards. The earliest locally-printed texts were almost universally Buddhist, including critiques of missionaries. Conversely, in Cambodia and Laos, the French barred Protestant missionaries until the 20th century and local people did not print books or newspapers until the 20th century. Even then, printing developed slowly relative to Thailand, Burma, and Sri Lanka. The French government sponsored the increase in Laotian and Cambodian printing to counter the influence of Thai books and newspapers, although in both cases it was shortly after Protestant missionaries arrived. Moreover, Protestant missionaries spurred both printing and newspaper printing in Thailand; thus, at a minimum, the response in Cambodia and Laos was indirectly influenced by Protestant missions. Even after paper was widely available, Theravada Buddhists wrote on palm fronds, and when the French government tried to print canonical Buddhist texts in a local script, Buddhist leaders fought them. Thus, the slow adoption of printing was not economic or technical. A similar pattern is evident in Hindu and Muslim societies.

b. Hindu Societies: Hindus were repeatedly exposed to both paper and book printing by Chinese, Mongols, Tangut, and Tibetans, but did not print texts or use paper until much later.[53] Hindus block-printed decorations on cloth, perhaps as earlier as 400 BCE, but did not print books. Yet, South Asia had highly sophisticated technology and extensive trade. In fact, South Asian fiber spinning, colorfast mordant dyes, and complex block-printed designs were superior to anything Europeans could manufacture. Thus, from the 1680s to late 1750s France criminalized importing India block-printed cloth to protect their cloth industry (Postrel 2020:193–99). The British also banned Indian printed cloth in 1700 and unprinted cloth in 1719 (Parthasarathi 2011). Some scholars argue that until the late 18th or 19th century parts of South Asia were as economically advanced as Europe (Parthasarathi 2011). Moreover, like Europe, South Asia had sustained conflict between polities within a shared cultural context and shared elite languages – initially

[53] Depending on the region, paper replaced palm leaves in the 13th – 19th century (Blackburn 2003:21–23).

Sanskrit, later Persian (Eaton 2019; Pollock 2009). Thus, polycentrism and conflict is less likely to explain why Europe and South Asia developed differently.

Several theories may explain Hindu resistance to paper and book printing. First, the caste system made paper suspect. Central Asian paper used rags and Brahmins worried rags could be 'polluted' by contact with members of low castes (Bloom 2001:41–42; Gupta 2013:554). Second, Brahmin's viewed Vedic knowledge as secret. Low-caste people were not even allowed to hear the Vedas recited (Bronkhorst 2011:266). Brahmins guarded and memorized Vedic knowledge. Some Sanskrit religious manuscripts were written down from the 11th century on, but access to the manuscripts was restricted, and oral transmission preferred (Bronkhorst 2014:6–7; Galewicz 2021:57, 61–63).[54] It took Protestant missionary printing to overcome this aversion. Parthasarathi (2011) claims manuscripts were widespread in the 18th century but were destroyed by the British. If so, the manuscripts were concentrated among a small elite, because literacy was low.

(1) India: After the Portuguese arrived in India in 1498, Hindus were repeatedly exposed to printing by Portuguese, Dutch, French, and British traders, by Catholic missionaries, and by Armenian Christians, but with little impact. Jesuit missionaries began printing in 1556, but Catholics only printed 37 books (59 volumes) in South Asia in the next 265 years, including reprints. Six books (10 volumes) were in Tamil with Tamil type; a few were in Konkani with Roman type. Most were in European languages. However, this printing had little impact on Indian society and no one copied them (Blackburn 2003:32–44; Pendse 2013:43–44, 53–58, 65–66; Shaw 1987:5–6).[55]

The French began establishing trading posts in 1667. In 1758, they imported a press, but by 1800, they had only printed a few official documents, a pamphlet, and a Thai catechism (Shaw 1987:8). This had no impact on Indian printing.

The British began establishing trading posts in 1639. In the south (Madras Presidency), they hired Protestant missionaries in a neighboring Danish colony to print for them (Galewicz 2021:110–34; Shaw 1987:7). In the north (Calcutta Presidency), several people, including a Swedish Protestant missionary, imported presses in the 1770s (Khan 1984; Shaw 1984,

[54] The compilation, translation, and printing of Vedic texts first occurred in the 19th century (Galewicz 2019, 2021).
[55] Only Jesuits printed. They used 6 presses and 4 Tamil fonts, together with woodblock printing. However, in 1684 the Portuguese restricted education and printing to Portuguese and Latin. After this, all Catholic printing stopped until the 1820s, including in European languages. Catholic missionaries working in French-ruled or indigenous-ruled areas could have printed, but did not.

1987:10). British merchants began small-scale boutique printing of English newspapers, English books, and some classical Indian texts. They did not transform Indian book culture, but they trained one important type cutter, Pañcānana Karmakāra, whom Baptist missionaries quickly hired. Parsis/Zoroastrians who worked at the English colonial press in Bombay printed a Parsi religious text, the *Khurdah Avesta*, in 1798 (Shaw 1987:10) and, with British government support, a periodical in 1802 (Ranganathan 2022). This is the only *clear* example I know before 1874 where non-missionary printing spurred anyone to begin printing.[56] However, Protestant missionaries spurred Hindus and Muslims to print, and transformed India book culture (Galewicz 2021:110; Gupta and Chakravorty 2004:11). "[Protestant Missionary] initiative lay behind the printing in most Indian languages" (Kesavan 1988:354).[57]

In South India, German Lutheran Halle missionaries in Tranquebar spurred printing. Within 8 years, they had printed more books than Catholic missionaries had printed in 265 years, including a Tamil New Testament in Tamil script. By 1800, they had printed 338 books, including 266 Tamil texts with Tamil font. They also opened India's first paper mill and a type foundry. When the British East India Company (BEIC) captured a French Press in Pondicherry, missionaries convinced the BEIC to let them use it in exchange for printing BEIC texts (Blackburn 2003:43, 47, 51, 58). In 1789, the Rev. Andrew Bell set up the *Madras Male Orphan Asylum* and created a system of monitorial education[58] which helped spread mass education around the world. Together with Rev. Richard Hall Kerr, he set up a press and trained orphans in the art of printing. Their graduates spread printing beyond missionary circles (Blackburn

[56] I will discuss two ambiguous cases, Turkey and Egypt, later. In 1874, the Sultan of Khiva imported the first Muslim-owned press in Central Asia a year after Russia colonized Khiva. The Sultan employed an Iranian lithographer to print Chagatai Turkish poetry and *belles lettres* for his court. The books were never sold and the press had little influence on the spread of printing in Central Asia (Khalid 1992; Toutant 2019). As far as I can tell, neither missionaries nor Protestant colonizers directly spurred this importation. At best, missionaries influenced the Iranians, who inspired the Sultan. This press may have increased the number of books among a small elite, but did not spur an 'Accessibility Revolution.'

[57] Some may have been influenced via Fort William College, but it is difficult to disentangle this from Protestant missionary influence. The Provost and Vice-Provost, Rev. David Brown and Rev. Claudius Buchanan, were Evangelicals, the Baptist missionary William Carey was Professor of Bengali and of all spoken/vernacular Hindu languages. Other professors focused on Sanskrit, Arabic, and Persian. Carey worked with pandits to create the textbooks, grammars, and dictionaries, and printed them at the Baptist Press in Serampore. Ram Ram Basu (who helped Carey write Bengali tracts) worked there and published the first Bengali prose book for Carey's class. Thus, "Modern text book writing in Bengali was started in the Fort William College under the guidance of [William] Carey" (Kesavan 1985:240).

[58] In the monitorial system, teachers taught senior students, who taught younger students. The system allows a small number of trained teachers to educate large classes with different abilities. The monitorial and Sunday School education systems made mass education of non-elites more economically feasible.

2003:77–78). Missionaries and their Indian co-workers also made important reforms in Tamil writing by (1) improving the orthography to distinguish long and short vowels and to distinguish 3 distinct 'R' sounds, (2) standardizing spelling, (3) introducing punctuation, and (4) pioneering a new prose style (Blackburn 2003:38, 59, 62–65).

In 1802, Serfoji II Maharaja of Tanjore was the first Hindu to set up an independent press. He sponsored printing books in Marathi and Sanskrit using *Devanagari* type in 1805. Halle missionaries tutored Serfoji II and helped him set up the press (Galewicz 2021:133; Nair 2005:283, 286). Similarly, the earliest Tamil book printed by an Indian was religious poetry printed in 1809, probably at the *Madras Male Asylum Press*. The two earliest Indian-owned Tamil presses were founded by Nanappirakaca Pillai from Tanjore. Both his name and the books he published suggest he was a Christian (Blackburn 2003:85, 88, 205).

Protestant missionary printing also spurred anti-missionary printing by the *Kalvi Kalaneiyam Press* (*Caturveda Siddhanta Society*) and by Arumuga Navalar, who originally worked with Protestant missionaries Sri Lanka. However, Napoleon invaded Germany and shut down Franke Foundation in Halle in 1806, this constricted missionaries and funds to the Halle mission in India. Perhaps as a result, printing spread more slowly in Madras Presidency (south India) than Calcutta Presidency (north India) (Galewicz 2021:134; Hudson 1992).

The real transformation of Indian book culture began in 1800 in the Danish colony of Serampore (near Calcutta) when Baptist missionaries opened a press. In 34 years, they printed 212,000 books in about 40 languages using vernacular fonts that they created (Gupta and Chakravorty 2004:11; Kesavan 1985:247). They opened a paper mill, a type foundry, and ran India's first steam engine to run the mill (Kesavan 1985:245; Laird 1968; Ramaseshan 1989:116–17). They also set up an extensive system of elementary schools, using Bell's monitorial system, prior to any government support (Laird 1968).

In 1813, British Evangelicals blocked the BEIC charter, forcing the BEIC both to allow British missionaries into BEIC territories and to allocate money for Indian education. After this, multiple mission presses, Bible societies, and tract societies spread throughout the sub-continent diffusing education, printing, and newspapers. This spurred reactions from Hindus and Muslims. Protestant missionaries also trained the type-casters, compositors, teachers, etc., who staffed Hindu and Muslim presses and schools. The first Hindu printers developed in the penumbra of the Serampore Mission Press. For example, in 1816 Gangakishor Bhattachary opened the first

Indian-owned press in north India; he previously worked at the Serampore Press (Shaw 2007:131).

According to Kesavan (1985:264) "The Bengali elite did not fathom the importance of the invention of Bengali movable type … because [merchant printers] designed [their] book[s] for a very limited clientele consisting of foreigners. Even the establishment of the Government press did not excite the Bengali people: only when Serampore came on the scene did Bengal take notice of this seminal development." William Carey commissions Ram Ram Basu to write the first prose book in the Bengali language (Khan 1961:234). Rammohan Roy and Ram Ram Basu, who worked closely with Carey and the Serampore missionaries, are often credited with helping birth modern Bengali prose (Chakravorty 2004:206, 210; Khan 1976:11; Thangamuthu 2016:2610).[59]

In 1818, the Serampore Mission printed the first magazine and newspaper in any South Asian language: the Begali *Digdarsan* and *Samachar Durpan*. This prodded Hindus to respond with newspapers that focused on religious reform or critiqued missionaries. The first Indian newspaper owner/editor was Rammohan Roy, who previously worked with the Serampore missionaries translating the Bible into Bengali (Blackburn 2003:81; Natarajan 1955:12, 15, 18–19, 45; Vedalankar 1955:211–12).[60] Protestant missionaries also started the first newspapers in most of India's major languages, e.g., Assamese, Kannada, Malayalam, Punjabi, Tamil, Telegu, etc. Other religious groups often started newspapers in response (Kesavan 1988:712; Khan 1984:342–43, 2001:26; Natarajan 1955:63–64, 179, 187, 190, 197, 201).

(2) Sri Lanka: The pattern is identical in Sri Lanka. Protestant missionaries were the first to print in Tamil, the mother tongue of most Sri Lankan Hindus. In 1841, two Tamil Protestants printed the first Tamil newspaper. The first *Hindu* to print was Arumuga Navalar. He studied and taught at the Wesleyan Missionary School in Jaffna and worked at the *Jaffna Auxiliary Bible Society* helping translate the Bible, tracts, and hymns into Tamil (Bate 2021:47–49). However in 1847, missionaries admitted low-caste Hindus into their school. In response, Arumuga and other high-caste Hindus left the school, set up a Hindu school that excluded low-castes, and established the

[59] Despite Sheldon Pollock's emphasis on the rise of 'vernaculars' during the second millennium CE (2009), they were elite, trans-local courtly languages distinct from ordinary spoken language. The rise of writing linked to spoken vernaculars was primarily a 19th century phenomena (Tieken 2008:339, 379).

[60] Additional inspiration may have come from English language newspapers via secondary diffusion. Many of these were printed with the assistants of Protestant missionaries (Blackburn 2003:78; Shaw 1987:10–11).

first Hindu press in Sri Lanka to defend Hinduism from criticism by missionaries. Arumuga hired workmen trained at the *American Mission Press* and began printing in 1850 (Hudson 1992:41–42; Kularatne 2006:xv). He also mirrored the missionary style of writing, using language accessible to ordinary people, expanding the use of punctuation, adding a space between words, etc. (Bate 2021:14, 46–47, 53–54). His influence on Tamil writing in India and Sri Lanka was significant enough that he is sometimes called the "father of Tamil prose" (Hellmann-Rajanayagam 1989). Hindu printing expanded rapidly in reaction to Protestant mission printing (Hudson 1992). Conversely, in Nepal and Bali, Protestant missionaries were excluded, and printing and mass education developed later and slower.

(3) Nepal: Tantric Buddhists in Nepal made paper and printed before European contact, but Hindus did not (Clemente 2018). Hindu Nepalis were exposed to printing via Catholic missionary books from 1715-1769 and later through interaction with the British. In 1816, Nepal lost a war with the BEIC, ceded much of their territory, and agreed to have a permanent British resident. Thus, Nepalis were aware of British technological prowess and the urgency of reform.

In 1821, Baptist missionaries in India printed the first Nepali book, the New Testament, and began distributing religious texts among Nepalis working in the British military. Then the *Scottish Mission Orphanage Press* printed more careful and influential Bible translations in 1850 (Mallick 2019:109; Nida 1972:255–56, 320; Perry 1997:31, 38). The next year (1851), Nepal's ruler Jang Bahadur Rana imported a printing press but mostly used it to print tickets, envelopes, and stamps.[61] Eventually, the Ranas printed books, but Christian missionaries were kept out of Nepal until 1951, and both Nepali book publishing and education floundered (Hutt 1984:214–16). By 1950 only 2% of Nepalis were literate (Barclay 2009:189; Whelpton 2005:167).

Nepali printing and writing style developed primarily in India and "the contribution of the Christian missionaries [and their converts] to the development of the Nepali language and literature was considerable" (Sarkar 2008:88).[62] Ganga Prasad Pradhan, a Nepali convert to Protestantism, worked with Protestant missionaries improving the Nepali translation of the Bible. Then in 1901, he bought the *Scottish Mission Orphanage Press* and formed the *Gurkah Press*. In addition to Christian books and tracts, he printed the first Nepali-language textbooks and the first

[61] The timing may be coincidental, but Nepal's ruling family was savvy and would be aware of missionary printing.
[62] Christian texts are the second largest category of translations into Nepali (Bhattarai 2017:213).

Nepali-language newspaper, the *Gorkhe Khabar Kagat* (1901-1932).[63] Shortly afterwards, the Nepali government started an official gazette (Sarkar 2008:88) and high-caste Nepali exiles in Banaras/Benares/Varanasi began publishing periodicals (Chalmers 2003:113).[64]

Protestant Nepali writing mirrored spoken Nepali, whereas most Hindu Nepalis 'ennobled' Nepali with Sanskrit loan words and grammatical features, making it harder for non-elites to understand. They often framed Sanskritization as constraining Christian influence (Chalmers 2003:148). Sanskritized Nepali limited the spread of literacy (Whelpton 2005:168).[65]

(4) Bali: Printing developed even more slowly in Bali. The Dutch colonized Indonesia in the 1700s and European traders and Chinese lived on Bali, but the Dutch blocked missionaries from working there. Both missionaries and colonial officials developed Balinese fonts and printed some texts elsewhere. But missionaries had difficulty distributing texts in Bali. Consequently, until after WWII, there was no printing and few bookshops there (Hooykaas 1963).

Thus, exposure to Protestant missionary printing influenced when, what, and how Hindus printed. Hindu societies with early exposure to Protestant missions printed books and newspapers earlier and expanded printing more rapidly. They standardized spelling and added punctuation earlier and shifted written language closer to spoken language. All the Hindu and Buddhist scripts of South and Southeast Asia are related (based on Bhrami). However, languages with extensive Protestant mission contact now typically have word spacing and extensive, Western-style, punctuation (e.g., Bengali, Tamil, Gujarati, and to a lesser extent Thai); those that did not, do not (e.g., Khmer, Balinese) (e.g., see Meletis and Romstadt forthcoming:22–24). The timing of exposure to religious competition, Catholic missions, European traders, European

[63] Other Nepali periodicals were short-lived, but *Gorkhe Khabar Kagat* was "by far the longest-lived Nepali periodical in pre-Independence India" (Chalmers 2004:141, 248). One source posits an earlier literary journal, but it was not a newspaper and no copies survive. It is not clear if it was published or merely proposed. If published, it was extremely short-lived (Hutt 1984:221, 228).

[64] These sources do not state that the periodicals were a response to Ganga Prasad, but they began shortly after his newspaper, and both groups were aware of printing by Protestant missionaries and Ganga Prasad. Many elite Nepali exiles who published in Banaras were also educated in mission schools (Dewan 1991; Whelpton 2005:167) and major Protestant mission presses in Banaras and neighboring cities increased both their exposure to printing and newspapers and the local availability of trained printers, etc. (Gupta 2021:13; Stark 2015; Vedalankar 1955:129–30). Still some sources ignore Ganga Prasad and missionary printing entirely (e.g., Rao and Koirala 2000).

[65] Even Hindus who promoted Sanskritized Nepali often had close links with Protestant missionaries. Probably the most famous promoter of literary Nepali, Parasmani Pradhan, studied at a Church of Scotland mission school, and taught Nepali at the *Scottish University Mission Institute* (SUMI) in Kalimpong, i.e., the first secondary school classes in the Nepali language. While at SUMI, he wrote early Nepali language textsbooks. He also set up the earliest associations (*Gokrha Sahitya Samaj* and *Sahitya Sammelan*) to promote Nepali as a literary language and to pressure the British to allow it to be studied in government schools. With his brothers, he founded the Mani Press (1928) to promote Nepali publishing (Chalmers 2003:182–83; Pradhan 1997:36; Whelpton 2005:168).

colonization, and military defeat to European powers did not matter, unless it influenced exposure to Protestant missions. The first translations of the Vedic texts into local vernacular languages also followed Protestant missionary competition (Khan 1976:410, 428–29). The Portuguese banned printing in South Asian languages. The Danish allowed missionaries only because of the direct intervention of the King. Both the [Protestant] Dutch and British East India Companies initially tried to restrict missions and or missionary printing. Because of the weakness of Nonconformists in the Netherlands, the Dutch were able to restrict missions and conversionary printing in their territories. However, because of the strength of Nonconformist and Evangelicals in England, the British were forced to allow missionaries and missionary printing. Although British East India Company officials printed more than other colonizers and trade company officials, this had limited impact on printing by South Asians. Again, it was Protestant missionaries rather than some other European group that spread printing, vernacular newspapers, and the Accessibility Revolution.

c. *The Muslim Societies*: Many Muslim empires were wealthy and technologically sophisticated. As late as 1683, the Ottomans had sufficient technological and military parity with Europe to invade Austro-Hungarian Empire and lay siege to Vienna. Muslims also had extensive exposure to printing. Muslims copied papermaking and block printing from the Chinese in the 800s CE. Muslims block-printed amulets and hajj certificates across the Muslim world, in multiple regions, from the 10th through 14th centuries. Some printing quoted the Quran and/or used beautiful Arabic calligraphy in multiple colors (Aksoy and Milstein 2000; Schaefer 2006). Muslims also printed book covers, paper money, and government forms (Sabev 2025a; Schaefer 2014:2–3). Thus, Muslims could have printed books, including the Quran, but did not. In this section, I highlight four contexts that shaped how Muslims began printing books: 1) areas where Protestant missionaries worked, but were banned from converting Muslims; 2) areas where Protestants could convert Muslims; 3) areas where Protestant missionaries were banned; and 4) areas with large Eastern Christian populations.

(1) Areas Where Missionaries were Allowed, but Converting Muslims was Banned: Iran is a typical example. Muslims in Iran used woodblock printing to make amulets and paper money. In 1307, an Iranian Muslim scholar made the first detailed description of Chinese book-printing (Allsen 2001:184). In 1629, Catholic missionaries imported the first European printing press to Iran, but

never used it. Armenian Christians started printing in Iran in 1637, using both self-made and imported presses and fonts (Aslanian 2014b; Floor [1990] 2017). This was before printing started in the US or Canada. Yet, Iranian Muslims did not print any books until 1817.

Two events seem to have spurred this: Rev. Henry Martyn's visit to Iran and Scottish missionaries printing in the Caucasus. Henry Martyn and other Protestant missionaries in India began translating and printing Bible in Persian. Martyn traveled to Iran and stayed for about a year to perfect his Persian translation of the New Testament. The crown prince, Abbas Mirza, commissioned a written 'religious debate' with Martyn, and Martyn sent him a copy of his Bible translation. Martyn tried to return to England to print his translation, but died on the way. Martyn's companion Gore Ouseley convinced a Persian official, Mirza Ja'far, to help see the text through the press. The [Protestant initiated] Russian Bible Society (RBS) in St. Petersburg printed it in 1815 and the British and Foreign Bible Society (BFBS) in 1816. The Bible societies began actively distributed copies in northwestern Iran, including Tabriz. Scottish missionaries in the Caucasus also began printing and sending Persian Bible portions and tracts over the border.

In response, Abbas Mirza sent Zayn al-'Abidin to St. Petersburg and Mirza Salih Shirazi to London where they worked with and procured fonts from the Bible Societies. These men introduced both printing and the first newspaper to Persia (Green 2009, 2015; O'Flynn 2017:134–67, 326–474; Thomas 2015:181–90, 205–6; Van Gorder 2010:124, 153, 166–67). However, Abbas Mirza died, the Russians both shut down the RBS and expelled all Protestant missionaries, and the Shah of Iran banned missionaries from working with Muslims. Subsequently, Persian printing grew slowly. From 1817 – 1858 Iranians printed 50-60 books with moveable font. Most were religious, including multiple versions of the Quran (Marzolph 2007, 2014).

Lithography started later, but expanded more rapidly. The first lithographic press was brought from Tiflis (Tiblisi) in Georgia, where the Basel Mission had a school and printing press. The second press was brought by Mirza Saleh Shirazi or Mirza Ja'far from St. Petersburg.[66] The first verified lithograph is a Quran printed in 1833 (Green 2009:209; Shcheglova and Marzolph 2021; Vander Werff 1977:100). Through the 19th century most printing was either artistic lithographs designed for elites or state-sponsored gazettes.

[66] A Mirza Ja'far studied with Mirza Saleh Shirazi in London where he was also involved in Persian Bible Translation, etc. (Green 2015). I assume this is the same person, but do not have a citation for this.

Independent Persian-language newspapers and mass printing developed outside Iran, primarily in India, and were imported or smuggled into Persia. Literacy remained in the single digits into the early 20th century. In the 1920s when the government began public education, Iranians printers went to India to learn and import the new technology (Marashi 2015). Other societies that exhibit a similar pattern in the treatment of missionaries and in the development of printing are Morocco, Jordan, Palestine, Turkey, Zanzibar, Malaysia (excluding the Straights Settlements), and Indonesia.

(2) *Areas Where Missionaries were Allowed to Convert Muslims*: Muslims in India used paper, ink, and woodblocks for cloth-printing, but did not print books. They were exposed to European printing by Catholic missionaries and by British, French, Dutch, and Portuguese colonizers, but did not use it. Muslims began printing in the 19th century in response to Protestant missionaries' conversionary printing (Robinson 2000:76–77). However unlike in Iran, the threat never abated, and Muslim printing expanded rapidly. By the 1850s, Muslims in India had printed over 1,000 titles, and by 1867 they were printing in most of the cities and major towns of the sub-continent. By the second half of the 19th century, Indian Muslims were exporting texts all over Asia and East Africa, including Iran (Bruce 2004; Green 2011; Robinson 2000:67, 76–79; Shaw 1987).

Similarly, in Malaysia, Indonesia, and Singapore the first Muslim printers either worked at Protestant missionary presses or learned to print at Protestant mission schools. The first Muslim to print books in Southeast Asia was Abdullah bin Abdul Kadir; he worked at several Protestant mission presses. The first book printed by a Muslim on a non-missionary press was a Quran printed in 1848; the printer was trained by Abdullah bin Abdul Kadir (Ishak 1992:1–67, 92; Ismail 1982; Proudfoot 1995; Putten 1997). The missionary Benjamin Peach Keasberry also trained his students to print and his students helped spread printing throughout Southeast Asia (Leow 2016:64–67; Liang 2009:32, 299, 321–27; Proudfoot 1994:8–10, 1998:124–29). Like India, Singapore became the center of Muslim printing in the region, exporting texts to surrounding areas with far larger Muslim populations (Proudfoot 1994:24–25, 27). Neither India or Singapore had ever been global centers of Muslim text production previously.

(3) *Areas Where Missionaries were Banned*: Mecca and Medina seem like logical places for mass printing. Muslims are supposed to make at least one pilgrimage to the holy sites in their lifetime. Even in the 19th century, huge numbers of Muslims arrived annually, creating a ready market for

religious texts. Both cities were centers of Islamic learning and religious leaders spread their teachings throughout the Muslim world via manuscripts (Bahl 2018; Green 2017). However, all Christians were banned and printing began in Mecca and Medina in 1883 and 1885, respectively (Proudfoot 1995), decades after more obscure Muslim cities, e.g., Palembang (1848).

In other societies that excluded missionaries, printing also began late and expanded slowly, e.g., Afghanistan, Maldives, Oman, Kuwait, UAE, Qatar, Bahrain, Somalia, Yemen, Saudi Arabia, Djibouti, Libya, Brunei, Kazakhstan, Uzbekistan, Tajikistan, Turkmenistan, Mauritania, Niger, Mali, Northern Nigeria, Northern Ghana, Burkina Faso, Chad, etc. It did not matter whether an area was colonized or not, or who the colonizer was - eleven countries listed above were British colonies or protectorates, if Protestant missionaries were excluded, printing began late, developed slowly, and was primarily controlled by the state. In these societies rulers typically introduced printing to publish official gazettes, stamps, letterhead, and/or courtly poetry. Non-state printing was rare.

Protestant missionaries often found ways to smuggle texts into areas they could not go; this often goaded a response. For example, Afghanistan shared a border with British India. Protestant missionaries set up printing centers just across the border, printed Bibles, tracts, and primers in Pashtu, Balochi, Persian/Dari, etc., and exported them into Afghanistan. Afghan leaders even toured Protestant missionary printing facilities. Perhaps as a result, Afghans began printing in 1871 (Shaw 2012), over a decade before Mecca and Medina.

However, Mecca and Medina were different from these other societies. Once printing began there, it expanded rapidly, especially in the 20th century. Books printed there had more prestige than books printed elsewhere and took market share from India and Singapore (Proudfoot 1994:34–36, 42).

(4) *Areas with Large Eastern Christian Populations*: Lebanon and Egypt are distinct because of their large Eastern Christian populations. Arab Christians and former-Christians who had worked closely with Protestant missionaries were central figures in the Nahda (Arabic Awakening) and influenced the development of Modern Standard Arabic, e.g., Butrus al-Bustani, Faris al-Shidyaq, and Jirji Zaydan. Arab Christians educated at mission schools dominated the early printing and newspaper industry in Egypt, Lebanon, and Turkey (Hourani 1983:97–102, 245–

47). For example, in Egypt, the earliest Arabic newspapers were started by Christians.[67] In fact, 18 of the first 21 newspapers printed in Egypt were published and edited by Christians. Early Muslim editors were often graduates of mission schools (Hartmann 1899:3, 10, 16, 48; Philipp 1985:xii). Lebanon and Egypt became the centers of Arabic language printing and media production and also pioneered the use of semantic punctuation in Arabic (Jabbari 2023:166).

d. *Summary of Printing in Theravada, Hindu, and Muslim Societies*: Theravada, Hindu, and Muslim societies stretch from insular Southeast Asia to Northwest Africa and are extremely diverse culturally, economically, politically, and geographically. Yet, how they began printing books and newspapers is consistent: (1) societies with early exposure to Protestant missions printed early; societies with late exposure printed late; (2) groups that Protestant missionaries were allowed to convert expanded printing rapidly and had a diverse independent press; groups that Protestants were banned from converting expanded printing slowly and had government gazettes. This is true even for different religious communities in the same country, e.g., compare Jews and Christians with Muslims in Iran and the Ottoman Empire.

Two countries may not fit this pattern: i.e., Ottoman Turkey and Egypt. But even here, Protestants and Eastern Christians played crucial roles. The first Muslim to print a book outside of China was Ibrahim Mutefericca in 1729 in Ottoman Turkey. Protestant missionaries did not spur this, but Mutefericca was a Hungarian Protestant convert to Islam[68] and it took another 70 years for Muslims without Protestant backgrounds to print more than a few books (Erginbaş 2014:63–67, 82; Sabev 2018). Missionaries, Eastern Christians, and Protestant converts were crucial to this later expansion of Ottoman printing.

Similarly, in 1815 the nominally-Muslim, Macedonian, ruler of Egypt, Muhammad Ali, sent an Arab Christian to Italy where he learned to print, 1815 is the same year Abas Mirza sent Iranians to Europe to learn to print. Muhammad Ali set up the *Bulaq Press* in 1822, five years after Iranians started printing (Philipp 1985:67–72; Schulze 1987:194). As in Iran, Protestant missionaries were distributing Arabic Bibles and tracts in the region at the time (Darlow and

[67] These are non-government newspapers. In 1828, Mohammad Ali, the Macedonian ruler of Egypt initiated a government information bulletin/gazette. However, the person who set up and ran the press, and most translators and staff were Christians (Adalian 1980; Heyworth-Dunne 1940, 1968:108–10, 127, 279–81; Schulze 1987:194)

[68] Mutefericca studied at a Calvinist college in Cluj during a revival of printing by the famous Protestant punchcutter and printer Milos Kis and may have worked as a printer's apprentice there. With the help of Jews, Eastern Christians, and Europeans, he printed maps and books in Istanbul using both woodblocks and moveable-font type (Sabev 2025b:47–49, 62).

Moule 1911:68–69; Roper 1988). However, I cannot prove missionary printing influenced Muhammad Ali's decision and the relevant records were burned. Again it took decades for Egyptian Muslims outside the government to print. The shift to private printing and newspapers in Egypt was dominated by Arab Christians, many trained at mission schools (Adalian 1980; Hartmann 1899:3, 10, 16, 48; Ibrahim 2013:196; Meinardus 2006; Philipp 1985:79, 97–98, 102, 153). Thus, the two exceptions are still close to the general pattern.

Other theories about the origin and spread of printing don't generalize well. If script complexity blocked printing (Robinson 1993), we would expect printing to spread rapidly after exposure to woodblock or lithographic printing. We do not. Moreover, Syriac, Uyghur, Mongol, and Manchu scripts are closely related to Arabic (all are derived from Syriac/Aramaic), but Christians and Buddhists printed in these scripts using both woodblocks and moveable font type hundreds of years earlier. The main barrier to printing was not technological.

One repeated assertion in the literature is that Ottoman sultans issued *firman* banning printing in 1485 and 1515 on pain of death (Lewis 1961:50; Oman 2013; Pedersen 1984:133–34; Rubin 2017:105). However, if Ottoman decrees blocked Muslim printing, they would only block Muslims in the Ottoman Empire. Yet, Muslims outside the Empire did not print books either, even Muslims in China, Tibet, and other parts of Asia that did not have Muslim rulers. Moreover, no one has found a copy of either ban or any contemporary Muslim reference to them (Rubin 2017:235, n. 17; Schwartz 2017). The only extant *firman* give permissions to Europeans to sell printed books in Arabic and Turkish (in 1588) and give Mutefericca a privilege to print non-religious books (in 1727). Neither mentions a ban on others printing or selling printed books, and the Sultan's library contained printed books in Arabic script (Schwartz 2017).

When Ibrahim Mutefericca asked the Sultan for a *firman* and the religious leaders for a *fatwa* affirming his right to print Arabic and Turkish texts, he admitted that he had already been printing for several years, something that seems unlikely if the penalty for printing was death. Moreover, neither the Sultan nor the Grand Mufti refer to any earlier rulings that they are overturning. This seems unlikely if a previous ban was known and enforced across the Ottoman Empire (Sabev 2025b). Similarly, when Arab Christians printed in Arabic with Arabic font (as opposed to the closely related Syriac font), they did not ask for permission and no one prosecuted them (Feodorov 2023, 2024). In 1725 and 1727, the *Society for the Propagation of Christian Knowledge* (SPCK) also distributed thousands of Arabic Psalters and New Testaments

to Christians in the Ottoman Empire, with no repercussions (Roper 1988:67, 70). This suggests that when Arab Christians printed Arabic using Syriac script and Jews printed Arabic in Hebrew script, it was because that was how these religious leaders wrote, not because of a ban on printing Arabic with Arabic script.

If printing the Quran, or religious texts, or the name of God was forbidden, this was not true earlier or outside the Ottoman Empire. Many of the earliest texts printed in Southeast Asia, India, Persia, and elsewhere were Qurans or religious texts. Moreover amulets and hajj certificates were printed for centuries in multiple parts of the Muslim world. Both contained the name of God and Quranic verses.

If 'strong religion' or the state's need for religious support blocked printing (Rubin 2017), religion would need to be weaker/less necessary in *all* Christian, Jewish, Tantric Buddhist, and Mahayana Buddhist societies, and stronger/more necessary in *all* Muslim, Hindu, and Theravada Buddhist societies from the 800s to the late 19th century. This seems unlikely. Moreover, we would expect the earliest printing to be secular, but it is almost always religious. Even, Gutenberg worked in Mainz, one of the few German cities ruled by a Catholic archbishop, and virtually all the earliest printing was religious, including multiple editions of the Bible. Moreover, in the 1400s Catholic leaders consistently praised printing (White 2026).

If new technology like metal (Stanhope) presses or lithography made printing spread (Green 2010; Robinson 1993), we would expect a wave of printing in Asia and North Africa after their invention. We do not. In places like India, Iran, and Southeast Asia where Muslims printed in response to Protestant missions, lithography later became popular for a time. Yet, noone printed in Mecca until 1883, 73 years after the Stanhope [metal] Press, 87 years after lithography, and at least 60 years after Muslims printed in Egypt, India, Iran, and Southeast Asia. When Meccans began printing, they used a letter-press, not lithography (Proudfoot 1994:42, 48).

Of course, new technologies may have *eased* printing in areas that started printing for other reasons. However, new technologies don't explain why the beginning of printing correlates so closely with the arrival of non-state Protestant missionaries, but not with the arrival of European merchants. Nor does technology explain why printing's expansion-rate correlates so tightly with missionaries' freedom to convert local people. Indian and Singaporean Muslims did not have earlier exposure to lithography than Moroccan or Iranian Muslims, but they started printing earlier than Moroccans and expanded printing far more rapidly than both.

The threat of conversion was crucial. Protestant missionaries used mass vernacular printing, newspapers, and education to evangelize. Protestant printing used local scripts, accessible language, and mass distribution. This threatened religious elites, who responded with their own printing, newspapers, education, and translations.[69] Protestants also printed and educated locally, creating a supply of printers and teachers that others used in their presses and schools. Printing by Jews and Eastern Christians was not a threat because they usually printed in a different language and script than the majority Muslim and Hindu populations and they printed for internal consumption, not evangelizing.

Catholic missionaries tried to convert non-Christians, but seldom used printing or newspapers as a primary means. Prior to Protestant competition, Catholic missionaries typically printed few texts, with small print-runs, using Roman script, in centralized locations like Rome. Goa, and Hong Kong. Centralization allowed bishops to give their *imprimatur* (i.e., permission to print a text), but prevented people elsewhere from learning printing skills. Catholic printing typically targeted Eastern Christians, facilitated oral communication by new priests, or catechized converts (e.g., Chia 2011:279). It did not threaten the majority religious community.

Printing by European merchants and colonizers was mostly in foreign languages (particularly English) or classical languages (e.g., Sanskrit) and produced for foreign consumption. Even their printing in non-European languages (e.g., Sanskrit or Persian) was for foreign and elite consumption, e.g., grammars and dictionaries to facilitate language learning. Thus, it did not threaten local religious elites and was seldom copied.[70] However, Protestant-background merchants and colonizers (i.e., British, Dutch, Danish, Swedish, German) were more likely to print books and newspapers than Catholic-background merchants and colonizers (i.e., Portuguese, Spanish, French, Belgian, and Italian).

Printing in Theravada, Hindu, and Muslim societies also reveals the unusual Protestant focus on translation and the vernacular. When other world religions spread, they typically spread a language, writing system, and book form. When empires spread, they also spread a language, writing system, and book form. Often empires and religions spread together. These

[69] The translation of the Quran and the Vedas into vernacular languages occurred almost entirely *after* the arrival of Protestant missionaries (Galewicz 2019, 2021; Khan 2001). I suspect the same is true for the Pāli cannon.
[70] I only know one example: Parsis/Zoroastrians who worked at the *Bombay Courier* printed a Zoroastrian religious text (the *Khurdah Avesta*) prior to Protestant missionary activity in the area (Shaw 1987:10).

sacred/imperial languages systematically replaced pre-existing languages and writing systems.[71] However, even in 'Protestant' colonies (i.e., British, Dutch, German, Danish, Swedish, US, etc.), Protestant missionaries actively printed and educated in vernacular languages using local scripts. Later, they often began 'colonial-language' education because of local pressure and government grants, but their default was to use the local languages and local scripts.

Interestingly, pre-mission written languages probably hampered the rapid spread of literacy. Literate societies had 'sacred'/cosmopolitan languages distinct from spoken language. These stable, trans-local literary languages facilitated understanding of ancient texts and communication between courts and circles of elites, but it took time for non-elites to learn the 'sacred' language or for the written language to shift towards spoken language. Moreover, people from book-linked religions [Islam, Hinduism, Buddhism, Zoroastrianism] were less likely to convert and fewer became Protestant. Thus, Polynesian societies, which had no pre-mission writing system, had close to universal literacy within decades of printing, Ottoman society took over two centuries to approach that.

However over time, the Protestant pattern diffused, and Protestantism no longer played a unique role in spurring printing. Muslim nationalist movements inspired other Muslim nationalist movements; Sufi printing sparked 'orthodox' Sunni responses. Increasingly, governments began mass education and either governments or private companies dominated the printing industry. Protestant missionaries often sold their presses and let governments take over education. Catholics were more likely to attempt to sustain distinct Catholic institutions. Still, later developments do not negate the earlier religious roots of printing revolutions. Over time, religious ideas became part of 'world culture' and people forgot their religious origins. Moreover, once religious communities absorbed the start-up costs of creating written languages, crafting fonts, developing consistent orthographies, teaching punctuation, composing textbooks, expanding education, accustoming people to printed texts, etc., then private companies moved in.

C. **The Transformation of Printing through Protestant Missions**: The Protestant 'accessibility imperative' also transformed how printing was used in East and Central Asia. East and Central

[71] For example, prior to the 19th century, Muslims did not adopt pre-Islamic writing systems, they replaced them with the Arabic script and replaced or modified the local language: Coptic is the remnant of the pre-Islamic language of Egypt. The only exception I am aware of is Muslims in China and Muslims never conquered China.

Asian printed long before Europeans did, including with metal moveable-font type. However, it did not have the same transformative effects until the 19th and 20th century.

Moreover, Protestant missionaries initially used Chinese printing methods, i.e., woodblock printing, wooden moveable type, and individually carved metal type. In 1833, Samuel Dyer began casting a Chinese font, but missionary fonts were not competitive with woodblocks until 1851, and did not transform East Asian printing until William Gamble introduced electrotyping in 1860 (Su 2018:266; Wherry 1888). But even before 1833, Protestant missionaries used East Asian technology in radically new ways. By 1833 they had already started the first four Chinese newspapers (Farnham 1890:720; Su 2018:264; Volz and Lee 2009:188–89). Protestant missionaries made the first frequency-count of Chinese characters to avoid overproducing rare characters or underproducing common ones. They also created an organizational system to allow a pressman to reach all common characters without leaving their chair (Gotoh and Yokomizo 2002; Harkin 1957). These innovations did not require new technology, merely a new idea of how to use existing technology. East Asians had already been using moveable font type for 800 years, but used it for small print runs and for texts with many repeated characters. Imperial printing houses in China and Korea could afford large fonts and pay people to walk around a room collecting characters. Genealogists could create the small number of characters necessary for a family tree. But Protestant missionaries wanted inexpensive *mass* printing, so they innovated, radically reducing costs and facilitating a massive expansion of printing.

Protestant missionaries and their East Asian co-workers also transformed the impact of printing by:

1) Popularizing phonetic writing systems, such as Korean *hangul,* regularizing spelling, and adding word spacing and punctuation (Hannas 1997:24, 39; King 1998, 2004; Oh 2026:170; Traulsen 2012:103–4);[72]
2) Shifting writing away from foreign and classical languages toward vernacular spoken languages, e.g., the development and codification of modern Mandarin/*baihau* and Korean in the 1920s and 1930s mirrored language used in earlier Protestant missionary

[72] Protestant Missionaries and Koreans who worked closely with them were crucial to popularizing *Hangul*, updating its orthography, and introducing word spacing and punctuation. There was nothing inevitable about the process (Ahn 2023; King 1998, 2004; Wells 2023). Catholic missionaries also used *Hangul* but had little impact on script reform (King 2004:8 n. 2)

publications and was pioneered by people deeply influenced by missionaries. Even the idea that writing *should* reflect spoken language was new (King 2004; Kohiyama 2021; Mak 2017; Yuan 2009);

3) Initiating mass education of women and the poor, thus expanding the market for print (Lear 2009; Suh 2015). Even James Yen/Yan Yangchu, the Chinese who led the first non-missionary mass education movement in China was a Protestant, studied in the US, and previously worked for a Protestant missionary organization (Zhong 2019:122, 132);

4) Adding practical topics to education such as science, engineering, accounting, and agriculture (Dunch 2001, 2003; Johnson 2001);

5) Creating libraries that were open to the public, lent books, and allowed people to access the stacks. They also developed catalogue systems (equivalent to the Dewey decimal system) that allowed ordinary people to locate books efficiently (Liao 2006, 2009; Schneider 2009);

6) Developing the methods for creating fonts used in East Asia until the advent of computers (Gotoh and Yokomizo 2002; Komiyama 2019a).[73]

I lack space to describe how Protestant missions spurred each of these changes. Thus, I focus on how Protestant missionaries initiated and spread newspapers in East and Central Asia.

For centuries the Chinese government published a gazette of official regulations. High officials were required to subscribe. Later, Korea and Japan published government gazettes. East Asians also printed one-page fliers describing individual events, such as earthquakes, but these avoided politics and were not periodic. There were no privately-printed newspapers, and government gazettes did not create a "public sphere." They did not critique the government or public policy; they promulgated official regulations. The first periodical magazines and newspapers printed in any Asian language were published by Protestant missionaries.

Protestant missionaries' centrality in birthing newspapers and magazines in China is well documented (Chen 2006; Hart 1901; Lent 1980; Volz and Lee 2009; T. Zhang 2007; X. Zhang 2007). They published the first newspaper in the Chinese language, the first newspaper printed in China, and ~95% of periodicals in China before 1890. As late as 1898, the Protestant missionary newspaper *Wanguo Gongbao* had a larger circulation than any other newspaper in the country, including subscriptions by many government leaders and Chinese reformers (T. Zhang 2007).

[73] The current Japanese numbering system for font sizes even copies the numbering for font sizes sold by the *American Missionary Press* in Shanghai (Komiyama 2019b; Miyasaka 2019).

Moreover, most of the earliest Chinese editors and owners of newspapers, e.g., Cai Er-Kang, Wang Tao, Shen Yugui, and Qian Xinbo, had previously worked with Protestant missionaries or became Christians while studying in the US (Bennett 1983:58; Gentz 2007:51–57; Rhoads 2011:151–53, 203–6, 261; Volz and Lee 2009:176; Yung 1939:23–24). Many also bought their presses and fonts from mission presses (Gentz 2007:56; Su 2018:271–75; Wolff 1978).

Protestant missionaries were also important to the emergence of the periodical press in Japan and Korea. When Japan and Korea still banned direct contact with Europeans, Japanese and Korea intellectuals imported Protestant mission newspapers via China. The Japanese government republished an edited version of mission newspapers[74] and distributed them to senior leaders – carefully removing Christian content (Altman 1965:23–27, 37, 41; De Lange 1998:24–26). Thus, when Japanese intellectuals first traveled abroad, many sought out Protestant missionaries and printing presses in Shanghai and Hong Kong (Fogel 2015; Liu 2003, 2009c, 2009b, 2010).[75]

In Japan in 1864, Joseph Heco/Himada Hikozo edited and published the first privately-printed Japanese newspaper. He was a former shipwrecked fisherman who converted to Christianity[76] in the US. Because Heco could not write Japanese, he worked with Kishida Ginkō and Honma Senzō, students and co-workers of the Protestant missionary James Curtis Hepburn. The paper was printed using traditional woodblock technology (Huffman 1997:30–31; Lutz 2008:92–96; Munson 2012).[77] Kishida continued to publish a newspaper after Heco died in 1866 and founded a new one in 1868 as part of the first flowering of Japanese newssheets. Kishida was the first to write in a colloquial plain prose style "so that even farmers could read" the

[74] The series also included translations of a non-missionary Dutch newspaper from Indonesia, i.e., Protestant secondary diffusion.

[75] The desire of Japanese intellectuals to meet missionaries in China was not merely because of newspapers. It was also because of Chinese language books about Western science, technology, and institutions that missionaries published as pre-evangelistic tools. Initially, Japanese intellectuals were far more interested in missionary publications than Chinese intellectuals were. Thus, technical terms coined by missionaries and their Chinese colleagues first became popular in Japan. After the Japanese defeated Russia, Chinese students began studying in Japan, where they learned these neologisms and brought them back to China (Masini 2003).

[76] In the US, Heco was primarily helped by Catholics and became Catholic there. In Japan he maintained close relations with both Protests and Catholics.

[77] Kishida traveled with Hepburn to the *American Missionary Press* in Shanghai, where he met William Gamble and several rescued Japanese sailors who worked at the press. He, and other Japanese visitors, learned about missionary periodicals, printing technology and Japanese fonts (Fogel 2003; Komiyama 2019a; Liu 2009a). The first foreigner to print a Japanese newspaper was the missionary/chaplain Rev. Buckworth Bailey in 1867 (Huffman 1997:410; Kawabé 1921:41). The first daily newspaper in Japan used font purchased from the *American Mission Press* in Shanghai and expanded the font using techniques taught by the missionary William Gamble (Ishizaki 2019).

newspaper (Huffman 1997:30–40, 410; Murayama 2007:64). Protestants continued to play an oversized role in late Japanese journalism, especially among those critical of the state (Huffman 1997:244, 255, 295; Scheiner 2002).

Similarly, in Korea, Philip Jaisohn/Sŏ Chaep'p'il formed the Independence Club and printed the first privately-printed Korean-language newspaper (the *Independent*).[78] He was a teacher at a Methodist mission school and published the *Independent* on the Methodist *Trilingual Press*. The mission provided trained printing staff free of charge and they continued to print the newspaper after Sŏ Chaep'p'il fled the country (Davis 1988). In fact, the first three independent Korean periodicals were all linked to the Independence Club and published at the Methodist press (Weems 1971:176–77). The editor of the fourth Korean-language newspaper (*Cheguk Sinmun*) Syng-man Rhee, was a graduate of the Methodist school. The co-founder of the fifth, Namkung Ŏk became a Christian and a teacher at a Presbyterian women's school (Ehwa) (Academy of Korean Studies 2024). There are probably additional connections with Protestant missionaries I have not discovered, but missionary influence was pervasive.

British, America, and Japanese non-missionary printers also helped expand newspapers, but they were far less influential. Moreover, they are interpretable as secondary diffusions via Protestant influence in the UK and US, and Protestant missionary influence on people like Fukuzawa Yukichi in Japan. Fukuzawa traveled to the US and Europe and had extensive contact with Protestant missionaries, even though he was at times hostile to Christianity.

Tantric Buddhist societies mirror the East Asian pattern. Both Tibetans and Bhutanese printed before Europeans did, but into the 20th century non-missionary printing was universally Buddhist (Bray 1988; Diemberger et al. 2016; Gyaltsen 2016; Sawerthal 2018). The first Tibetan-language newspaper was printed 1904-1910 by August Hermann Franke, a Moravian missionary (and reestablished 1927-1947, 1952-53).[79] The newspaper had little religious content, but Franke wanted to accustom Tibetans to reading non-Buddhist texts and to reading to learn information rather than to make merit (Beszterda 2014:239; Bray 1988:59). Similarly, the first Tibetan-language newspaper printed by a Tibetan (the *Melong*/Tibetan Mirror 1925-1963) was

[78] An earlier government gazette used Literary Sinitic (*Wenyen*) and mixed script (Literary Sinitic with *Hangul* markers to indicate Korean grammatical features). It was encouraged by the Japanese polymath Fukuzawa Yukichi and Korean students returning from Japan; Fukuzawa spent significant time in the US and Europe and the students had significant contact with Protestant missionaries in Japan.
[79] The Moravians published a second newspaper, Kyeland News, 1927-1935.

printed by a Moravian convert, Gergan Dorje Tharchin. The *Melong* was circulated in many regions of the Tibetan world (including Ladakh, Bhutan, Sikkim, and Lhasa), and included many elite Tibetan readers. The 13th & 14th Dalai Lama read it regularly and donated money to support it (Holmes-Tagchungdarpa 2014; Sawerthal 2018; Willock 2016).

However, both Bhutan[80] and Tibet banned missionaries. Thus, missionaries worked from boarder-lands in China and India. Few Bhutanese or Tibetans converted and the religious elite was never threatened until the Chinese invaded Tibet in the 1950s (Shakya 2004:40). Thus, the first Tibetan 'newspaper' printed by a non-Protestant Tibetan was a government gazette, *Rawang* (Free Tibet). It was founded in 1962 by the Tibetan government-in-exile and edited by the Dalai Lama's older brother (Beszterda 2014:239). Similarly, the first Bhutanese 'newspaper' was a government gazette founded in 1986 (Bowman 2000:387). Throughout East and Central Asia, the active use of printing for over a millennium was not sufficient to foster newspapers, a Habermasian public sphere, or many of the other outcomes attributed to printing.

IV. Conclusion:

Scholars often claim printing spurred nationalism, the public sphere, mass literacy, rapid scientific innovation, and so on (Anderson 2006; Eisenstein 1980; Habermas 1989; McLuhan et al. 2011; Van Zanden 2009). But none of these things happened in East Asia, Central Asia, or East Europe until hundreds of years after printing arrived (Elverskog 2016; Marker 1982; McDermott and Burke 2015). The Japanese printed for about 800 years before Catholic missionaries arrived, but in 1592 Catholic missionaries printed the first secular literature in the Japanese language (Kornicki 2000:122–27, 2013:609).[81] Similarly, the Mongols printed long before Europeans, but this printing was primarily to make Buddhist merit and project state power. Thus, it had almost no social impact. Illiteracy was widespread, and there were no newspapers, no rapid technological change, etc. (Elverskog 2016). Technology alone was not sufficient to induce social change.

Religious ideas shaped who considered printing valuable, how they used it, and what its consequences were. When religious groups used printing to proselytize, their competitors either

[80] The Bhutanese were as exposed to Protestant Tibetan-language printing as other Tibetans, despite the distinct name. The Bhutanese elite wrote in Classical Tibetan and Bhutan was much closer to Kalimpong (where the Tibetan Mirror was printed) than Lhasa was.

[81] Japanese Zen Buddhist monks previously printed some 'secular' Tang poems and Confucian texts, but they were in *Wenyen* with few reading marks to help Japanese readers understanding the texts (Kornicki 2000:122–23).

printing or printing in new ways. We would expect the beginning of printing, the expansion-rate of printing, the rise of newspapers, etc. to have multiple causes and require statistical analysis to identify. However, the association between particular religions and these outcomes is so consistent we can discuss necessary and sufficient conditions without narrow spatial or temporal scope conditions. When Protestant missionaries were free to print and convert, their arrival was *sufficient* to initiate local printing, independent vernacular newspapers, public-facing libraries, education for women and the poor, the introduction of word-spacing and clarifying punctuation,[82] and a shift in writing towards spoken language. No other factor was *sufficient* to cause these outcomes. Direct Protestant competition may not have been *necessary*. I have found a few examples where secondary diffusion is a more plausible explanation, e.g., in 1874 the Sultan of Khiva began printing poems to give as gifts to elite guests. I have found no missionary catalyst for his choice. However, before 1874, Protestant competition was necessary, or close to necessary, for societies to start printing. Moreover, until at least the late 19th century Protestant missions was necessary for newspapers, language reform, mass education movements, and other outcomes traditionally attributed to printing.

Scholars often claim printing transformed societies, but printing's impact was at best conjunctural. Printing enabled social transformations, but identical technology had different outcomes in different religious contexts. Thus, although economic development, the industrial revolution, democracy, nationalism, the public sphere, etc. have multiple causes, and a brief summary of 5,000 years of global history has unavoidable gaps, perhaps social scientists need to pay greater attention to religious beliefs and non-violent religious competition in their models of long-term economic and political change. Technological and economic development did not cause a singular, teleological, 'modernity.' There are multiple actual and possible 'modernities' we cannot understand without taking history, culture, and religion seriously.

Works Cited:

Abdulrazak, Fawzi. 1990. *The Kingdom of the Book: The History of Printing as an Agency of Change in Morocco between 1865 and 1912*. Boston: Boston University.

Academy of Korean Studies. 2024. *한국민족문화대백과사전 [Encyclopedia of Korean Culture]*. Seoul: Academy of Korean Studies.

[82] Punctuation like periods, commas, semicolons, quotation marks, question marks, exclamation marks, that clarify meaning, rather than marks for suggested pauses during oral reading or that indicate a major change in topic.

Adalian, Rouben. 1980. “The Armenian Colony of Egypt During the Reign of Muhammad Ali (1805-1848).” *The Armenian Review* 33(2):115–44.

Agten, Els, and Wim François. 2018. “The Council of Trent and Vernacular Bible Reading: What Happened in the Build-Up to and during the Fourth Session (1546)?” Pp. 101–30 in *The Council of Trent: Reform and Controversy in Europe and Beyond (1545-1700)*. Vol. 1, edited by V. Soen. Göttingen: Vandenhoeck & Ruprecht.

Ahn, Daehoe. 2023. “Late Chosŏn Korean Intellectual Discourse on the Discrepancy between Speech and Writing.” P. 506 in *Cosmopolitan and Vernacular in the World of Wen 文*, edited by R. King. Leiden: Brill.

Aksoy, Şule, and Rachel Milstein. 2000. “A Collection of Thirteenth-Century Illustrated Hajj Certificates.” Pp. 101–34 in *M. Uğur Derman 65 Yaş Armağan Kitabı*, edited by I. C. Schick. Istanbul: Sabanci Universitesi.

Albouy, David Y. 2012. “The Colonial Origins of Comparative Development: An Empirical Investigation: Comment.” *American Economic Review* 102(6):3059–76.

Aldridge, Boone. 2018. *For the Gospel’s Sake: The Rise of the Wycliffe Bible Translators and the Summer Institute of Linguistics*. Grand Rapids: Wm. B. Eerdmans Publishing.

Allsen, Thomas T. 2001. *Culture and Conquest in Mongol Eurasia*. New York: Cambridge University Press.

Altman, Albert. 1965. “The Emergence of the Press in Meiji Japan.” Ph.D. Dissertation, Princeton University.

American Bible Society. 1913. *Annual Report of the American Bible Society*. Vol. 97. New York: American Bible Society.

Anderson, Benedict. 2006. *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. London: Verso.

Aslanian, Sebouh David. 2014a. *From the Indian Ocean to the Mediterranean: The Global Trade Networks of Armenian Merchants from New Julfa*. Berkeley: University of California Press.

Aslanian, Sebouh David. 2014b. “The Early Arrival of Print in Safavid Iran: New Light on the First Armenian Printing Press in New Julfa.” *Handes Amsorya* 381–468.

Audétat, Fritz. 1952. “La Bible En Laotien.” Pp. 11–13 in *Jubilé de la mission au Laos, 1902-1952*. Vevey: Mission evangélique au Laos.

Audétat, Fritz. 1954. “The Bible in Laotian.” *Occasional Bulletin of the Missionary Research Library* 5(6):11–12.

Bahl, Christopher D. 2018. “Histories of Circulation: Sharing Arabic Manuscripts across the Western Indian Ocean, 1400-1700.” Ph.D. Dissertation, SOAS University of London.

Banks, Joyce. 2004. “The BFBS and Native Language Literature in Nineteenth-Century Canada.” Pp. 316–26 in *Sowing the Word*, edited by S. K. Batalden, K. Cann, and J. Dean. Sheffield: Sheffield Phoenix Press.

Banks, Joyce M. 1983. “The Printing of the Cree Bible.” *Papers of The Bibliographical Society of Canada* 22(1):12–24.

Barclay, John. 2009. “The Church in Nepal: Analysis of Gestation and Growth.” *International Bulletin of Missionary Research* 33(4):189–94.

Barrett, David B., George T. Kurian, and Todd M. Johnson. 2001. *World Christian Encyclopedia*. 2nd ed. Oxford: Oxford University Press.

Barrett, TH. 2005. “Religion and the First Recorded Print Run: Luoyang, July, 855.” *Bulletin of the School of Oriental and African Studies, University of London* 455–61.

Barrett, Timothy Hugh. 2001. “The Rise and Spread of Printing: A New Account of Religious Factors.” *SOAS Working Papers in the Study of Religions* 1–40.

Barrett, Timothy Hugh. 2008. *The Woman Who Discovered Printing*. New Haven: Yale University Press.

Barrett, Timothy Hugh. 2012. *From Religious Ideology to Political Expediency in Early Printing: An Aspect of Buddho-Daoist Rivalry*. Minnow Press.

Bastian, Jean-Pierre. 1992. “Protestantism in Latin America.” in *The Church in Latin America 1492-1992*, edited by E. Dussel. Maryknoll, NY: Orbis Books.

Batalden, Stephen K. 2004. “The BFBS Petersburg Agency and Russian Biblical Translation, 1856-1875.” Pp. 169–96 in *Sowing the Word*, edited by S. K. Batalden, K. Cann, and J. Dean. Sheffield Phoenix Press.

Batalden, Stephen K., Kathleen Cann, and John Dean, eds. 2004. *Sowing the Word: The Cultural Impact of the British and Foreign Bible Society, 1804-2004*. Sheffield: Sheffield Phoenix Press.

Bate, Bernard. 2021. *Protestant Textuality and the Tamil Modern: Political Oratory and the Social Imaginary in South Asia*. Stanford University Press.

Baten, Joerg. 2022. *Schooling, Literacy and Numeracy in 19th Century Europe: Long-Term Development and Hurdles to Efficient Schooling*. ED/GEMR/MRT/2022/SL/P9. Background Paper for Global Education Monitoring Report 2020. UNESCO.

Baten, Joerg, and Jan Luiten Van Zanden. 2008. “Book Production and the Onset of Modern Economic Growth.” *Journal of Economic Growth* 13:217–35. doi:https://doi.org/10.1007/s10887-008-9031-9.

Becker, Sascha O., and Ludger Woessmann. 2009. “Was Weber Wrong? A Human Capital Theory of Protestant Economic History.” *The Quarterly Journal of Economics* 124(2):531–96.

Bellér-Hann, Ildiko, Birgit N. Schlyter, and Jun Sugawara. 2016. *Kashgar Revisited: Uyghur Studies in Memory of Ambassador Gunnar Jarring*. Leiden: Brill.

Ben Naeh, Yaron. 2001. “Hebrew Printing Houses in the Ottoman Empire.” Pp. 73–96 in *Jewish Journalism and Printing Houses in the Ottoman Empire and Modern Turkey*. Istanbul: Isis Press.

Bennett, Adrian A. 1983. *Missionary Journalist in China: Young J. Allen and His Magazines, 1860-1883*. Athens: University of Georgia Press.

Beszterda, Rafal. 2014. *Moravian Brethren and Himalayan Cultures: Evangelisation, Society, Industry*. New Delhi: Munshiram Manoharlal Publishers.

Bhattarai, Govinda Raj. 2017. “A Brief Survey of Translation in Nepali.” Pp. 207–23 in *History of Translation in India*, edited by T. Khan. Mysuru: National Translation Mission, Central Institute of Indian Languages.

Bigandet, Paul Ambroise. 1887. *An Outline of the History of the Catholic Burmese Mission. From the Year 1720-1887*. Rangoon: Hanthawaddy Press.

Black, Michael H. 2000. *Cambridge University Press 1584-1984*. Cambridge University Press.

Blackburn, Stuart. 2003. *Print, Folklore, and Nationalism in Colonial South India*. Delhi: Permanent Black.

Bloom, Jonathan M. 2001. *Paper before Print: The History and Impact of Paper in the Islamic World*. New Haven: Yale University Press.

Blühm, Elger, and Hartwig Gebhardt. 1987. “Presse Und Geschichte II.” *Neue Beiträge Zur Historischen Kommunikationsforschung*.

Bodel, John P. 1983. *Roman Brick Stamps in the Kelsey Museum*. Kelsey Museum of Archaeology Studies. University of Michigan Press.

Boerner, Lars, Jared Rubin, and Battista Severgnini. 2021. “A Time to Print, a Time to Reform.” *European Economic Review* 138:103826.

Bösch, Frank. 2022. *Mass Media and Historical Change: Germany in International Perspective, 1400 to the Present*. New York: Berghahn Books.

Bowman, John S. 2000. *Columbia Chronologies of Asian History and Culture*. New York: Columbia University Press.

Brancaccio, Pia. 2005. "Sātavāhana Terracottas: Connections with the Hellenistic Tradition." *East and West* 55(1/4):55–69.

Bray, John. 1988. "AH Francke's 'La Dvags Kyi Akhbar': The First Tibetan Newspaper." *The Tibet Journal* 13(3):58–63.

Brenner, Louis, and Murray Last. 1985. "The Role of Language in West African Islam." *Africa* 55(4):432–46.

Bretfeld-Wolf, Ann-Kathrin. 2017. "Hoisted by Their Own Petard: The Emergence of Sri Lankan Buddhist Printing and Counter-Christian Activities." *Kervan: International Journal of Afro-Asiatic Studies* (21):339–56.

Brodeur, Abel, Nikolai Cook, and Anthony Heyes. 2020. "Methods Matter: P-Hacking and Publication Bias in Causal Analysis in Economics." *American Economic Review* 110(11):3634–60.

Brokaw, Cynthia. 2026. "Premodern Chinese Printing Technology and Book Culture." Pp. 105–37 in *From Jikji to Gutenberg: The Origins of Book Printing from Moveable Type*, edited by C. A. Baker and M. Silverman. Ann Arbor: Legacy Press.

Bronkhorst, Johannes. 2011. "The Spread of Sanskrit in Southeast Asia." Pp. 263–75 in *Early Interactions between South and Southeast Asia*, edited by P.-Y. Manguin, A. Mani, and G. Wade. Singapore: Institute of Southeast Asian Studies.

Bronkhorst, Johannes. 2014. "Misunderstood Origins: How Buddhism Fooled Modern Scholarship and Itself." Pp. 307–25 in *The Complex Heritage of Early India. Essays in Memory of RS Sharma*, edited by D. N. Jha. New Delhi: Manohar.

Bruce, Steve. 2004. "Did Protestantism Create Democracy?" *Democratization* 11(4):3–20.

Burton, J. W. [John Wear]. 1930. *Missionary Survey of the Pacific Islands*. London: World Dominion Press.

Calacday, Jethro. 2021. "Was the Bible an Anting-Anting? Philippines." University of Edinburgh.

Calhoun, Craig J., ed. 2011. *Habermas and the Public Sphere*. 2nd ed. Cambridge, Mass.: MIT Press.

Caprio, Mark, and Koichiro Matsuda. 2017. "Introduction." Pp. xv–xxxix in *Japan and the Pacific, 1540–1920: Threat and Opportunity*. London: Routledge.

Carano, Paul, and Pedro C. Sanchez. 1964. *A Complete History of Guam*. Tokyo: Charles E. Tuttle.

Cass, Philip. 1997. “The Pacific Mission Press.” *Pacific Journalism Review* 4(1):105–14.

Chaffee, John W. 2018. *The Muslim Merchants of Premodern China: The History of a Maritime Asian Trade Diaspora, 750–1400*. Cambridge University Press.

Chakravorty, Swapan. 2004. “Purity and Print: A Note on Nineteenth-Century Bengali Prose.” Pp. 197–226 in *Print Areas; Book History in India*, edited by A. Gupta and S. Chakravorty. Delhi: Permanent Black.

Chalmers, Rhoderick. 2004. “When Folk Culture Met Print Culture: Some Thoughts on the Commercialisation, Transformation, and Propagation of Traditional Genres in Nepali.” *Contributions to Nepalese Studies* 31(2):243–56.

Chalmers, Rhoderick Alasdair Macdonald. 2003. “‘We Nepalis’: Language, Literature and the Formation of a Nepali Public Sphere in India, 1914-1940.” Ph.D. Dissertation, University of London, School of Oriental and African Studies.

Chapin, Helen Geracimos. 1996. *Shaping History: The Role of Newspapers in Hawaii*. University of Hawaii Press.

Chen, Chao. 2006. “The Effect of the Missionary Newspapers and Periodicals on the Development of Modern China′ s Press Industry.” *Journal of Fujian Institute of Education* 4.

Chia, Lucille. 2011. “Chinese Books and Printing in the Early Spanish Philippines.” Pp. 259–82 in *Chinese Circulations: Capital, Commodities, and Networks in Southeast Asia*, edited by E. Tagliacozzo and W.-C. Chang. Durham, NC: Duke University Press.

Ch’oe, Yŏng-Ho. 1974. “Commoners in Early Yi Dynasty Civil Examinations: An Aspect of Korean Social Structure, 1392–1600.” *The Journal of Asian Studies* 33(4):611–31.

Clemente, Michela. 2018. “Mapping Fifteenth and Sixteenth Centuries Buddhist Printed Works in South-Western Tibet: A Historical and Literary Reading.” Pp. 19–41 in *Dialectics of Buddhist Metaphysics in East Asia: Tibet and Japan: an Inedited Comparison*, edited by D. Rossi. Pisa: Fabrizio Serra Editore.

Clisby, Edward. 2001. *Marist Brothers and the Maori 1838 – 1988*. Auckland: Marist Publications.

Coakley, JF. 2002. “Printing in Syriac, 1539-1985.” Pp. 93–115 in *Middle Eastern Languages and the Print Revolution*, edited by E.-M. Hanebutt-Benz. Mainz: Gutenberg-Museum.

Cohen, I. Bernard. 1990. *Puritanism and the Rise of Modern Science: The Merton Thesis*. Rutgers University Press.

Conley, Timothy G., and Morgan Kelly. 2025. “The Standard Errors of Persistence.” *Journal of International Economics* 153:104027.

Cribb, Joe. 2003. “The Origins of the Indian Coinage Tradition.” *South Asian Studies* 19(1):1–19.

Curnow, Jenifer, Ngapare Kaihine Hopa, and Jane McRae. 2002. *Rere Atu, Taku Manu!: Discovering History, Language, and Politics in the Maori-Language Newspapers*. Auckland University Press.

Daniels, Peter T. 2023. “Non-Roman Scripts of Africa.” Pp. 45–58 in *Handbook of Literacy in Africa*, edited by R. M. Joshi, C. A. McBride, B. Kaani, and G. Elbeheri. Springer.

Darlow, Thomas Herbert, and Horace Frederick Moule. 1911. *Historical Catalogue of the Printed Editions of Holy Scripture in the Library of the British and Foreign Bible Society*. London: Bible House.

Davis, Daniel M. 1988. *The Life and Thought of Henry Gerhard Appenzeller (1858–1902)*. New York: Edwin Mellen.

De Lange, William. 1998. *A History of Japanese Journalism: Japan’s Press Club as the Last Obstacle to a Mature Press*. Richmond, Surrey: Japan Library.

De Leede, Bente, and Lara Wijesuriya. 2021. “Negotiating Conversion: Religion and Family Law in 18th Century Dutch Colonial Sri Lanka.” University of Edinburgh.

Dewan, Dick B. 1991. *Education in the Darjeeling Hills: An Historical Survey, 1835-1985*. New Delhi: South Asia Books.

Diemberger, Hildegard, Franz-Karl Ehrhard, and Peter F. Kornicki, eds. 2016. *Tibetan Printing: Comparison, Continuities and Change*. Leiden: Brill.

Dieterle, Steven G., and Andy Snell. 2016. “A Simple Diagnostic to Investigate Instrument Validity and Heterogeneous Effects When Using a Single Instrument.” *Labour Economics* 42:76–86.

Dippel, Christian, and Bryan Leonard. 2021. “Not-so-Natural Experiments in History.” *Journal of Historical Political Economy* 1(1):1–30.

Dittmar, Jeremiah E. 2011. “Information Technology and Economic Change: The Impact of the Printing Press.” *The Quarterly Journal of Economics* 126(3):1133–72.

Dixon, David Norman. 2001. “Inventing the African Nation: The Influence of Missionary Publishing on Language, Literacy and Identity in Colonial Kenya, 1895--1963.” Ph.D. Dissertation, Indiana University, Bloomington.

D’Ottone, Arianna. 2013. “A Far Eastern Type of Print Technique for Islamic Amulets from the Mediterranean: An Unpublished Example.” *Scripta* 67–74.

D’Ottone Rambach, Arianna. 2020. “Unpublished Exemplars of Block-Printed Arabic Amulets from the Qubbat al-Khazna.” Pp. 409–38 in *The Damascus Fragments: Towards a*

History of the Qubbat al-khazna Corpus of Manuscripts and Documents, edited by A. D'Ottone Rambach, K. Hirschler, and R. Vollandt. Baden-Baden: Ergon-Verlag.

Dunch, Ryan. 2001. "Mission Schools and Modernity: The Anglo-Chinese College, Fuzhou." Pp. 109–39 in *Education, culture, and identity in twentieth-century China*. Ann Arbor: University of Michigan Press.

Dunch, Ryan. 2003. "Missionary Science as Natural Theology in China and Japan." *Harold White Fellowships Lecture*.

Duverdier, Gérald. 1980. "La Transmission de l'imprimerie En Thaïlande: Du Catéchisme de 1796 Aux Impressions Bouddhiques Sur Feuilles de Latanier." *Bulletin de l'École Française d'Extrême-Orient* 68:209–59.

Eaton, Richard M. 2019. "The Persian Cosmopolis (900–1900) and the Sanskrit Cosmopolis (400–1400)." Pp. 63–83 in *The Persianate World: Rethinking a Shared Sphere*, edited by A. Amanat and A. Ashraf. Leiden: Brill.

Edwards, Jeremy. 2021. "Did Protestantism Promote Prosperity via Higher Human Capital? Replicating the Becker–Woessmann (2009) Results." *Journal of Applied Econometrics* 36(6):853–58.

Eisenstein, Elizabeth L. 1980. *The Printing Press as an Agent of Change*. Cambridge University Press.

Eliot, Simon. 2007. "Some Material Factors in Literary Culture 2500bce-1900ce." in *Literary Cultures and the Material Book*. British Library Publishing.

Elverskog, Johan. 2010. "A Buddhist Origin for Islamic Blockprinting?" *The Muslim World* 100(2-3):287–301.

Elverskog, Johan. 2016. "The Gutenberg Fallacy and the History of Printing among the Mongols." Pp. 21–37 in *Tibetan Printing: Comparison, Continuities, and Change*. Leiden: Brill.

Emmer, Pieter C., and Jos J. L. Gommans. 2021. *The Dutch Overseas Empire, 1600–1800*. Cambridge University Press.

Emmrick, Christoph. 2021. "From Manuscript to Print in South and Southeast Asia." in *Oxford Research Encyclopedia of Religion*. Oxford University Press.

Erginbaş, Vefa. 2014. "Enlightenment in the Ottoman Context: İbrahim Müteferrika and His Intellectual Landscape." Pp. 53–100 in *Historical Aspects of Printing and Publishing in Languages of the Middle East*, edited by G. Roper. Leiden: Brill.

Erler, Mary C. 2014. "The Laity." Pp. 134–49 in *A Companion to the Early Printed Book in Britain, 1476-1558*, edited by V. Gillespie and S. Powell. Woodbridge: Boydell & Brewer.

Farnham, J. M. W. 1890. “Periodical Literature.” Pp. 555–59, 720–24 in *Records of the General Conference of the Protestant Missionaries in China*, edited by W. J. Lewis, W. T. A. Barber, and J. R. Hykes. Shanghai: American Presbyterian Mission Press.

Fea, John. 2016. *The Bible Cause: A History of the American Bible Society*. New York: Oxford University Press.

Febvre, Lucien, and Henri-Jean Martin. 1976. *The Coming of the Book*. London: Verso.

Feodorov, Ioana. 2013. “Beginnings of Arabic Printing in Ottoman Syria (1706–1711). The Romanians’ Part in Athanasius Dabbās’s Achievements.” *ARAM* 25(1–2):231–53.

Feodorov, Ioana. 2023. *Arabic Printing for the Christians in Ottoman Lands: The East-European Connection*. de Gruyter.

Feodorov, Ioana. 2024. “Preface: 18th-Century Arabic Printing for the Arab Christians: Most Roads Lead to Istanbul.” P. VII–XVII in *Arabic-Type Books Printed in Wallachia, Istanbul, and Beyond*. De Gruyter.

Finch, Andrew J. 2017. “Translating Christianity and Buddhism: Catholic Missionaries in Eighteenth-and Nineteenth-Century Burma.” *Studies in Church History* 53:324–37.

Findley, Carter Vaughn. 1989. “Knowledge and Education in the Modern Middle East: A Comparative View.” Pp. 130–54 in *The Modern Economic and Social History of the Middle East in Its World Context*, edited by G. Sabagh. Cambridge University Press.

Floor, Willem M. [1990] 2017. “ČĀP.” Pp. 760–64 in *Encyclopaedia Iranica*. Vol. IV, 7.

Fogel, Joshua. 2015. “Japanese Travelers to Shanghai in the 1860s.” Pp. 276–96 in *Between China and Japan*. Leiden: Brill.

Fogel, Joshua A. 2003. “Japanese Travelers to Shanghai in the 1860s.” Pp. 79–99 in *Historiography and Japanese Consciousness of Values and Norms*, edited by J. A. Fogel and J. C. Baxter. Kyoto: International Research Center for Japanese Studies.

Formigatti, Camillo. 2016. “A Forgotten Chapter in South Asian Book History? A Bird’s Eye View of Sanskrit Print Culture.” Pp. 72–134 in *Tibetan Printing: Comparison, Continuities, and Change*. Leiden: Brill.

François, Wim. 2018. “Vernacular Bible Reading in Late Medieval and Early Modern Europe: The ‘Catholic’ Position Revisited.” *The Catholic Historical Review* 23–56.

Frederick, Howard H., and Chandrika K. De Alwis. 2009. “Western Propaganda Models Reconsidered: The ‘Catherine Wheel’ of Censorship Circumvention in Developing World Internal Conflicts.” *Asian Journal of Communication* 19(1):59–79.

Füssel, Stephan. 2020. *Gutenberg and the Impact of Printing*. Routledge.

Gabbay, Uri, Marcel Sigrist, Russell Hobson, and Abraham Winitzer. 2013. “Bricks with Cuneiform Inscriptions, Probably from Tell al-Wilaya.” *Akkadica* 134(1):77–82.

Galewicz, Cezary. 2019. “The Missionaries in the Race for Putting the Veda to Print.” *Cracow Indological Studies* 21(1):137–64.

Galewicz, Cezary. 2021. *Kingdoms of Memory: Empires of Ink: The Veda and the Regional Print Cultures of Colonial India*. Kraków: Jagiellonian University Press.

Gallego, Francisco A., and Robert D. Woodberry. 2010. “Christian Missionaries and Education in Former African Colonies: How Competition Mattered.” *Journal of African Economies* 19(3):294–319.

Gargaro, S., M. Cigola, A. Gallozzi, and R. Catuogno. 2019. “Relationships Between Paper Mills and Technological Evolution of Paper Production.” *Explorations in the History and Heritage of Machines and Mechanisms* 37:144–59.

Garrett, John. 1985. *To Live Among the Stars: Christian Origins in Oceania*. 2nd ed. Suva, Fiji: Institute of Pacific Studies.

Garrett, John. 1992. *Footsteps in the Sea: Christianity in Oceania to World War II*. Suva, Fiji: Institute of Pacific Studies.

Garza, Rosa Dalia Valdez. 2019. “The History of Latin American Print Culture: 18th and Early 19th Centuries (Censorship and Public Sphere Before and After Independence War).” Pp. 49–64 in *Oxford Research Encyclopedia of Literature*. Oxford University Press.

Gentz, Natascha. 2007. “Useful Knowledge and Appropriate Communication: The Field of Journalistic Production in Late Nineteenth-Century China” edited by R. G. Wagner. *Joining the Global Public: Word, Image, and City in Early Chinese Newspaper 1870-1910* 47–104.

Ghori, S. A. K., and A. Rahman. 1966. “Paper Technology in Medieval India.” *Indian Journal of History of Science* 1(2):133–49.

Gnirrep, Kees, and John A. Lane. 1997. “Standing Type or Stereotype in the Seventeenth Century’.” *Quaerendo* 27(1):19–45.

Gombrich, Richard. 1988. *Theravāda Buddhism: A Social History from Ancient Benares to Modern Colombo*. London: Routledge.

Gombrich, Richard, and Gananath Obeyesekere. 1988. *Buddhism Transformed: Religious Change in Sri Lanka*. Princeton: Princeton University Press.

Gotoh, Yoshiro, and Takeshi Yokomizo. 2002. “A Research for the Reasons behind Mr. William Gamble’s Arrival in Japan in 1869.” *Proceedings of the Annual Conference of the Japanese Society for the Science of Design* 49:142–142. doi:10.11247/jssd.49.0.142.0.

Gottlieb, Nanette. 2018. *Language and the Modern State: The Reform of Written Japanese*. London: Routledge.

Graff, Harvey J. 1987. *The Legacies of Literacy*. Bloomington: Indiana University Press.

Green, Nile. 2009. "Journeymen, Middlemen: Travel, Transculture, and Technology in the Origins of Muslim Printing." *International Journal of Middle East Studies* 41(2):203–24.

Green, Nile. 2010. "Persian Print and the Stanhope Revolution: Industrialization, Evangelicalism, and the Birth of Printing in Early Qajar Iran." *Comparative Studies of South Asia, Africa and the Middle East* 30(3):473–90.

Green, Nile. 2011. *Bombay Islam: The Religious Economy of the West Indian Ocean, 1840–1915*. New York: Cambridge University Press.

Green, Nile. 2015. *The Love of Strangers: What Six Muslim Students Learned in Jane Austen's London*. Princeton University Press.

Green, Nile. 2017. "Lost Voices from the Indian Ocean." *Los Angelese Revew of Books*, January 20.

Greif, Avner, Joel Mokyr, and Guido Tabellini. 2025. *Two Paths to Prosperity: Culture and Institutions in Europe and China, 1000-2000*. Princeton University Press.

Gribble, R. L. 1963. "Printing in Fiji." *Transactions and Proceedings of the Fiji Society* 9(2):130–43.

Gupta, Abhijit. 2013. "The History of the Book in the Indian Subcontinent." Pp. 553–72 in *The Book: A Global History*, edited by M. F. Suarez, S.J. and H. R. Woudhuysen. Oxford University Press.

Gupta, Abhijit. 2021. *The Spread of Print in Colonial India: Into the Hinterland*. Cambridge University Press.

Gupta, Abhijit, and Swapan Chakravorty. 2004. "Under the Sign of the Book: Introducing Book History in India."." Pp. 1–16 in *Print Areas: Book History in India*. Delhi: Permanent Black.

Guzner, Bridget. 2013. "The History of the Book in Hungary." Pp. 452–60 in *The Book: A Global History*, edited by M. F. Suarez, S.J. and H. R. Woudhuysen. Oxford University Press.

Gyaltsen, Dorji. 2016. "Early Book Production and Printing in Bhutan." Pp. 369–93 in *Tibetan Printing: Comparison, Continuities, and Change*. Brill.

Habermas, Jürgen. 1989. *The Structural Transformation of the Public Sphere*. Cambridge, MA: MIT press.

Halkias, Georgios T. 2014. “When the Greeks Converted the Buddha: Asymmetrical Transfers of Knowledge in Indo-Greek Cultures.” Pp. 65–115 in *Religions and Trade*, edited by P. Wick and V. Rabens. Brill.

Hallewell, Laurence. 1982. *Books in Brazil: A History of the Publishing Trade*. Scarecrow Press.

Hallewell, Laurence. 1995. “The Brazilian Media: A Quincentennial Survey.” *Libri* 45(2):91–105.

Hallo, William W. 1982. “Review of ‘Cuneiform Brick Inscriptions in the British Museum, the Ashmolean Museum (Oxford), the City of Birmingham Museums and Art Gallery, and the City of Bristol Museum and Art Gallery.’” *Journal of Coneiform Studies* 34(1/2):112–17.

Hanebutt-Benz, Eva, Dagmar Glass, and Geoffrey Roper. 2002. *Middle Eastern Languages and the Print Revolution*. Gutenberg Museum Mainz.

Hannas, William C. 1997. *Asia’s Orthographic Dilemma*. University of Hawaii Press.

Harkin, Duncan. 1957. “The History of Word Counts.” *Babel* 3(3):113–24.

Harrison, Peter. 2007. *The Fall of Man and the Foundations of Science*. New York: Cambridge University Press.

Hart, V. C. 1901. “The Printing-Press in China.” *Acta Victoriana* 25:75–79.

Hartmann, Martin. 1899. *The Arabic Press of Egypt*. London: Luzac & Co.

Helgen, Erika. 2022. “The Historiography of Brazilian Evangelicals.” Baylor University, Waco, TX.

Hellmann-Rajanayagam, Dagmar. 1989. “Arumuka Navalar: Religious Reformer or National Leader of Eelam.” *The Indian Economic & Social History Review* 26(2):235–57.

Heyworth-Dunne, James. 1940. “Printing and Translations under Muḥammad Alī of Egypt: The Foundation of Modern Arabic.” *Journal of the Royal Asiatic Society* 72(3):325–49.

Heyworth-Dunne, James. 1968. *An Introduction to the History of Education in Modern Egypt*. London: Cass.

Hezel, S.J., Francis X. 2008. “The Church in Micronesia.” *Micronesian Counselor* (72):1–6.

Hinüber, Oskar von. 2015. “Manuscripts and Printing: South, Southeast, and Central Asia.” Pp. 944–58 in *Brill’s Encyclopedia of Buddhism*. Vol. 1. Leiden: Brill.

Hofheinz, Albrecht. 2018. “Review of ‘the Arabic Script in Africa.’” *Islamic Africa* 9:118–22.

Holmes-Tagchungdarpa, Amy. 2014. “Representations of Religion in The Tibet Mirror: The Newspaper as Religious Object and Patterns of Continuity and Rupture in Tibetan

Material Culture." Pp. 93–114 in *Material Culture and Asian Religions*, edited by B. Fleming and R. Mann. London: Routledge.

Holt, John C. 1981. "Sinhalese Sectarianism: Robes, Ploughs, and Revivals." *History of Religions* 20(4):368–75.

Hooykaas, Christiaan. 1963. "Books Made in Bali." *Bijdragen Tot de Taal-, Land-En Volkenkunde* 119(4):371–86.

Hourani, Albert Habib. 1983. *Arabic Thought in the Liberal Age: 1798 - 1939*. Cambridge: Cambridge University Press.

Howsam, Leslie. 1991. *Cheap Bibles: Nineteenth-Century Publishing and the British and Foreign Bible Society*. New York: Cambridge University Press.

Huang, Shih-Shan Susa. 2018. "Daoist Seals, Part 2: Classifying Different Types." *Journal of Daoist Studies* 11:46–82.

Huang, Shih-shan Susan. 2017. "Daoist Seals: Part 1: Activation and Fashioning." *Journal of Daoist Studies* 10:70–101.

Huang, Shih-shan Susan. 2024. *The Dynamic Spread of Buddhist Print Culture: Mapping Buddhist Book Roads in China and Its Neighbors*. Vol. 7. Brill.

Hudson, D. Dennis. 1992. "Arumuga Navalar and the Hindu Renaissance among the Tamils." Pp. 27–51 in *Religious Controversy in British India: Dialogues in South Asian languages*, edited by K. W. Jones. Albany: State University of New York Press.

Huffman, James L. 1997. *Creating a Public: People and Press in Meiji Japan*. University of Hawaii Press.

Hunter, Dard. 1978. *Papermaking: The History and Technique of an Ancient Craft*. New York: Dover Publications.

Hutt, Michael James. 1984. "Nepali: The Emergence of a National Language." Ph.D. Dissertation, SOAS, University of London.

Ibrahim, Vivian. 2013. *The Copts of Egypt: The Challenges of Modernisation and Identity*. New York: Tauris Academic Studies.

Igunma, Jana. 2013. "The History of the Book in Southeast Asia (2): The Mainland." Pp. 629–34 in *The Book: A Global History*, edited by M. F. Suarez, S.J. and H. R. Woudhuysen. Oxford University Press.

Ishak, Sidin Ahmad. 1992. "Malay Book Publishing and Printing in Malaya and Singapore 1807-1949." Ph.D. Dissertation, University of Stirling.

Ishizaki, Yasuko 石崎 康子. 2019. “ウィリアム・ギャンブルと横浜 [William Gamble and Yokohama].” *書物学 = Bibliology* 15:10–15.

Ismail, Ibrahim Bin. 1982. “Missionary Printing in Malacca 1815-1843.” *Libri* 32(3):206.

Ivarsson, Søren. 2008. *Creating Laos: The Making of a Lao Space between Indochina and Siam, 1860—1945*. Copenhagen: Nordic Institute of Asian Studies.

Jabbari, Alexander. 2023. *The Making of Persianate Modernity: Language and Literary History between Iran and India*. Vol. 25. Cambridge University Press.

Jacquet, Jr., Constant H. 1954. “The Swiss Brethren Mission in Laos.” *Occasional Bulletin of the Missionary Research Library* 5(6):9–11.

Javellana, René B. S. J. 1999. “The Jesuits and the Indigenous Peoples of the Philippines.” Pp. 418–38 in *The Jesuits: Cultures, Sciences, and the Arts 1540-1773*, edited by J. W. O’Malley S. J., G. A. Bailey, S. J. Harris, and T. F. Kennedy S. J. University of Toronto Press.

Johansson, Egil. 1977. *The History of Literacy in Sweden: In Comparison with Some Other Countries*. Umeå University.

Johnson, Eunice V. 2001. “Educational Reform in China, 1880–1910: Timothy Richard and His Vision for Higher Education.” Ph.D. Dissertation, University of Florida.

Johnson, Julie Greer. 1988. *The Book in the Americas: The Role of Books and Printing in the Development of Culture and Society in Colonial Latin America*. Providence, RI: The John Carter Brown Library.

Johnston, John Naley. 1996. “Role of Buddhism in the Development of Printing in Pre-Song China With Particular Reference to the Lei Feng Ta Dharani.” M.A. Thesis, University of Hawai’i, Manoa.

Jory, Patrick. 2000. “Books and the Nation: The Making of Thailand’s National Library.” *Journal of Southeast Asian Studies* 351–73.

Kan, Sergei. 2001. “Russian Orthodox Missionaries at Home and Abroad: The Case of Siberian and Alaskan Indigenous Peoples.” in *Missions, Conversion, and Tolerance in Tsarist Russia*, edited by R. P. Geraci and M. Khodarkovsky. Ithaca: Cornell University Press.

Kara, György. 2005. *Books of the Mongolian Nomads: More than Eight Centuries of Writing Mongolian*. Bloomington: Indiana University, Research Institute for Inner Asian Studies.

Kawabé, Kisaburō. 1921. *The Press and Politics in Japan*. University of Chicago Press.

Kersting, Felix, Iris Wohnsiedler, and Nikolaus Wolf. 2020. “Weber Revisited: The Protestant Ethic and the Spirit of Nationalism.” *The Journal of Economic History* 80(3):710–45.

Kesavan, Bellary Shamanna. 1985. *History of Printing and Publishing in India: A Story of Cultural Re-Awakening. Vol. 1. South Indian Origins of Printing and Its Efflorescence in Bengal*. New Delhi: National Book Trust.

Kesavan, Bellary Shamanna. 1988. *History of Printing and Publishing in India: A Story of Cultural Re-Awakening. Vol II, Origins of Printing and Publishing in Karnataka, Andhra and Kerala*. New Delhi: National Book Trust.

Khalid, Adeeb. 1992. "Muslim Printers in Tsarist Central Asia: A Research Note." *Central Asian Survey* 11(3):113–18.

Khan, M. Siddiq. 1961. "William Carey and the Serampore Books (1800—1834)." *Libri* 11(3):197–280.

Khan, Mofakhkhar H. 1976. "History of Printing in Bengali Characters up to 1866." Ph.D. Dissertation, SOAS, University of London.

Khan, Mofakhkhar Hussain. 1984. "The Printer of the Earliest Calcutta Calendar: Hicky or Kiernander?" *The Library* 6(2):174–76.

Khan, Mofakhkhar Hussain. 2001. *The Holy Qurʾān in South Asia: A Bio-Bibliographic Study of Translations of the Holy Qurʾān in 23 South Asian Languages*. Dhaka: Bibi Akhtar Prakãšanî.

King, Ross. 1998. "Nationalism and Language Reform in Korea: The Questione Della Lingua in Precolonial Korea." Pp. 33–72 in *Nationalism and the Construction of Korean Identity*, edited by H. I. Pai and T. R. Tangherline. Berkeley: Institute for East Asian Studies, University of California.

King, Ross. 2004. "Western Protestant Missionaries and the Origins of Korean Language Modernization." *Journal of International and Area Studies* 11(3):7–38.

Kiripolská, Marta. 1996. "A Description of the Mongolian Manuscripts and Blockprints in Prague Collections." *Acta Orientalia Academiae Scientiarum Hungaricae* 49(3):277–334.

Kohiyama, Rui. 2021. "'Were Wives Better Educated, Charms of Geisha Would Wane': The Dutch Reformed Church and Its Contribution to Women's Education in Meiji Japan." Presented at the Rutgers Meets Japan, March 5, Rutgers University.

Komiyama, Hiroshi [小宮山博史]. 2019a. "明朝体漢字活字の開発 [The Development of the Mincho Kanji Typeface]." https://www.dynacw.co.jp/fontstory/fontstory_komiyama.aspx.

Komiyama, Hiroshi [小宮山博史]. 2019b. "欧米人による明朝体活字の開発―活字見本から探る [The Development of Mincho Typeface by Westerners - Exploring from Type Samples]." *書物学 = Bibliology* 15:2–9.

Kornicki, Peter F. 2000. *The Book in Japan: A Cultural History from the Beginnings to the Nineteenth Century*. Honolulu: University of Hawai'i Press.

Kornicki, Peter F. 2004. "Block-Printing in Seventeenth-Century Japan: Evidence from a Newly Discovered Medical Text." Pp. 227–41 in *Print Areas: Book History in India*, edited by A. Gupta and S. Chakravorty. Delhi: Permanent Black.

Kornicki, Peter F. 2009. ""Having Difficulty with Chinese? The Rise of the Vernacular Book in Japan, Korea and Vietnam."" Cambridge University, Sandars Lecture. Sandars Lecture.

Kornicki, Peter F. 2013. "The History of the Book in Japan." Pp. 605–21 in *The Book: A Global History*, edited by M. F. Suarez, S.J. and H. R. Woudhuysen. Oxford University Press.

Kornicki, Peter F. 2014. "The Vernacularization of Buddhist Texts: From the Tangut Empire to Japan." Pp. 29–57 in *Rethinking East Asian Languages, Vernaculars, and Literacies, 1000–1919*, edited by B. A. Elman. Leiden: Brill.

Kornicki, Peter F. 2018. *Languages, Scripts, and Chinese Texts in East Asia*. Oxford: Oxford University Press.

Kourilsky, Gregory. 2018. "The Institut Bouddhique in Laos: Ambivalent Dynamics of a Colonial Project." Pp. 162–86 in *Theravada Buddhism in Colonial Contexts*, edited by T. Borchert. London: Routledge.

Koyama, Mark, and Jared Rubin. 2022. *How the World Became Rich: The Historical Origins of Economic Growth*. Cambridge, UK: Polity Press.

Kularatne, Tilak. 2006. *History of Printing and Publishing in Ceylon, 1736-1912*. Dehiwala: Tilak Kularatne.

Kulke, Hermann, Krishnasamy Kesavapany, and Vijay Sakhuja. 2009. *Nagapattinam to Suvarnadwipa: Reflections on the Chola Naval Expeditions to Southeast Asia*. Singapore: Institute of Southeast Asian Studies.

Laimana, John Kalei. 2011. "The Phenomenal Rise to Literacy in Hawai'i: Hawaiian Society in the Early Nineteenth Century." M.A. Thesis, University of Hawai'i, Manoa.

Laird, Michael Andrew. 1968. "The Contribution of Christian Missionaries to Education in Bengal, 1793-1837." Ph.D. Dissertation, SOAS, University of London.

Landau, Jacob M. 2014. "Hebrew Printing in Ottoman Istanbul." Pp. 21–29 in *The Studies on the Hebrew Language/İbrani Dili Üzerine Araştırmalar*, edited by A. Küçükler and H. Içen. Newcastle upon Tyne: Cambridge Scholars Publishing.

Le Pichon, Alain. 2006. *Béthanie & Nazareth: French Secrets from a British Colony*. Hong Kong Academy for Performing Arts.

Le Roux, Elizabeth. 2012. “Book History in the African World: The State of the Discipline.” *Book History* 15:248–300.

Lear, Shana D. 2009. “Examining Protestant Missionary Education in North China: Three Schools for Girls, 1872-1924.” M.A. Thesis, The Ohio State University, Columbus.

Lechner, Frank J., and John Boli. 2008. *World Culture: Origins and Consequences*. Nachdr. Oxford: Blackwell.

Ledyard, Gari Keith. 1966. “The Korean Language Reform of 1446: The Origin, Background, and Early History of the Korean Alphabet.” Ph.D. Dissertation, University of California, Berkeley.

Lent, John A. 1980. “The Missionary Press of Asia, 1550-1860.” *Communicatio Socialis* 14(2):119–41.

Leow, Rachel. 2016. *Taming Babel: Language in the Making of Malaysia*. New York: Cambridge University Press.

Lerner, Judith A. 2018. “A Prolegomenon to the Study of Pottery Stamps from Mes Aynak.” *Afghanistan* 1(2):239–56.

Leth, Göran. 1993. “A Protestant Public Sphere: The Early European Newspaper Press.” *Studies in Newspaper and Periodical History* 1(1–2):67–90.

Lewis, Bernard. 1961. *The Emergence of Modern Turkey*. 2nd ed. Oxford university press.

Liang, Teo Eng. 2009. *Malay Encounter During Benjamin Peach Keasberry’s Time in Singapore 1835 to 1875*. Center for the Study of Christianity in Asia.

Liao, Jing. 2006. “The Contributions of Nineteenth-Century Christian Missionaries to Chinese Library Reform.” *Libraries & the Cultural Record* 41(3):360–71.

Liao, Jing. 2009. “Chinese-American Alliances: American Professionalization and the Rise of the Modern Chinese Library System in the 1920s and 1930s.” *Library & Information History* 25(1):20–32.

Limapichart, Thanapol. 2009. “The Emergence of the Siamese Public Sphere: Colonial Modernity, Print Culture and the Practice of Criticism (1860s–1910s).” *South East Asia Research* 17(3):361–99.

Lin, Yan Naing. 2016. “Mandalay and the Printing Industry.” *Mandalay University Research Journal* 7:1–26.

Lin, Yan Niang. 2018. “The Newspapers of Mandalay and Their Impact.” *Mandalay University Research Journal* 10(9):311–37.

Lindenfeld, David. 2021. *World Christianity and Indigenous Experience: A Global History, 1500–2000*. Cambridge University Press.

Lingenfelter, Richard E. 1967. *Presses of the Pacific Islands 1817-1867: A History of the First Half Century of Printing in the Pacific Islands*. Los Angeles: Plantin Press.

Lipman, Jonathan N. 1997. *Familiar Strangers: A History of Muslims in Northwest China*. Seattle: University of Washington Press.

Liu, Jianhui. 2003. "Modernity Comes Out of Shanghai: The Formation and Development of an Information Network in the Bakumatsu-Restoration Period." Pp. 101–28 in *Historiography and Japanese Consciousness of Values and Norms*, edited by J. A. Fogel and J. C. Baxter. Kyoto: International Research Center for Japanese Studies.

Liu, Jianhui. 2009a. "Demon Capital Shanghai: The 'Modern' Experience of Japanese Intellectuals-Chapter 1: Samurai in Shanghai." *Sino-Japanese Studies* 16:48–60.

Liu, Jianhui. 2009b. "Demon Capital Shanghai: The 'Modern' Experience of Japanese Intellectuals-Chapter 2: Birth of an East Asian Information Network." *Sino-Japanese Studies* 16:61–78.

Liu, Jianhui. 2009c. "Demon Capital Shanghai: The 'Modern' Experience of Japanese Intellectuals-Chapter 3: Shanghai and the Opening of Japan (Part 1)." *Sino-Japanese Studies* 16:87–99.

Liu, Jianhui. 2010. "Demon Capital Shanghai: The 'Modern' Experience of Japanese Intellectuals-Chapter 6 The 'Modern City' and the Shōwa Period." *Sino-Japanese Studies* 17:1–16.

Lord, Donald C. 1969. *Mo Bradley and Thailand*. Grand Rapids: Eerdmans.

Lupas, Liana, and Erroll Franklin Rhodes. 1992. *Scriptures of the World: A Compilation of the 2,018 Languages in Which at Least One Book of the Bible Has Been Published Since the Bible Was First Printed by Johannes Gutenberg*. New York: United Bible Societies.

Lutz, Jessie Gregory. 2008. *Opening China: Karl FA Gützlaff and Sino-Western Relations, 1827-1852*. Grand Rapids: Eerdmans.

Mair, Victor H. 1994. "Buddhism and the Rise of the Written Vernacular in East Asia: The Making of National Languages." *The Journal of Asian Studies* 53(3):707–51.

Mairs, Rachel. 2014. "Models, Moulds and Mass Production: The Mechanics of Stylistic Influence from the Mediterranean to Bactria." *Ancient West & East* 13:175–95.

Mak, George Kam Wah. 2017. *Protestant Bible Translation and Mandarin as the National Language of China*. Leiden: Brill.

Mallick, Saptarshi. 2019. “Dig-Durshun: Bengal’s First Bengali Periodical.” *Vidyamandira Patrika* 101–10.

Manguin, Pierre-Yves, A. Mani, and Geoff Wade. 2011. *Early Interactions between South and Southeast Asia: Reflections on Cross-Cultural Exchange*. Singapore: Institute of Southeast Asian Studies.

Marashi, Afshin. 2015. “Print Culture and Its Publics: A Social History of Bookstores in Tehran, 1900–1950.” *International Journal of Middle East Studies* 47(1):89–108.

Marker, Gary. 1982. “Russia and the ‘Printing Revolution’: Notes and Observations.” *Slavic Review* 41(2):266–83.

Marzolph, Ulrich. 2007. “Persian Incunabula: A Definition and Assessment.” *Gutenberg-Jahrbuch* 82:205–20.

Marzolph, Ulrich. 2014. *The Printing Press as an Agent of Tradition in Iran*.

Masini, Federico. 2003. “Sino-Western-Japanese Lexical Exchanges in China between the Late Ming and the Late Qing Dynasties.” in *Historiography and Japanese Consciousness of Values and Norms*, edited by J. A. Fogel and J. C. Baxter. Kyoto: International Research Center for Japanese Studies.

Maung, U. Maung. 1976. “Nationalist Movements in Burma, 1920-1940 : Changing Patterns of Leadership, from Sangha to Laity.” M.A. Thesis, Australian National University, Canberra.

McBride, Richard D. 2005. “Dhāraṇī and Spells in Medieval Sinitic Buddhism.” *Journal of the International Association of Buddhist Studies* 28(1):85–114.

McBride, Richard D. 2011. “Practical Buddhist Thaumaturgy: ‘The Great Dhāraṇī on Immaculately Pure Light’ in Medieval Sinitic Buddhism.” *Journal of Korean Religions* 2(1):33–73.

McCloy, William B. 1978. “Korean Printing.” Pp. 95–107 in *Encyclopedia of Library and Information Science*. Vol. 24, edited by A. Kent, H. Lancour, and J. E. Daily. New York: Marcel Dekker.

McDermott, Joseph P., and Peter Burke. 2015. “Introduction.” Pp. 1–64 in *The Book Worlds of East Asia and Europe, 1450-1850*. Hong Kong University Press.

McFarland, George Bradley. 1999. *Historical Sketch of Protestant Mission in Siam 1828-1928*. Bangkok: White Lotus.

McKillop, Beth. 2013. “The History of the Book in Korea.” Pp. 593–604 in *The Book: A Global History*, edited by M. F. Suarez, S.J. and H. R. Woudhuysen. Oxford University Press.

McLuhan, Marshall, W. Terrence Gordon, Elena Lamberti, and Dominique Scheffel-Dunand. 2011. *The Gutenberg Galaxy: The Making of Typographic Man*. 2nd ed. University of Toronto Press.

McRae, Jane. 2007. "'Ki Nga Pito e Wha o Te Ao Nei (To the Four Corners of This World)': Maori Publishing and Writing for Nineteenth-Century Maori Language Newspapers." Pp. 287–99 in *Agent of Change: Print Culture Studies after Elizabeth L. Eisenstein*, edited by S. A. Baron, E. N. Lindquist, and E. F. Shevlin. Amherst: University of Massachusetts Press.

Meinardus, Otto FA. 2006. *Christians in Egypt: Orthodox, Catholic and Protestant Communities Past and Present*. Cairo: American University of Cairo Press.

Meletis, Dimitrios, and Jonas Romstadt. forthcoming. "The World's Punctuation Systems: Comparing Forms, Functions, and Variation." Pp. 1–24 in *Comparative Punctuation Worldwide*, edited by A. Saller and P. Rössler. Berlin: De Gruyter.

Melton, James Van Horn. 2001. "Pietism, Politics, and the Public Sphere in Germany." Pp. 294–333 in *Religion and Politics in Enlightenment Europe*, edited by J. E. Bradley and D. K. Van Kley. University of Notre Dame Press.

Millard, Alan. 2011. "Review of 'Aramaic and Figural Stamp Impressions on Bricks of the Sixth Century B.C. from Babylon.'" *Journal of the American Oriental Society* 131(3):467–69.

Miyasaka, Yayoi 宮坂弥代生. 2019. "近代日本の印刷業誕生前史―ガンブルの講習と二つのミッションプレス [The History before the Birth of the Printing Industry in Modern Japan - Gamble's Course and the Two Mission Presses]." *書物学 = Bibliology* 15:16–21.

Mullaney, Thomas S. 2017. *The Chinese Typewriter: A History*. Boston: MIT Press.

Mumin, Meikal. 2014. "The Arabic Script in Africa: Understudied Literacy." Pp. 41–76 in *The Arabic Script in Africa*. Brill.

Munson, Todd S. 2012. "Joseph Heco and the Kaigai Shinbun." Pp. 15–36 in *The Periodical Press in Treaty-Port Japan*. Leiden: Brill.

Murayama, Junko Nakai Hirai. 2007. "The Japanese Bible: A Historical and Analytical Study of Its Development with Particular Focus on the Period 1837-1888." Ph.D. Dissertation, The University of Manchester.

Murphy, Andrew D. 2010. "The History of the Book in Britain, c. 1475-1800." Pp. 287–99 in *The Oxford Companion to the Book*, edited by M. F. Suarez, S.J. and H. R. Woudhuysen. Oxford University Press.

Nair, Savithri Preetha. 2005. "Native Collecting and Natural Knowledge (1798-1832): Raja Serfoji II of Tanjore as a 'Centre of Calculation.'" *Journal of the Royal Asiatic Society* 15(3):279–302.

Nakayama, Shigeru. 2008. “Japan.” Pp. 689–717 in *The Cambridge History of Science: Eighteenth-Century Science*. Vol. 4. Cambridge: Cambridge University Press.

Namponya, Clemence R. 1978. “History and Development of Printing and Publishing in Malawi.” *Libri* 28(3):167–81.

Nassi, Gad. 2001. *Jewish Journalism and Printing Houses in the Ottoman Empire and Modern Turkey*. Istanbul: Isis Press.

Natarajan, Jagadish. 1955. *History of Indian Journalism*. New Delhi: Publications Division Ministry of Information & Broadcasting.

Nehru, Lolita. 1989. *Origins of the Gandharan Style: A Study of Contributory Influences*. Delhi: Oxford University Press.

Nepote, Jacques, and Hoc Dy Khing. 1981. “Literature and Society in Modern Cambodia.” Pp. 56–81 in *Essays on Literature and Society in Southeast Asia: Political and Sociological Perspectives*, edited by C. T. Seong. Singapore University Press.

Ngom, Fallou. 2018. “Ajami Literacies of West Africa.” Pp. 143–64 in *Tracing Language Movement in Africa*, edited by E. A. Albaugh and K. M. de Luna. Oxford University Press.

Nida, Eugene A. 1972. *The Book of a Thousand Tongues*. 2nd ed. London: United Bible Society.

Nord, David Paul. 1984. *The Evangelical Origins of Mass Media in America, 1815-1835*. ERIC.

Nord, David Paul. 2004. *Faith in Reading: Religious Publishing and the Birth of Mass Media in America*. Oxford University Press.

Nordstrand, Ove K. 1961. “The Introduction of Paper in Ceylon.” *Das Papier* 11(5–6):67–70.

Oberst, Ursula. 2021. *Early African Press*. Leiden: African Studies Centre. https://www.ascleiden.nl/content/webdossiers/early-african-press.

O’Flynn, Thomas. 2017. *The Western Christian Presence in the Russias and Qājār Persia, c. 1760–c. 1870*. Leiden: Brill.

Oh, Young Kyun. 2026. “Printing Development and Korean Book Culture: What Did Koreans Do with Moveable Types.” Pp. 157–83 in *From Jikji to Gutenberg: The Origins of Book Printing from Moveable Type*, edited by C. A. Baker and M. Silverman. Ann Arbor: Legacy Press.

Oman, G. 2013. “Maṭbaʿa.” in *Encylopaedia of Islam*. Brill Online.

Oram, Hugh. 1983. *The Newspaper Book: A History of Newspapers in Ireland, 1649-1983*. Dublin: MO Books.

Pan, Jixing. 2025. *History of Printing Techniques in China*. Singapore: Springer Nature.

Parsonson, George S. 1967. “The Literate Revolution in Polynesia.” *The Journal of Pacific History* 2(1):39–57.

Parthasarathi, Prasannan. 2011. *Why Europe Grew Rich and Asia Did Not: Global Economic Divergence, 1600–1850*. Cambridge University Press.

Pavlik, Devana. 2013. “The History of the Book in the Czech Republic and Slovakia.” Pp. 461–69 in *The Book: A Global History*, edited by M. F. Suarez, S.J. and H. R. Woudhuysen. Oxford University Press.

Pawliková-Vilhanová, Viera. 2001. “Bible Translations into African Languages and the Rise of African Literatures.” Pp. 285–98 in *Philologica Lil Biblické žalmy a sakrálne texty v prekladateľských, literárnych a kultúrnych súvislostiach*. Bratislava: Univerzita Komenského.

Pedersen, Johannes. 1984. *The Arabic Book*. Princeton University Press.

Pehlivanian, Meliné. 2002. “Mesrop’s Heirs. The Early Armenian Book Printers.” Pp. 53–92 in *Middle Eastern Languages and the Print Revolution*, edited by E.-M. Hanebutt-Benz, D. Glass, and G. Roper. Mainz: Gutenberg-Museum.

Peiries, O.M.I., Edmund. 1943. “Sinhalese Christian Literature of the XVIIth and XVIIIth Centuries.” *Journal of the Royal Asiatic Society, Ceylon Branch* 35:163–81.

Pendse, Liladhar Ramchandra. 2013. “19th Century Periodicals of Portuguese India: An Assessment of Documentary Evidence and Indo-Portuguese Identity.” Ph.D. Dissertation, University of California, Los Angeles.

Perry, Cindy L. 1997. *Nepali Around the World*. Kathmandu: Ekta Books.

Pettegree, Andrew. 2014. *The Invention of News: How the World Came to Know about Itself*. Yale University Press.

Pettegree, Andrew. 2015. *Brand Luther: 1517, Printing, and the Making of the Reformation*. New York: Penguin.

Philipp, Thomas. 1985. *The Syrians in Egypt, 1725-1975*. Stuttgart: Franz Steiner Verlag.

Pollock, Sheldon. 2016. “Literary Culture and Manuscript Culture in Precolonial India.” Pp. 77–94 in *The History of the Book in South Asia*, edited by F. Orsini. New York: Routledge.

Pollock, Sheldon I. 2009. *The Language of the Gods in the World of Men: Sanskrit, Culture, and Power in Premodern India*. Berkeley: University of California Press.

Postrel, Virginia. 2020. *The Fabric of Civilization: How Textiles Made the World*. Basic Books.

Pradhan, Indramani. 1997. *Parasmani Pradhan*. New Delhi: Sahitya Akademi.

Proudfoot, Ian. 1994. *The Print Threshold in Malaysia*. Clayton: Centre of Southeast Asian Sudies, Monash University.

Proudfoot, Ian. 1995. "Early Muslim Printing in Southeast Asia." *Libri* 45(3–4):216–23.

Proudfoot, Ian. 1998. "Lithography at the Crossroads of the East." *Journal of the Printing Historical Society* 27:113–31.

Putten, Jan. 1997. "Printing in Riau; Two Steps toward Modernity." *Bijdragen Tot de Taal-, Land-En Volkenkunde/Journal of the Humanities and Social Sciences of Southeast Asia* 153(4):717–36.

Racine, Karen. 2008. "Commercial Christianity: The British and Foreign Bible Society's Interest in Spanish America, 1805–1830." Pp. 78–98 in *Informal Empire in Latin America: Culture, Commerce and Capital*, edited by M. Brown. Oxford: Blackwell.

Racine, Karen. 2010. "'This England and This Now': British Cultural and Intellectual Influence in the Spanish American Independence Era." *Hispanic American Historical Review* 90(3):423–54.

Racine, Karen. 2017. "Newsprint Nations: Spanish American Publishing in London, 1808–1827." Pp. 15–32 in *The Foreign Political Press in Nineteenth-Century London: Politics from a Distance*, edited by C. Bantman and A. C. S. Da Silva. London: Bloomsbury.

Racine, Karen. 2020. "Monitors and Moralists: The Lancasterian System of Mutual Education and the Vision of a New Moral Order in Spanish America, 1818–1831." *History of Education* 49(2):143–59.

Ramaseshan, Sita. 1989. "The History of Paper in India up to 1948." *Indian Journal of History of Science* 24(2):103–21.

Ranganathan, Murali. 2022. "Retrieving Lost Texts: Early Persian Newspapers of Bombay." *Journal of Persianate Studies* 15(1):121–45.

Rao, Sandhya, and Bharat Koirala. 2000. "Nepal." Pp. 132–54 in *Handbook of the Media in Asia*, edited by S. A. Gunaratne. New Delhi: SAGE Publications India.

Rawski, Evelyn S. 2005. "Qing Publishing in Non-Han Languages." Pp. 304–31 in *Printing and Book Culture in Late Imperial China*, edited by C. Brokaw and K. Chow. Berkeley: University of California Press.

Rhoads, Edward JM. 2011. *Stepping Forth into the World: The Chinese Educational Mission to the United States, 1872-81*. Hong Kong University Press.

Rhodes, Dennis E. 1969. *The Spread of Printing: India, Pakistan, Ceylon, Burma, and Thailand*. Amsterdam: Vangendt & Co.

Ribeiro, Madalena. 2017. “The Japanese Diaspora in the Seventeenth Century According to Jesuit Sources.” P. 259 in *Japan and the Pacific, 1540–1920: Threat and Opportunity*, edited by M. Caprio and K. Matsuda. London: Routledge.

Richstad, Jim, and Michael McMillan. 1978. *Mass Communication and Journalism in the Pacific Islands: A Bibliography*. Honolulu: East-West Center.

Riello, Giorgio. 2013. *Cotton: The Fabric That Made the Modern World*. Cambridge University Press.

Riftin, Boris. 2013. “Mongolian Translations of Old Chinese Novels and Stories: A Tentative Bibliographic Survey.” Pp. 130–60 in *Literary Migrations*, edited by C. Salmon. Singapore: ISEAS Publishing.

Robinson, Edward Jewitt. 1867. “Hindu Pastors: A Memorial.” London: Wesleyan Conference Office.

Robinson, Francis. 1993. “Technology and Religious Change: Islam and the Impact of Print.” *Modern Asian Studies* 27(1):229–51.

Robinson, Francis. 2000. *Islam and Muslim History in South Asia*. New Delhi: Oxford University Press.

Robson, Eleanor. 2007. “The Clay Tablet Book in Sumer, Assyria, and Babylonia.” Pp. 67–83 in *A Companion to the History of the Book*, edited by S. Eliot and J. Rose. Blackwell.

Roemer, Cornelia. 2007. “The Papyrus Roll in Egypt, Greece, and Rome.” Pp. 84–94 in *A Companion to the History of the Book*, edited by S. Eliot and J. Rose. Blackwell.

Rogatchevskaia, Ekaterina, and Aleksandra B. Vraneš. 2013. “The History of the Book in the Balkans.” Pp. 502–11 in *The Book: A Global History*, edited by M. F. Suarez, S.J. and H. R. Woudhuysen. Oxford University Press.

Roper, Geoffrey. 1988. “Arabic Printing in Malta 1825-1845: Its History and Its Place in the Development of Print Culture in the Arab Middle East.” Ph.D. Dissertation, Durham University.

Round, Philip H. 2010. *Removable Type: Histories of the Book in Indian Country, 1663-1880*. Chapel Hill: University of North Carolina Press.

Rowland-Smith, Diana. 1989. “The Beginnings of Hebrew Printing in Egypt.” *The British Library Journal* 15(1):16–22.

Rubin, Jared. 2014. “Printing and Protestants: An Empirical Test of the Role of Printing in the Reformation.” *Review of Economics and Statistics* 96(2):270–86.

Rubin, Jared. 2017. *Rulers, Religion, and Riches: Why the West Got Rich and the Middle East Did Not.* Cambridge University Press.

Ruiz-Falqués, Aleix. 2017. “Notes on Printing Press and Pali Literature in Burma.” *Kervan: International Journal of Afro-Asiatic Studies* (21):357–71.

Rukavina, Alison. 2019. “Canada and Australasia.” Pp. 470–84 in *Companion to the History of the Book*, edited by S. Eliot and J. Rose. Wiley.

Ryrie, Alec. 2021. “Print Culture and the Failure of Early Protestant Mission.” University of Edinburgh.

Sabev, Orlin. 2018. *Waiting for Müteferrika: Glimpses of Ottoman Print Culture*. Ottoman and Turkish Studies. Boston: Academic Studies Press.

Sabev, Orlin. 2025a. “Did the Ottomans Print Arabic-Scrip Texts before the 18th Century?” *OTAM Ankara Üniversitesi Osmanlı Tarihi Araştırma ve Uygulama Merkezi Dergisi* (58):141–93.

Sabev, Orlin. 2025b. *The Müteferrika Press: Arabic Typography in an Ottoman Context*. de Gruyter.

Salomon, Richard. 2018. *The Buddhist Literature of Ancient Gandhara*. Somerville, MA: Wisdom Publications.

Salvatori, Sandro. 2000. “Bactria and Margiana Seals: A New Assessment of Their Chronological Position and a Typological Survey.” *East and West* 50(1/4):97–145.

Sarkar, Swatahsiddha. 2008. “Language and Ethnicity in Darjeeling Hills.” Pp. 85–100 in *Himalayan Studies in India*. New Delhi: Mittal Pub.

Sasaki, Takahiro. 2022. “Jesuit Printing and Hiragana Books.” *Monumenta Nipponica* 77(1):27–75.

Sawerthal, Anna. 2018. “A Newspaper for Tibet: Babu Tharchin and the ‘Tibet Mirror’ (Yul Phyogs so so’i Gsar’gyur Me Long, 1925-1963) from Kalimpong.” Ph.D. Dissertation, University of Heidelberg.

Schaefer, Karl. 2014. “Mediæval Arabic Block Printing: State of the Field.” Pp. 1–16 in *Historical Aspects of Printing and Publishing in Languages of the Middle East*, edited by G. Roper. Leiden: Brill.

Schaefer, Karl R. 2006. *Enigmatic Charms: Medieval Arabic Block Printed Amulets in American and European Libraries and Museums*. Leiden: Brill Academic.

Schaeffer, Kurtis R. 2009. *The Culture of the Book in Tibet*. New York: Columbia University Press.

Schantz, Mark S. 1997. “Religious Tracts, Evangelical Reform, and the Market Revolution in Antebellum America.” *Journal of the Early Republic* 17(3):425–66.

Scheidel, Walter. 2019. *Escape from Rome: The Failure of Empire and the Road to Prosperity.* Princeton University Press.

Scheiner, Irwin. 2002. *Christian Converts and Social Protests in Meiji Japan*. University of Michigan Press.

Schneider, Brian A. 2009. "Religion, Education, and Libraries: The Impact of Western Missionaries on the Development of China." M.A. Thesis, University of North Carolina, Chapel Hill.

Schulze, Reinhard. 1987. "Mass Culture and Islamic Cultural Production in 19th Century Middle East." Pp. 189–223 in *Mass Culture, Popular Culture and Social Life in the Middle East*, edited by G. Stauth and S. Zubaida. Frankfurt am Main: Campus Verlag.

Schwartz, Kathryn A. 2017. "Did Ottoman Sultans Ban Print?" *Book History* 20(1):1–39.

Sen, Tansen. 2014. "Maritime Southeast Asia between South Asia and China to the Sixteenth Century." *TRaNS: Trans-Regional and-National Studies of Southeast Asia* 2(1):31–59.

Sen, Tansen. 2017. "Early China and the Indian Ocean Network." in *The Sea in History: The Ancient World*, edited by P. de Souza, P. Arnaud, and C. Buchet. Suffolk: Boydell & Brewer.

Senanan, Wibha. 1975. *The Genesis of the Novel in Thailand*. Bangkok: Thai Watana Panich.

Sewell, Robert G. 1978. "Japanese Printing." in *Encyclopedia of Library and Information Science*. Vol. 24, edited by A. Kent, H. Lancour, and J. E. Daily. New York: Marcel Dekker.

Shakya, Tsering Wangdu. 2004. "The Emergence of Modern Tibetan Literature: Gsar Rtsom." Ph.D. Dissertation, SOAS, University of London.

Shaw, Graham. 1987. *The South Asia and Burma Retrospective Bibliography Stage 1: 1556-1800*. London: The British Library.

Shaw, Graham. 2007. "South Asia." Pp. 126–37 in *A Companion to the History of the Book*, edited by S. Eliot and J. Rose. Blackwell.

Shaw, Graham W. 1984. "The First Calcutta Almanac." *The Library* 6(4):384–85.

Shaw, Graham W. 2012. "Maṭbaʿa: Afghanistan." in *Encyclopaedia of Islam*, edited by P. Bearman, Th. Bianquis, C. E. Bosworth, E. van Donzel, and W. P. Heinrichs. Leiden: Brill.

Shcheglova, Olimpiada P., and Ulrich Marzolph. 2021. "Lithograph." in *Encyclopaedia Iranica*.

Silva, Noenoe. 2008. "Early Hawaiian Newspapers and Kanaka Maoli Intellectual History, 1834–1855." *Hawaiian Journal of History* 42:105–34.

Siu, Yiu. 2022. “Maritime Exclusion Policy in Ming China and Chosŏn Korea, 1368-1450: Dynastic Authority, National Security, and Trade.” Ph.D. Dissertation, University of Oxford.

Skilling, Peter. 2011. “Buddhism and the Circulation of Ritual in Early Peninsular Southeast Asia.” Pp. 371–84 in *Early Interactions between South and Southeast Asia: Reflections on Cross-Cultural Exchange*, edited by P.-Y. Manguin, A. Mani, and G. Wade. Singapore: Institute of Southeast Asian Studies.

Smith, Alex G. 1981. *Siamese Gold: The Church in Thailand*. Bangkok: Kanok Bannasan.

Smith, Anna H. 1971. *The Spread of Printing in South Africa*. Amsterdam: Vangendt & Co.

Smith, Christian. 1991. *The Emergence of Liberation Theology: Radical Religion and Social Movement Theory*. University of Chicago Press.

Smithies, Michael, and Luuigi Bressan. 2001. *Siam and the Vatican in the Seventeenth Century*. Bangkok: River Books.

Somaratna, G. P. V. 2016. *History of Christianity in Sri Lanka: Up to 1800 AD.* Colombo Theological Seminary.

de Sousa, José Manuel Motta, and Lúcia Maria Mariano Veloso. 1987. *História Da Imprensa Periódica Portuguesa: Subsídios Para Uma Bibliografia*. Vol. 4. Biblioteca Geral da Universidade Coimbra.

Špániová, Marta. 2021. “Social Influences on the Typographic Medium in the Reformation and Counter-Reformation Period in Bratislava, the Capital of Hungary.” *Z Badań Nad Książką i Księgozbiorami Historycznymi* 15(3):357–75.

Stallybrass, Peter. 2007. “‘Little Jobs’: Broadsides and the Printing Revolution.” Pp. 315–41 in *Agent of Change: Print Culture Studies after Elizabeth L. Eisenstein*, edited by S. A. Baron, E. N. Lindquist, and E. F. Shevlin. Amherst: University of Massachusetts Press.

Stark, Ulrike. 2015. “Benares Beginnings: Print Modernity, Book Entrepreneurs, and Cross-Cultural Ventures in a Colonial Metropolis."." Pp. 15–73 in *Founts of Knowledge: Book History in India*, edited by A. Gupta and S. Chakravorty. Hyderabad: Orient Black Swan.

Stewart, A. A. 1918. *Electrotyping and Stereotyping, Part II*. Chicago: United Typothetae of America.

Stewart, Peter. 2024. *Gandharan Art and the Classical World: A Short Introduction*. Oxford: Archaeopress Archaeology.

Stoneman, Richard. 2019. *The Greek Experience of India: From Alexander to the Indo-Greeks*. Princeton University Press.

Strauch, Ingo. 2009. “Two Stamps with the Bodhigarbhālaṃkāralakṣa Dhāraṇī from Afghanistan and Some Further Remarks on the Classification of Objects with the Ye Dharmā Formula.” Pp. 37–56 in *Prajñādhara: Essays on Asian Art History, Epigraphy and Culture in Honour of Gouriswar Bhattacharya*, edited by G. J. R. Mevissen and A. Banerji. New Delhi: Kaveri.

Strickmann, Michel. 1993. “The Seal of the Law: A Ritual Implement and the Origins of Printing.” *Asia Major* 1–83.

Su, Ching 蘇精. 2018. *铸以代刻: 十九世纪中文印刷变局 [Casting to Replace Engraving: Changes in Chinese Printing in the Nineteenth Century]*. 北京: 中华书局.

Suarez, S.J., Michael F., and H. R. Woudhuysen, eds. 2013. *The Book: A Global History*. Oxford University Press.

Suh, Younghee. 2015. “The Formation of the Nation-State and Education Policy in Modern Korea (1876-1910).” *Asian Women* 31(1):29–50.

Suter, Claudia E. 2010. “Ur III Kings in Images: A Reappraisal.” Pp. 319–49 in *Your Praise is Sweet*, edited by H. D. Baker, E. Robson, and G. Zólyomi. London: British Institute for the Study of Iraq.

Swanson, Herbert R. 1988. “This Seed: Missionary Printing and Literature as Agents of Change in Northern Siam, 1892-1926.” Pp. 175–208 in *Changes in Northern Thailand and the Shan States 1886-1940*, edited by P. Nontawasee. Singapore: Southeast Asian Studies Program.

Tanaka, Terri. 2024. “Mesopotamian Cylinder Seal Inscriptions.” HTTPS://PUBLICATIONS.ASIA.SI.EDU/SEALS/MESOPOTAMIAN-CYLINDER-SEAL-INSCRIPTIONS.PHP.

Thangamuthu, P. 2016. “Contribution of Raja Ram Mohan Roy’s to Literature and Journalism.” *Internatioal Journal of Advanced Research* 4(12):2610–16. doi:10.21474/IJAR01/2683.

The Missionary Register. 1815. Vol. 3. London: L.B. Seeley.

Thomas, Christine. 2013. “The Slavonic Book in Russian, Ukraine, and Belarus.” Pp. 485–501 in *The Book: A Global History*, edited by M. F. Suarez, S.J. and H. R. Woudhuysen. Oxford University Press.

Thomas, Kenneth J. 2015. *A Restless Search: A History of Persian Translations of the Bible*. Philadelphia: American Bible Society.

Thomas, Winburn T. 1954. “The Evangelical Church in French Indo-China.” *Occasional Bulletin of the Missionary Research Library* 5(6):1–9.

Tieken, Herman. 2008. “The Process of Vernacularization in South Asia.” *Journal of the Economic and Social History of the Orient* 51:338–83.

Toutant, Marc. 2019. “De-Persifying Court Culture: The Khanate of Khiva’s Translation Program.” Pp. 243–57 in *The Persianate World*, edited by N. Green. University of California Press.

Traulsen, Thorsten. 2012. “Han’gŭl Reform Movement in the Twentieth Century: Roman Pressure on Korean Writing.” Pp. 103–30 in *The Idea of Writing: Writing Across Borders*. Vol. 2, edited by A. de Voogt and J. F. Quack. Leiden: Brill.

Trejo, Guillermo. 2012. *Popular Movements in Autocracies: Religion, Repression, and Indigenous Collective Action in Mexico*. New York: Cambridge University Press.

Tuchscherer, Konrad, and Paul E. H. Hair. 2002. “Cherokee and West Africa: Examining the Origins of the Vai Script.” *History in Africa* 29:427–86.

Tuladhar-Douglas, Will. 2009. “Writing and the Rise of Mahāyāna Buddhism.” Pp. 250–72 in *Die Textualisierung der Religion*, edited by J. Schaper. Tübingen: Mohr Siebeck.

Valenzuela, B.J., Jesus Z. 1930. “History of Journalism in the Philippine Islands.” M.A. Thesis, University of Missouri, Columbia.

Van der Cruyse, Dirk. 2002. *Siam & the West: 1500-1700*. Chang Mai: Silkworm Books.

Van Gorder, Christian A. 2010. *Christianity in Persia and the Status of Non-Muslims in Modern Iran*. Rowman & Littlefield.

Van Zanden, Jan Luiten. 2009. *The Long Road to the Industrial Revolution: The European Economy in a Global Perspective, 1000-1800*. Leiden: Brill.

Vander Werff, Lyle L. 1977. *Christian Mission to Muslims: The Record: Anglican and Reformed Approaches in India and the Near East, 1800-1938*. Pasadena, CA: William Carey Library.

Vedalankar, Shardadevi. 1955. “The Development of Hindi Prose Literature in the Early Nineteenth Century 1800-1856.” Ph.D. Dissertation, School of Oriental and African Studies, London.

Vella, Walter F. 1957. *Siam under Rama III: 1824-1851*. New York: Association for Asian Studies.

Vincent, David. 2000. *The Rise of Mass Literacy: Reading and Writing in Modern Europe*. Cambridge: Polity Press.

Volz, Yong Z., and Chin-Chuan Lee. 2009. “From Gospel to News: Evangelicalism and Secularization of the Protestant Missionary Press in China, 1870s—1900s.” *Journalism* 10(2):171–95.

Wahab-Salman, Ramla. 2016. “A History of the ‘Ceylon Moor’ Press (1882-1889).” *Journal of the Royal Asiatic Society of Sri Lanka* 61(2):55–70.

Weems, Clarence N. 1971. “Reformist Thought of the Independence Program (1896-1898).” Pp. 163–218 in *Korea’s Response to the West*. Kalamazoo, MI: The Korea Research and Publications, Inc.

Wells, Kenneth E. 1958. *History of Protestant Work in Thailand 1828-1958*. Bangkok: Church of Christ in Thailand.

Wells, W. Scott. 2023. “Literary Sinitic and Korea’s Hierarchy of Inscriptional Practice.” Pp. 323–48 in *Cosmopolitan and Vernacular in the World of Wen* 文, edited by R. King. Leiden: Brill.

Whelpton, John. 2005. *A History of Nepal*. Cambridge University Press.

Wherry, Rev., John. 1888. *The Work of the Late William Gamble, Esq., in China*. Londonderry: A. Emery, Stationer.

White, Eric Marshall. 2026. “Gutenberg’s 41-Line Bible and the Earliest Evidence of European Typography.” Pp. 521–51 in *From Jikji to Gutenberg: The Origins of Book Printing from Moveable Type*, edited by C. A. Baker and M. Silverman. Ann Arbor: Legacy Press.

Wilkinson, Endymion. 2018. *Chinese History: A New Manual*. 5th ed. Cambridge, MA: Harvard University Asia Center.

Williams, Julie. 2000. “Evangelism and the Genesis of Printing in America.” Pp. 1–16 in *Media and Religion in American History*, edited by D. Sloan. Northport: Vision Press.

Willock, Nicole. 2016. “Dorjé Tarchin, the Mélong, and the Tibet Mirror Press: Negotiating Discourse on the Religious and the Secular.” *HIMALAYA, the Journal of the Association for Nepal and Himalayan Studies* 36(1):145–62.

Wiltgen, Ralph M. 1979. *The Founding of the Roman Catholic Church in Oceania: 1825 to 1850*. Australian National University Press.

Winship, Michael. 1986. “Early Thai Printing: The Beginning to 1851.” *Crossroads: An Interdisciplinary Journal of Southeast Asian Studies* 3(1):45–61.

Woeber, Catherine. 2012. “The Mission Presses and the Rise of Black Journalism.” Pp. 204–25 in *The Cambridge History of South African Literature*. Cambridge University Press.

Wolff, Ernest. 1978. “Chinese Printing.” Pp. 76–87 in *Encyclopedia of Library and Information Science*, edited by A. Kent, H. Lancour, and J. E. Daily. New York: Marcel Dekker.

Wood, Paul, ed. 2004. *Science and Dissent in England, 1688-1945*. Ashgate.

Woodberry, Robert D. 2004. “The Shadow of Empire: Christian Missions, Colonial Policy, and Democracy in Postcolonial Societies.” Ph.D. dissertation, University of North Carolina, Chapel Hill.

Woodberry, Robert D. 2011. ""Ignoring the Obvious: What Explains Botswana's Exceptional Democratic and Economic Performance in Sub-Saharan Africa."" Project on Religion & Economic Change Working Paper #5, Project on Religion & Economic Change Working paper. Project on Religion & Economic Change Working paper.

Woodberry, Robert D. 2012. "The Missionary Roots of Liberal Democracy." *American Political Science Review* 106(2):244–74.

Wright, Glen. 1976. "A Shout of Joy and a Cry of Pain: The Press in the South Pacific." *Index on Censorship* 5(4):49–54.

Wyatt, David K. 1984. *A Short History of Thailand*. Chang Mai: Silkworm Books.

Yakup, Abdurishid. 2016. "Aspects of Old Uyghur Printed Texts: Corpus, Technique, Dating, Production, Use and Sponsoring." Presented at the Culture and Textual Exchanges: The Manuscript across Premodern Eurasia, University of Iowa.

Young, Alwyn. 2022. "Consistency without Inference: Instrumental Variables in Practical Application." *European Economic Review* 147(104112):1–21.

Yuan, Jin. 2009. "The Origin of the Westernized Vernacular Chinese Baihuawen: A Re-Evaluation of the Influence of Western Missionaries on Chinese Literature." *Frontiers of Literary Studies in China* 3(2):247–69.

Yung, Shang Him. 1939. *The Chinese Educational Mission and Its Influence*. Shanghai: Kelly & Walsh.

Zaret, David. 2000. *Origins of Democratic Culture: Printing, Petitions, and the Public Sphere in Early-Modern England*. Princeton: Princeton University Press.

Zhang, Tao. 2007. "Protestant Missionary Publishing and the Birth of Chinese Elite Journalism." *Journalism Studies* 8(6):879–97.

Zhang, Xiantao. 2007. *The Origins of the Modern Chinese Press: The Influence of the Protestant Missionary Press in Late Qing China*. London: Routledge.

Zhao, Qiyi. 2026. "Rethinking 'Distance from': The Examples of Wittenberg and Mainz." *European Review of Economic History* 30(3):331–68.

Zhong, Yurou. 2019. *Chinese Grammatology: Script Revolution and Literary Modernity, 1916–1958*. Columbia University Press.

Zhuk, Sergei I. 2004. *Russia's Lost Reformation*. Baltimore: Johns Hopkins University Press.

Zmroczek, Janet. 2013. "The History of the Book in Poland." Pp. 470–79 in *The Book: A Global History*, edited by M. F. Suarez, S.J. and H. R. Woudhuysen. Oxford University Press.