Samuel Boucher

Perspective on Global Innovation Networks: The Case Study of the Low German Mennonites

"Institutions, not ideas, make things work."[1]

Introduction

Low German Mennonites, a non-political, non-conformist, pacifist sect of Anabaptists named after the Reformer Menno Simmons, have consistently made a disproportionate impact on the local and national economies compared to their share of the total population. Many Germanists will recognize this development as it follows the general pattern of German impact in Eastern Europe and in the Americas.[2] These settler communities imported their institutions from Germany, which economist Douglas North notes as an important factor in economic success. Critiquing the self-help outlook of earlier classical liberal economists, North argues that institutions play a key role in economic development. While he originally focused on legal institutions such as property rights and impartial courts, his later research acknowledged the significance of cultural institutions. Following Douglas North's theory of institutions,[3] I argue that Mennonite success has been largely due to the strength of their institutions—in particular their German schools—and their connections to innovation pathways in Germany.

Mennonite Identity

Following renewed persecution in the Netherlands in the 16th-century, many Mennonites fled to Prussia, present-day Poland. It was in Prussia that these so-called Dutch Mennonites became *German*. The Mennonites began to replace the Dutch language of their forefathers with High German in writing and Low German in conversation, due in large part to the nature of their Prussian settlements. In contrast to their time in Russia or Latin America,

Mennonites never concentrated in closed colonies or isolated settlements in Prussia. The Prussian Mennonites mixed with the general populace and often formed little more than a significant minority of any settlement. Of the approximate two hundred villages which contained at least a few Mennonite families, only a few dozens were over ninety percent Mennonite.[4]

The story completely changed in Russia when Mennonites settled in their own self-administered colonies beginning in 1788. Due to the nature of their land allotment structure, no non-Mennonite could purchase land within the colonies. Thereafter, all Mennonite settlements in Russia were totally or very nearly one hundred percent Mennonite. This development was important as it gave the Mennonites autonomy to establish institutions imported from Germany in their isolated colonies. Later on, these Russian Mennonites re-created these institutions during their time in Canada (from the late nineteenth-century until the First World War when the Canadian government shut down all German-language schools) where they re-created their Russian colonial structure in the West and East Reserves in Manitoba and later in various countries of Latin America including Mexico, Belize, Paraguay, Argentina, and Bolivia from the 1920s into the present day. Thus, it was in Prussia that the Mennonites had begun to self-identify as *German* and had begun to be perceived as *German*.

Thus, Mennonites have been able to maintain their own ethnic cultural background despite living in various nation-states due to their isolation and autonomy allowing for the preservation of their German institutions in nation-states such as Russia, Canada, or Mexico. As scholar Ernest Gellner[5] has stated, once the autonomy of local institutions has broken down, the nation-state promotes a program of nationalization via monopolist control over the education system and language press and vice-versa. Therefore, Mennonite institutions create and maintain

Zusammengehörigkeitsgefühl [6] in the Mennonite-as-German categorization. The national takeover of these institutions imposed the national category of Russian, Canadian, American, etc. that can eventually breakdown or erase this ethno-religious category. These nationalization efforts have been major impetuses for each of the Mennonite mass migrations in the past two hundred years.

Institutions

Economic historian Joel Mokyr postulates in his book,[7] *The Gifts of Athena*, that innovations require institutions to propagate and promote them into the wider society:

> Institutions play a central role in the rate and direction of the growth of useful knowledge itself. . . . Institutions help determine on which margins the efforts and time of the most resourceful and ambitious men and women will be applied. Entrepreneurs, innovators, and inventors will try to make their fortune and fame wherever they perceive the rewards to be most promising. There are many potential avenues where this can be done: commerce, innovation, and finance—or plunder, extortion, and corruption. The institutions of society determine where these efforts will be most rewarding and remunerative.[8]

Institutions can be as large as the nation-state itself and as small as and personal as a family. Institutions are important, but what are institutions exactly?

In his 1991 article[9] in the *Journal of Economic Perspectives*, Douglas North defines institutions as concrete constraints (formal rules, constitutions, laws, property rights) and abstract restraints (sanctions, taboos, customs, traditions, codes of conduct) that structure political, economic, and social interactions. Put another way, institutions are both patterns of behavior and structures of power embodied in society. In a way, one can think about institutions as a means to create, perpetuate, and govern behavior and knowledge. Initially, North focused on legal institutions, but his later research expressed the importance of cultural institutions as well. While the Mennonites have consistently brought with them several institutions, perhaps none was as important than the institution of education: the German school.

German Education

While there were precedents in trade cities[10] during the Renaissance, scholars have often noted the importance of the Reformation[11] on the improvement of education in Germany and the establishment of the German school as a local institution. This in large part was due to Luther's insistence and, later, governmental compulsion of school attendance. Luther in his "Address to the German Nobility" very clearly connected religious reform with university reform: "The universities need a sound and thorough reformation. I must say so no matter who takes offense . . . nothing could be more wicked, or serve the devil better, than unreformed universities." Not only concerned with higher education, Luther further argued that "if the government can compel such of its subjects as are fit for military service to carry pike and musket, man the ramparts, and do other kinds of work in time of war, how

much more can it and should it compel its subjects to keep their children in school."[12]

Luther and his friend and ally Philip Melanchthon[13] (who is known as *Praeceptor Germaniae* or the teacher of Germany) also made the case to the regional princes and lords relating education to the maintenance and production of the common good: "best and greatest welfare, safety, and strength" lies not in wealth of arms and allies, but "rather in it having many able, learned, wise, honorable, and well-educated citizens." Thereupon, Luther declared the secular duty of territorial rulers to promote education amongst the populace. He states, "For it is truly the duty of government to maintain the offices and estates . . . so that there will always be preachers, jurists, pastors, writers, physicians, schoolmasters, and the like, for we cannot do without them" and that, as Melanchthon put it, "better letters bring better morals; better morals bring better communities."[14] By the nineteenth century, Germany was one of the most literate nations in the world.[15]

With the advent of the nation-state, literacy became an important advantage in the great contest between nations. Of special concern to these new nation-states concerning literacy were the military and bureaucracy, both of which required literacy. In 1899, the Reichstag witnessed a voracious debate as General von Sauer maintained that military recruits should come from urban and industrial districts as they were more "skillful" and literate compared to the rural areas. Crucially, on the eve of the Franco-Prussian War, the rate of illiteracy of the Prussian army was only three percent while that of the French recruits was more than twenty percent.[16] Yet, even as early as the sixteenth century with the infantry revolution, the demand for a literate soldiery was increasing as "a gunner had to be literate."[17] Literacy was also necessary for the growth of manufacturing. The reading of manuals became the primary vehicle for the passing down of knowledge and "in the course of the sixteenth century, the growth of printing, map-making, clock-making and the manufacturing of precision instruments rested on a growing supply of literate craftsmen."[18] Still, economic historian Cipolla estimates that by 1750, more than 90 percent of the world's population was still functionally illiterate.[19]

State support for higher education was essential in Germany. In 1787, Fredrick Wilhelm II allotted an additional 10,000 thaler yearly for its universities (with the reform university at Halle receiving the lion's share of the allotment).[20] Higher education was so important for Germany that Thomas Howard even describes a "chronic overabundance of universities." This proliferation of German universities contrasts sharply with that of the other industrial powerhouse, England, which boosted a measly two universities: Oxford and Cambridge.[21]

Funding was not the only way that German states raised standards. In a 1737 school regulation, the Prussian king decreed:

> The parishes forming school societies are obliged to build schoolhouses and to keep them in repair; the tuition fees for each child, from 4 to 12 years of age, are 4 groschen per year; the government pays the fee when a peasant sends more than one child to the school; the government gives the teacher one acre of land, which villagers are to till for him. [22]

This led to the establishment of over 1,000 new primary schools, leading Fredrick William I to occasionally be described as the "Father of Prussian Primary Schools." Prussian education support ultimately culminated in the complete requirement for school compulsory attendance from 5 to 13 years of age along with newly enacted truancy laws. Thus, literacy also greatly increased due to publicly enforced attendance with truancy laws. Thereafter, illiteracy rates were markedly lower in Prussia than its neighboring states and consistently declined as time progressed.[23] Thus, Germanic states emphasized literacy for their own ends via funding of schools on one hand and legislation on school attendance on the other.

Once this process began via political states and religious reformers, these institutions instilled patterns of literacy on the German population that they carried everywhere they went. In this way, Germans in general were more literate any and everywhere they went. Indeed, even in Germany, "the relatively high rates of illiteracy prevailing in Prussia proper as well as in Posen were essentially related to the presence of a large population of destitute Polish peasants."[24] One of, if not the, most important influence upon the Mennonites from their refuge in Germany was a religio-cultural devotion to literacy/education—especially prominent with their settlements in Russia and Latin America, the latter having an illiteracy rate as high as ninety percent in the nineteenth century.

German Innovation Networks

While literacy was an important step in raising educational standards in Germany, development requires innovation. One of the prime means of innovation in Germany (and in the world more broadly) is the university system. Howard argues that "The story of the birth of the 'modern university' is intimately connected to the development of German—particularly Prussian, Protestant—institutions. Granting the complex antecedents behind all historical beginnings, few would nonetheless gainsay that it was most notably in post-revolutionary Prussia, beginning with the dramatic founding

of the University of Berlin in 1810, that the modern university appeared on the historical stage."[25] The University of Berlin set what came to be known as the Prussian—or more accurately Humboldt—model of university. Osterling notes how Humboldt desired to establish the university model via his letter to the Prussian king:

> The following year, in July 1809, the Prussian king Frederick William III received an official letter with a similar content. In it the author, who had obviously been influenced by Schleiermacher, argued that a general institution of higher education should be established. An important argument for locating it in Berlin was the existence of institutes, collections, and academies in the city, and the fact that full justice would not be done to these if they were not linked to the scholarly teaching at the new university. The idea was that all units would keep their independence but that they would at the same time be deeply interdependent. The official letter bore the signature Wilhelm von Humboldt.[26]

Yet, the University of Berlin had precedent from the reform universities of the seventeenth century; the two most important being the University of Halle and the University of Göttingen, which "introduced vigorous new impulses to higher education" under the leadership of Francke at Halle and Mosheim at Göttingen.[27] Halle makes a good case study for the establishment of an innovation network.

Halle itself was a Free City in the Hanseatic League on the outskirts of Brandenburg-Prussia, but the central institution within the University of Halle was *Das Waisenhaus* (The Orphanage). The Orphanage was the center of a cluster of institutions called the *Franckesche Stiftungen* (Francke's Foundations),[28] which were comprised of an orphanage, several schools, a pedagogical college, woodturning stations,[29] a hospital, a pharmacy, a printing shop, a bookstore, and other businesses.[30] The Halle Orphanage functioned as a model research university with innovative methods of experimentation as well as focal point for a scientific community.[31] With its international contacts, the Halle Orphanage sent its teachers outward to newly created mini-Halles in distant nations and received as students the children of the elites (including the Tsar's advisors) of those same countries.[32] Halle was truly the hub of an international network with connections to "Saxony, Bavaria, Denmark, Siberia, southern India, and North America."[33]

Of all its international connections, the most important to Halle was Russia. Tsar Peter[34] was highly interested in Enlightenment values and

educational reforms to develop his empire, and Francke considered Russia a "bridge to the East" (Central Asia, India, and China), which had been largely neglected by missionary activity at this point.[35] Thereafter, several model universities and orphanages were established in Russian cities such as Narva, Astrakhan, and Tobolsk. Halle continued correspondence with these mini-Halles and used further institutional centers as nodes in an international communication network which "enabled information exchange and coordination of efforts by the Halle Pietists in Russia."[36] In fact, hundreds of letters between hundreds of individuals living in Russia reside within the archives of Francke's Institutions in Halle displaying this network.[37]

Another way that the Orphanage established its network was through a group of promoters/scientists called Observators who "promoted and extended the reputation of the community abroad."[38] Two such Observators were young Halle alumni, Müller and Scharschmidt, who were handpicked by Francke to "forge new connections with Protestant groups in Russia. Müller was from a German family then living in Ugodka, near Moscow, who owned an ironworks and had connections with the tsar."[39] In order to help facilitate and deepen this connection, Francke worked with pre-established Lutheran networks including German settlers of merchants, craftsmen, military men, and people from the educated class: doctors, engineers and scientists, artists and musicians, teachers, and farmers who came to live in Russian territory at the invitation of first Tsar Peter and later Tsarina Catherine. Via these pre-established German networks, Francke was able to recruit the likes of "admiral Cornelius Cruys, Jacob Bruce, who was general field-marshal and the president of the Berg- and Manufacturing Collegiums, the generals Adam Weide and Ludwig Nikolaus Hallart, Colonel Johann Balthasar Campenhausen, etc. Court physicians such as Christian Bekker, Johann Justin Donnel, and Laurentius Blumentrost, and also Baron Heinrich von Huyssen, Prince Alexei's tutor, belonged to the tsar's inner circle."[40] Additionally, the first Gymnasium in Moscow was staffed by German graduates from Halle and established by the Pietistic pastor Ernest Glück—considered by many to be Peter the Great's adopted father-in-law as Martha Skavronskaya, the future Empress Catherine I, was raised in his house.[41] This well-positioned Pietist network gave German Pietists and Mennonites living in Russia access to new techniques and information researched and developed in Germany in addition to political capital in their new settlements.

Agricultural Innovations

Communication networks such as the Halle network were important mechanisms for the distribution of new techniques and innovations. Important for the Mennonites as well as several other German colonies in Russia and

later Latin American were developments and improvements in agriculture. In this way, science was extremely important to farming communities as "scientists at agricultural experiment stations divided their time between fertilizer, seed, and feed control and research."[42] Consequently, the following several decades saw a proliferation of these stations (some connected with universities or academies) until there were at least 64 stations across Germany in 1871—making Germany the center of new agricultural knowledge. Out of these agricultural networks sprouted a new hero of pessimistic farmers: the agricultural improver. Improvers such as Christian Reichart "advised every owner of an estate or garden to have a small plot where he tried out new things." [43] Thus, the establishment of the experimental plots predated and foreshadowed the later nineteenth-century experiment stations.

Agricultural plots and agricultural manuals were well-known in the German states, but the important development was the first establishment of an agricultural experiment station in Möckern outside of Leipzig in 1851. Agricultural experiment stations were entrenched in state institutions as well as information networks. Indeed, Justus Hillebrand suggests that German experiment stations functioned as the prime institutions of agricultural research which established their own transnational information network of agricultural experiment stations based on the German model. Furthermore, this can also be seen in the dissemination of printed information—especially that of the agricultural calendar. These calendars functioned as manuals for farmers on the times to plant determined by rigorous experimentation. This practice has been continued by Mennonites to this day with experimental plots in new colonies in Colombia.[44]

German networks were so far reaching, in fact, that German farmers in Georgia were still in regular contact with university faculty in Moscow and St. Petersburg (who were German-speaking if not German themselves). In Georgia, there also existed cultural institutions such as the German school to which even non-Germans sent their children in order to obtain a higher quality education.[45] Historian Penny makes the important observation that "communication networks deepened and extended across German-speaking Europe and beyond during the second half of the eighteenth century, and a wide variety of literate Germans harnessed them to exchange assumptions, ideas, and information about the world."[46] These agricultural innovations would proceed from the metropol in Germany out along information networks to nodes in the periphery in southeast Europe and Latin America.

Mennonites in Russia

Contact and connection to German educational networks greatly influenced the Mennonites throughout their sojourn. The importance given

to education and its implicit relationship with religion can be found in the popular saying, "As the School,[47] so the Church."[48] In the Mennonite community, the German school was considered near sacrosanct. Each period of nationalization of education created the concern that the main vehicle to maintain their identity and religion, the church-school, would be taken over by the state and their children would lose their Mennoniteness/Germanness.

The first building constructed within each new colony was the church/school. Eventually, a new more spacious school would be constructed, and each village would have its own school. Thus, the German school was a central institution in the Mennonite community, and the connection with German innovation networks made a lasting influence on the tide of Mennonite success and fortune. A good example of the influence of German educational networks on the Russian Mennonites is the career of the Mennonite educator and reformer Johann Cornies.[49]

Born in 1789 in Danzig, West Prussia, Cornies' family migrated and settled in the Molotschna Colony while he was still young. While relatively developed compared to their Slavic neighbors, the educational system in the Russian Mennonite colonies appalled the young Cornies. This childhood experience resulted in Cornies' 1846 article, "In School X," in which he writes, "In a room of a miserable looking house . . . sits the teacher dressed in a linen gown. . . . Around a table a group of pupils are seated in no recognizable order. . . . A little baby is crying in a cradle which one of the schoolgirls has been asked to rock. A hen with her chicks and some pigeons are roaming about among the feet of the children." [50] Apparently, the revelation of these conditions embarrassed and scandalized Prussian Mennonite circles who raised funds to remedy the dire needs of the Mennonite education system in Russia.

Leading the *Christian School Association*, Cornies founded *Central Schools*, a teacher training institute at the oldest congregation in the Molotschna settlement in modern-day Ukraine with the aforementioned Prussian funding. He proceeded to reform education in the colonies by building new model schools, encouraging compulsory attendance (commonplace in Germany at this point), importing new pedagogical methods from Germany, and hiring German teachers to staff the new schools. Due to his efforts, by the time of the Russian Revolution, the Russian Mennonites with a population of 110,000 supported "450 elementary schools with 16,000 pupils and 570 teachers, 25 secondary schools (two of which were considered business schools) with about 2,000 pupils and 100 teachers, thirteen high schools, four girls schools, two teachers colleges, two four-year trade schools and one eight-year business college, a school for the deaf, one deaconess institution, and four Bible schools."[51] In Canada (and later on in Latin America), Russian

Mennonites would build the foundations of their school systems on Cornies' model. This was especially true of the colony of Fernheim[52] in Paraguay, which was populated by a highly educated class of Russian Mennonites who—before their forced migration—controlled six percent of the Russian market in agricultural machinery.

Paraguay Mennonites

It was the creation and maintenance of the German educational networks in Russia that spurred the establishment of agricultural cooperatives[53] in the new colonies in Paraguay. This institution stabilized the Fernheim economy, allowing it to grow into the economic engine it is today. This innovation very quickly spread to the more conservative Menno Colony as the two colonies became competitive in terms of education.[54] This pattern can be seen in earlier times in Russia. The more liberal colony of Molotschna maintained economic ties and trade relations to more modern networks—specifically their German-speaking Pietist neighbors—while the more conservative colony of Choritza maintained ties to the liberal colony receiving the innovative techniques, knowledge, and capital one step removed.[55] Thus, in 1936, all the business in the Menno colony was organized as the legally incorporated agricultural Colony Cooperative (now called *Trebol*), run by the *Choritizer Komitee*. The profits from the Cooperative were used "to expand colony enterprises, maintain and build roads, and support the hospital and general relief."[56] These institutions have—in part—led to the success of the Paraguayan colonies. *Trebol*, the trademark of the Mennonite cooperative, as of 2022 is the leading supplier of dairy and meat products in Paraguay. In fact, it provides half of the local market's dairy requirement.[57] Presently, Paraguay is, in large part due to *Trebol*, the seventh largest beef exporter in the world. For this reason, several scholars (such as Mennonite sociologist Winfield Fritz) have argued that "the cooperative model was essential to the economic success of the Mennonite communities in Paraguay."[58]

Conclusion

From the northern giant of Canada to the southern pampas of Argentina, these Low German migrants—dispersed throughout the continents into their small self-governed colonies and self-contained settlements—form an integral part of the local, regional, and even the world economy. At least in part, their economic success is due to their institutions, such as education embodied in their German schools, which gave them a high rate of literacy.[59] In addition, their literacy and German culture allowed them to tap into German networks of information, especially that of agricultural innovations

such as the agricultural cooperative. Thus, the Mennonites have been able to disproportionately contribute to their local economies.

University of Iowa
Iowa City, Iowa

Notes

[1] Joel Moky, *The Gifts of Athena: Historical Origins of the Knowledge Economy* (Course Book ed. Princeton: Princeton University Press, 2011), 82.

[2] While the German contribution in North America receives much attention, the German transnational community extended into most countries south of the border, notably Brazil.

[3] According to North's theory, knowledge (or power) inequalities between corporate parties within the market are the primary cause of all transaction rates. Therefore, each individual must invest resources in determining the attributes of the product/service one is purchasing and upholding the business contracts. Political/economic institutions aim to minimize these costs because they are such a significant obstacle to economic growth. They frequently do this by disincentivizing theft, fraud, or criminality and promoting reciprocity or integrity.

[4] Glenn H. Penner, "A Guide to the Genealogy of Prussian Mennonites," *Mennonite Heritage Archives* (2021): 16.

[5] Ernest Gellner, *Nations and Nationalism* (Ithaca: Cornell University Press, 1983).

[6] A difficult to define word; it is something like a feeling of togetherness.

[7] In his book, Mokyr conceptualizes what he calls the 'Industrial Enlightenment.' Mokyr argues that "the Industrial Revolution's timing was determined by intellectual developments, and that the true key to the timing of the Industrial Revolution has to be sought in the scientific revolution of the seventeenth century and the Enlightenment movement of the eighteenth century. The key to the Industrial Revolution was technology, and technology is knowledge." Mokyr, *The Gifts of Athena*, 29. Thus, for Mokyr, the Industrial Revolution was an outgrowth of the intellectual movements such as the Enlightenment and the Scientific revolution. He also notes that "the Industrial Enlightenment placed a great of deal of trust in the idea of experimentation." Ibid., 38, 43.

[8] Ibid., 287.

[9] Douglass North, "Institutions," *Journal of Economic Perspectives* 5,1 (1991): 97–112.

[10] There were some precedents on the secularization of the education system in Germany. See Witte in "The Civic Seminary" on "The Brethren of the Common Life" and the development of schools by members of the Hanseatic League by 1500 to service the developing commercial class in those trade and manufacturing centers.

[11] In the context of the Mennonites, Menno Simons also promoted education in his tract, "The Nurture of Children." In this tract, Menno argues for parents to teach children in their homes "to the extent of their understanding" as well as to "direct them to reading and writing." Interestingly, Menno also promoted artisanal work when he directed his followers to teach their children "to spin and do other useful and suitable handicrafts, proper to their years and persons, that you may see much honor and joy in your children."

[12] John Witte, "The Civic Seminary: Sources of Modern Public Education in the Lutheran Reformation of Germany," *Journal of Law and Religion* 12, 1 (1995): 185.

[13] Melanchthon led the reorganization of the education system (even writing pedagogical textbooks on teaching himself). Ironically, the modern secular German university has even

been called his creation. See Thomas Albert Howard, *Protestant Theology and the Making of the Modern German University* (Oxford: Oxford University Press, 2006), 62. The secularization went hand in hand with the decentralization of education. Cipolla notes that until the middle of the eighteenth century, the entirety of the French educational institution was under the monopolistic control by the Catholic Church. See Carlo M. Cipolla, *Literacy and Development in the West* (Harmondsworth: Penguin, 1969).

[14] Witte, "The Civic Seminary," 9.

[15] Cipolla, *Literacy and Development in the West*, 84.

[16] Ibid., 23.

[17] Ibid., 49.

[18] Ibid., 49.

[19] Ibid., 8.

[20] Howard, *Protestant Theology*, 83.

[21] Ibid., 82.

[22] Nan Li, "An Inquiry Into the Evolution of German Compulsory Education Law," *Advances in Social Science, Education and Humanities Research* 416 (2020): 1030.

[23] Ibid., 1030.

[24] Cipolla, *Literacy and Development in the West*, 84.

[25] Howard, *Protestant Theology*, 4.

[26] Jan Östling, *Humboldt and the Modern German University: An Intellectual History* (Lund University Press, 2018), 31.

[27] Howard, *Protestant Theology*, 35.

[28] August Hermann Franke was a late seventeenth-century Pietist reformer in the Lutheran church. He believed that in order to understand Scripture a believer must be literate and educated to read and comprehend the Bible. To this end, he established various institutions in Halle to spur Christian education. The pedagogy developed in Halle soon spread to other educational institutions in Germany and beyond.

[29] According to Hieronymous Freyer, a Paedagogium director, these woodturning stations were not meant "to produce a variety of finished products but to generate motion and knowledge," using the term Wissenschaft. See Kelly Joan Whitmer, *The Halle Orphanage as Scientific Community: Observation, Eclecticism, and Pietism in the Early Enlightenment* (Chicago and London: The University of Chicago Press, 2015), 6.

[30] M. Fundaminski, "The Communications Network Of Halle Pietists In Russia," in *Foreign Churches in St. Petersburg and Their Archives, 1703-1917* (Leiden: Brill, 2007), 115.

[31] From its inception, the Halle Orphanage was intentionally designed as an archetype to be copied and replicated in other cities around the world. Whitmer notes that "In 1711 Francke described the Halle Orphanage as an archetype and remarked that there were already many attempts under way to start similar orphanages in other cities." Efforts to replicate the Halle Orphanage gained momentum mainly in the territories of Brandenburg-Prussia, yet there were also efforts under way in Hesse, Saxony, and Bavaria; parts of Russia; Denmark; and southeastern India. In North America, Renate Wilson has noted that "there were three specific and well documented attempts to replicate salient features of the Halle Orphanage . . . the Ebenezer orphanage in the Salzburger Georgia settlement, founded in 1733; George Whitfield's Bethesda Orphanage in Georgia founded in 1740; [and] the Economic Orphanage planned but never fully realized by Halle's emissaries in Pennsylvania . . . between 1750 and 1775." See Whitmer, *The Halle Orphanage*, 109.

[32] Ibid., 4.

[33] Ibid., 2.

[34] The Tsar was also wooed by one Pietist leader by the name of Leibniz who promised to reveal the secrets of "geomagnetism" that would give Russia an advantage over other developed

nations. See Whitmer (2015), 95.

[35] Fundaminski, "The Communications," 116.

[36] Ibid., 120.

[37] Functionally, these so-called Halle Reports circulated around these information pathways to publish missionary efforts, fundraising, and general world information. One such Report was a periodical publication known as Ost-Indische Missions-Berichte (Reports of the East Indies Mission) which were able to raise funds for missions and maintain correspondence with missionaries. See Fundaminski, "The Communications," 121.

[38] Whitmer, *The Halle Orphanage*, 87.

[39] Ibid., 90.

[40] Fundaminski, "The Communications," 116.

[41] Ibid., 119.

[42] Justus Hillebrand, "To Know the Land with Hands and Minds: Negotiating Agricultural Knowledge in Late Nineteenth-Century New England and Westphalia" (Ph.D. diss., University of Maine, 2021), 61.

[43] Denise Phillips. "Experimentation in the Agricultural Enlightenment Place, Profit and Norms of Knowledge-Making in Eighteenth-Century Germany," *Notes and Records: The Royal Society Journal of the History of Science* 72, 2 (2018): 163.

[44] Based on my own interviews with Mennonite farmers in the Liviney colony.

[45] H. Glenn Penny, *German History Unbound: 1750s to the Present* (Cambridge: Cambridge University Press, 2022), 29.

[46] Ibid., 62.

[47] One of, if not the, most important influences upon the Mennonites from their refuge in Germany was a religio-cultural devotion to education/literacy. Cipolla notes that "In Germany, at least since the seventeenth century, teachers seem to have commanded much public respect. 'Touching the Germans education in schools,' Fynes Moryson reports, 'Upon the day of St Gregorye, and no other day of the yeare, the schoolmester and schoolers of the publike schoole in some cittyes, march about the streetes in theire best appparrell and festival pompe, to receave new schoolers, whom the parents make ready against that day, to present them as they passe, and enter them into the schoole.' Such formal ceremonies indicate a public respect for teachers and schools; at the same time they must have fostered it. In 1836, Victor Cousin praised "the consideration in which the office of schoolmaster is held" in Holland." See Cipolla, *Literacy and Development in the West*, 31.

[48] J. Winfield Fritz, *Mennonite Colonization in Mexico* (Akron, PA: The Mennonite Central Committee, Publication Number 2, 1945), 26.

[49] For a more thorough background on Cornies, see Harvey L. Dyck, tr. and ed., "Agronomist Gavel's Biography of Johann Cornies (1789-1848)," *Journal of Mennonite Studies* 2 (1984), and M. S. Harder, "A Pioneer Educator – Johann Cornies," *Mennonite Life* (October 1948): 6-7.

[50] Harder, "A Pioneer Educator," 18.

[51] John Eicher, *Exiled Among Nations: German and Mennonite Mythologies in a Transnational Age* (Cambridge: Cambridge University Press, 2020), 45.

[52] Attendance was required of all Fernheim children for six years. Afterwards, they may attend the Zentralschule (secondary school), which offered an additional four-year course of study. Higher levels of education were offered by the Pedagogical Institute (Pädagogisches Institut).

[53] Economic historian Guinnane traces the growth of the credit cooperative in Germany. He has found that "the success of credit cooperatives emphasizes their ability to capitalize on superior information and to impose inexpensive but effective sanctions on defaulters. These features supposedly permit cooperatives to lend to individuals whom banks would spurn, and

to tailor loan terms more closely to borrowers' needs. I use the business records of several German credit cooperatives to test this claim. The results show that real efficiency advantages are at least part of the explanation for their success." This new form of organization followed along the same information pathways as new agricultural knowledge to the Mennonites in Russia. See T. Guinnane, "Cooperatives as Information Machines: German Rural Credit Cooperatives, 1883–1914," *The Journal of Economic History* 61, 2 (2001): 366-89.

[54] Ernst Bergen, *Jumping Into Empty Space: A Reluctant Mennonite Businessman Serves in Paraguay's Presidential Cabinet* (United States: Good Books, 2008), 23.

[55] For a wider analysis of this relationship, see James Urry, "The Russian State, the Mennonite World and the Migration from Russia to North America in the 1870s," *Mennonite Life* 46, 1 (1991).

[56] J. Peters, "Mennonites in Mexico and Paraguay: A Comparative Analysis of the Colony Social System," *The Journal of Mennonite Studies* 6 (1988): 204.

[57] See Lorenzo Cañás Bottos, Old Colony Mennonites in Argentina and Bolivia: Nation Making, Religious Conflict and Imagination of the Future (Leiden: Brill, 2008), 66, and Leo-Paul Dana and Teresa E. Dana, "Collective Entrepreneurship in a Mennonite Community in Paraguay," *Latin American Business Review* 8, 4 (2008): 92.

[58] Dana, "Collective Entrepreneurship," 93.

[59] At least, in comparison to the local population at the start of their initial colonization. Over time, these rates have risen and fallen in relation to the strength or weakness of the colonial and/or national institutions.

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