

### TRANS-ECOLOGICAL EXCHANGES AND THE GEOGRAPHY OF THE SILK ROADS

Conventional accounts of Silk Roads history are accurate as far as they go. However, they understate the role of trans-ecological exchanges with and through the steppes, and this has warped our understanding of Silk Roads geography and history.<sup>16</sup> Neglect of the trans-ecological role of the Silk Roads is surprising, because the evidence for extensive and ancient systems of inter-ecological trade across Eurasia is abundant and transparent, and it has been examined closely in recent studies of Eurasian pastoral nomadism.<sup>17</sup>

In the first place, the very geography of the Silk Roads suggests that trans-ecological exchanges must have been as important as trans-civilizational exchanges. For much of their length, the Silk Roads passed through or along the edges of arid steppes or desert lands occupied by pastoralists. As Curtin points out, ecological frontiers of this kind constitute natural zones for exchange because the products and needs on each side are very different, so that “goods normally pass across this ecological divide with greater intensity than they do in more homogeneous environments.”<sup>18</sup> In other words, it would have been surprising if the Silk Roads had *not* been enmeshed in networks of inter-ecological as well as inter-civilizational exchanges.

Second, any list of the goods traded along the Silk Roads will show the presence of large amounts of steppeland or woodland products, while some of the goods produced in the agrarian world were made especially for export to the steppes. Any enumeration of the major goods traded along the Silk Roads can be used to illustrate this point. The following is merely one random example. Writing in about 985 c.e., the Islamic geographer al-Muqaddasi listed some of the exports of central Asia:

<sup>16</sup> This is not true of all accounts. Franck and Brownstone, *The Silk Road*, pp. 30–32, describe in some detail what they call the “Eurasian steppe route” from China to the Mediterranean, but they add that “its exposure to the ever-contending peoples of the steppe meant that it could rarely be the main route for vulnerable travellers” (p. 32), an assertion that misses the role of trans-ecological trades in the normal functioning of the Silk Roads.

<sup>17</sup> That pastoral nomads had extensive trading relations with sedentary communities is the central idea of A. M. Khazanov’s fundamental study, *Nomads and the Outside World*, 2d ed. (Madison: University of Wisconsin Press, 1994). See also T. J. Barfield, *The Nomadic Alternative* (Englewood Cliffs, N.J.: Prentice-Hall, 1993); and N. di Cosmo, “Ancient Inner Asian Nomads: Their Economic Basis and Its Significance in Chinese History,” *Journal of Asian Studies* 53 (1993): 1092–1126, and “State Formation and Periodization in Inner Asian History,” *Journal of World History* 10 (1999): 1–40.

<sup>18</sup> Curtin, *Cross-Cultural Trade*, p. 16.

from Tirmidh, soap and asafoetida [a strong smelling resinous herb]; from Bukhara, soft fabrics, prayer carpets, woven fabrics for covering the floors of inns, copper lamps, Tabari tissues, horse girths (which are woven in places of detention), Ushmuni fabrics [from the Egyptian town of Ushmunayn], grease, sheepskins, oil for anointing the head; . . . from Khorezmia, sables, miniver [a white fur], ermines, and the fur of steppe foxes, martens, foxes, beavers, spotted hares, and goats; also wax, arrows, birch bark, high fur caps, fish glue, fish teeth [perhaps a reference to walrus tusks, which were carved into knife handles or ground up and used as medicine], castoreum [obtained from beavers and used as a perfume or medicine], amber, prepared horse hides, honey, hazel nuts, falcons, swords, armour, khalanj wood, Slavonic slaves, sheep and cattle. All these came from Bulghar, but Khorezmia exported also grapes, many raisins, almond pastry, sesame, fabrics of striped cloth, carpets, blanket cloth, satin for royal gifts, coverings of mulham fabric, locks, Aranj fabrics [probably cottons], bows which only the strongest could bend, rakhbin (a kind of cheese), yeast, fish, boats (the latter also exported from Tirmidh). From Samarqand is exported silver-coloured fabrics (simgun) and Samarqandi stuffs, large copper vessels, artistic goblets, tents, stirrups, bridle-heads, and straps; . . . from Shash [modern Tashkent<sup>19</sup>], high saddles of horse hide, quivers, tents, hides (imported from the Turks and tanned), cloaks, praying carpets, leather capes, linseed, fine bows, needles of poor quality, cotton for export to the Turks, and scissors; from Samarqand again, satin which is exported to the Turks, and red fabrics known by the name of mumarjal, Sinizi cloth [from the Fars region, though originally the flax for them came from Egypt], many silks and silken fabrics, hazel and other nuts; from Farghana and Isfijab, Turkish slaves, white fabrics, arms, swords, copper, iron; from Taraz (Talas) goatskins. . . . There is nothing to equal the meats of Bukhara, and a kind of melon they have called ash-shaq (or ash-shaf), nor the bows of Khorezmia, the porcelain of Shash, and the paper of Samarqand.<sup>20</sup>

Even a superficial inspection of this list shows the presence of many goods that derive from trans-ecological rather than trans-civilizational exchanges. Al-Muqaddasi points out helpfully that most of the goods exported by Khorezmia came from Volga Bulghar, the lands

<sup>19</sup> The province near modern Tashkent; its capital, Binkath, may have been on the site of modern Tashkent. See W. Barthold, *Turkestan down to the Mongol Invasion*, 4th ed. (London: E. J. W. Gibb Memorial Trust, 1977), p. 171.

<sup>20</sup> Quoted in Barthold, *Turkestan*, pp. 235–36; comments in parentheses by Barthold; in square brackets, by Christian, some based on Barthold's footnotes. On castoreum and walrus tusks, see A. Burton, *The Bukharans: A Dynastic, Diplomatic and Commercial History, 1550–1702* (New York: St. Martin's Press, 1997), pp. 385, 387; chap. 10 of this work offers a detailed list of goods traded by Bukharan traders in the sixteenth to eighteenth centuries C.E.

centered on modern Kazan. But even without his help a contemporary would have immediately recognized typical steppeland or woodland products, including livestock, livestock produce, slaves, and furs traded from the woodlands north of the steppes, or northern exotica such as falcons, castoreum, walrus tusks, and amber. Even the manufactured goods of towns like Khorezmia were often produced for sale to steppeland communities, as were many of the goods made by Greek artisans in Black Sea trading cities in the time of Herodotus.

The urban geography of the Silk Roads also points to the importance of the trans-ecological routes. If cities such as Chang'an (modern Xi'an) or Kashgar or Bukhara sat firmly astride the main inter-civilizational trade routes, many other cities did not. But they flourished nonetheless. These cities include Gurganj in Khorezm; Tashkent on the river Syr-Darya; Kalgan, north of Beijing; Kerch in the Crimea; and Sarai on the Volga. All these cities were built in, or at the edges of, the steppes and depended for their survival on good relations with pastoralist communities through whose lands passed the caravans that generated so much of their commercial wealth. This was particularly true of Khorezm, whose military security and commercial wealth depended entirely on the success of its dealings with pastoralists. Because of their special role in trade with the steppes and Siberia, Khorezmians could be found throughout Mawara'n-nahr and Khorasan a thousand years ago, where they stood out because of their tall fur hats.<sup>21</sup>

But we don't need to rely on a sense of what must have happened. There is plenty of written and archeological evidence about the many trans-ecological routes that crossed the arterial trans-civilizational routes from China to the Mediterranean and linked regions of pastoralism with regions of agriculture. This evidence shows that the transverse routes were not just tacked onto the arterial routes. They were older than the arterial routes, and were always integral to the functioning of the Silk Roads. Evidence for the significance and extent of such trans-ecological exchanges is abundant for all periods of Silk Roads history, and reaches deep into prehistory.

Focusing on the trans-ecological branches of the Silk Roads suggests the need for a revised account of Silk Roads history. It suggests, first, that the Silk Roads originated deep in prehistory. Second, it suggests a different account of their functioning in the classical era. Third, it helps explain the changing geography of the Silk Roads during the second millennium of the modern era.

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<sup>21</sup> Barthold, *Turkestan*, p. 238. C. E. Bosworth stresses the importance of relations with pastoralists in *The Ghaznavids*, 2d ed. (Beirut: Librairie du Liban, 1973), p. 259.

## PREHISTORY OF THE SILK ROADS

Archeological studies come into their own as soon as we ask about the origins of the Silk Roads. Archeological evidence from the steppelands of Inner Eurasia shows that widespread systems of exchange were very old indeed in this region. The reason is simple. The Inner Eurasian steppelands were occupied, probably since the fourth millennium B.C.E., and certainly by 3000 B.C.E., by communities practicing extensive and mobile forms of horse pastoralism, which ensured that their contacts and influence would extend over large areas. Indeed, the emergence of mobile pastoralist lifeways should probably be regarded as the real explanation for the origin of the trans-Eurasian network of exchanges that the Silk Roads came to symbolize.

The earliest evidence for horse riding comes from the Sredny Stog communities of east Ukraine and south Russia, and dates to c. 4000 B.C.E., though it is also possible that horses were domesticated farther east, at sites such as Boatai in north Kazakhstan, at about the same time.<sup>22</sup> The use of horses for transportation was one of a series of technological innovations that Andrew Sherratt has called the "Secondary Products Revolution." These allowed more intensive exploitation of livestock for their draft power, their furs, and their milk, as well as their meat.<sup>23</sup> More intensive exploitation of domestic animals allowed whole communities to live mainly from livestock products, and that, in turn, allowed whole communities to settle the Inner Eurasian steppes for the first time. Pastoralism always tended to be a more mobile lifeway than agriculture, for the simplest way of feeding large herds of livestock was to move them from pasture to pasture throughout the year. Evidence of increased mobility, such as the appearance of burial mounds (*kurgany*), often containing slaughtered livestock, appears in the steppes of south Russia and west Kazakhstan from at least the middle of the fourth millennium B.C.E.<sup>24</sup>

The mobility of Inner Eurasian pastoralists ensured that contacts

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<sup>22</sup> D. W. Anthony and D. R. Brown, "The Origins of Horseback Riding," *Antiquity* 65 (1991): 22–23; and P. M. Dolukhanov, *The Early Slavs: Eastern Europe from the Initial Settlement to Kievan Rus'* (London: Longman, 1996), p. 70. There is a general survey of the origins of Eurasian pastoralism in Christian, *A History of Russia, Central Asia and Mongolia*, 1:chaps. 4 and 5.

<sup>23</sup> A. Sherratt, "Plough and Pastoralism: Aspects of the Secondary Products Revolution," in *Patterns of the Past*, ed. I. Hodder, G. Isaac, and N. Hammond (Cambridge: Cambridge University Press, 1981), pp. 261–305.

<sup>24</sup> V. Dergachev, "Neolithic and Bronze Age Cultural Communities of the Steppe Zone of the USSR," *Antiquity* 63 (1989): 796.

and exchanges of ideas, technologies, goods, languages, and customs would be extensive and vigorous throughout the Inner Eurasian steppe-lands, and would also flow across the ecological borders with neighboring agrarian societies. From their earliest appearance, pastoralists exchanged their produce (livestock, meat, hides, wool) with neighboring sedentary communities, such as the agrarian Tripolye culture of Ukraine. There is also evidence, from perhaps as early as the late fourth millennium, that pastoralist communities could have an impact over very large areas, either through warfare or trade. The earliest hints of pastoralist raids into agrarian regions date from the late fourth millennium. But pastoralist communities also expanded within the steppe-lands. By the second millennium they could be found in eastern Kazakhstan and had begun to spread into parts of Mongolia. Within these huge areas, communities of pastoralists showed remarkable technological, cultural, and even linguistic homogeneity. In his fine study of the spread of the Indo-European languages, J. P. Mallory concludes that "the evidence is slowly accumulating to support the existence of a vast extension of material culture, economy, ritual behavior and physical type from the Pontic-Caspian eastward to the Yenisei by about 3000 B.C."<sup>25</sup> The size of this zone reflects the high mobility of pastoralist cultures, and the amount of technological, cultural, and economic exchange that went on between different pastoralist regions. Clearly, significant trans-Eurasian exchanges of goods, cultures, and ideas precede the conventional date for the origins of the Silk Roads by at least two millennia. And these exchanges took place almost entirely through the mediation of pastoralist communities living in the Inner Eurasian steppes.

What was exchanged within and beyond the steppes? Languages, certainly, for the expansion of pastoralism offers the best explanation for the spread of Indo-European languages from somewhere north of the Pontic steppes to Xinjiang, by 2000 B.C.E. In the second millennium B.C.E. Indo-European languages spread, also, into Persia, Mesopotamia, and northern India. Languages were spread mainly by migrations of pastoralist peoples. Before the first millennium B.C.E. the main current of these movements was from west to east. But counter-currents became increasingly important from 1000 B.C.E., and by 1 B.C.E. westward movements dominated large-scale migrations within the Inner Eurasian steppes, in a process that initiated the expansion of the

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<sup>25</sup> J. P. Mallory, *In Search of the Indo-Europeans* (London: Thames and Hudson, 1989), p. 226.

Turkic family of languages. Trade goods were probably exchanged most vigorously across the ecological border separating pastoralists and farmers, though some goods undoubtedly passed through the steppes in chains of tribute or gift giving. Within the steppes the spread of new techniques was particularly important. These included the fundamental techniques of pastoralism itself—livestock-management, the use of horses and camels for transportation, and so on. During the third millennium B.C.E. Mesopotamian wheat and barley may have spread through the steppes to northern China, together with the techniques needed to cultivate them, for many pastoralist communities raised the occasional crop of grain despite their mainly nomadic lifeways. Metallurgical skills also spread within and beyond the steppes. E. N. Chernykh has shown that in the Bronze Age there were vigorous exchanges of goods between metal-producing areas of the Caucasus and the pastoralist lands to their north.<sup>26</sup> After c. 1800 B.C.E. there appeared a group of new “metallurgical provinces” farther east. These expanded northward into parts of Siberia (where they brought forest-dwelling communities within the metal-using zone for the first time), southward into central Asia, and also eastward to include much of Kazakhstan as well as the Mongolian steppes and even parts of north China. There is strong evidence that bronze-casting techniques developed independently in China, so that these new “metallurgical provinces” may reflect a merging of the metallurgical traditions of China and the far west.<sup>27</sup> Chariot technology may also have spread through the steppes to China, northern India, and Mesopotamia. The elaborate horse burials of the Sintashta culture, near modern Magnitogorsk, which date from c. 2000 B.C.E., contain some of the earliest known light carts or “chariots.”<sup>28</sup>

By 2000 B.C.E., then, and perhaps even earlier, languages, genes, technologies, styles, and lifeways were being exchanged through the steppes of Inner Eurasia with an intensity unmatched in the less mobile communities of Eurasia’s agrarian civilizations. And regional exchanges between pastoralists and farmers at the edges of the steppes

<sup>26</sup> E. N. Chernykh, *Ancient Metallurgy in the USSR: The Early Metal Age* (Cambridge: Cambridge University Press, 1992), p. 159.

<sup>27</sup> Chernykh, *Ancient Metallurgy*, pp. 200, 305; see also Kwang-chih Chang, *The Archaeology of Ancient China*, 3d ed. (New Haven: Yale University Press, 1977), p. 279.

<sup>28</sup> D. W. Anthony and N. B. Vinogradov, “Birth of the Chariot,” *Archaeology* 48 (1995): 36. On Sintashta, see A. H. Dani and V. M. Masson, eds., *History of Civilizations of Central Asia*, 4 vols. (Paris: Unesco Publishing, 1992), 1:347–48; and Mallory, *In Search of the Indo-Europeans*, p. 347. On the linguistic and mythological evidence, E. E. Kuz'mina, *Drevneishye skotovody ot Urala do Tyan-Shanya* (Frunze, 1986), pp. 28–29.

ensured that the entire Afro-Eurasian landmass was influenced in some degree by the exchanges that took place through the steppes.

By 2000 B.C.E. goods were probably also being exchanged through the steppes between different regions of agrarian civilization. Goods were probably transported between Mesopotamia and central Asia during the third millennium, while the presence of nephrite jade objects in China suggests that China had contact with the Tarim basin from as early as the second millennium B.C.E.<sup>29</sup> The central parts of the Silk Roads were certainly commercially active by 2000 B.C.E. In central Asia, the natural turntable for trans-Eurasian exchanges, flourishing and well-fortified urban centers appeared toward the end of the third millennium, and it seems likely that they depended for much of their wealth on systems of middle- and long-distance trade. In recent work, the emerging urban civilization of central Asia in this period is described as the "Oxus civilization." The importance of trade with the steppes is shown by the presence of vessels manufactured by pastoralists. The Oxus cities also exchanged ideas and even religious notions with the steppes. The use of hallucinogenic substances similar to Vedic "soma" or Zoroastrian "haoma" in the temples of the Oxus *qala* can also be interpreted as evidence of shamanistic influences from the steppes.<sup>30</sup> A fascinating cylindrical seal from the Togolok site shows acrobats wearing monkey masks and dancing to the beat of a drum. Indeed, Francfort has suggested that shamanistic influences may have been more important than those from the Middle East in the iconography of the Oxus civilization.<sup>31</sup> Later analogies make it seem very likely that the Oxus cities bought livestock produce from, and sold grain to, neighboring pastoralists. Furthermore, some of the Oxus cities included fortified centers, or *qala*, which may have played the role of caravanserais. But these were not just systems of regional trans-ecological trade. The cities of the Oxus civilization also traded with Mesopotamia and northern India. Most significant of all, they may even have traded with China, directly or indirectly. This is suggested by the finding of the earliest evidence of silk outside China, at Sapalli in northern Bactria, at a site dated to early in the second millen-

<sup>29</sup> Franck and Brownstone, *The Silk Road*, pp. 39–45.

<sup>30</sup> V. I. Sarianidi, "Temples of Bronze Age Margiana," *Antiquity* 68 (1994): 388–97; Sarianidi, "New Discoveries at Ancient Gonur," *Ancient Civilizations* 2 (1995): 302, 310; and L. P'yankova, "Central Asia in the Bronze Age," *Antiquity* 68 (1994): 356.

<sup>31</sup> H.-P. Francfort, "The Central Asian Dimension of the Symbolic System in Bactria and Margiana," *Antiquity* 68 (1994): 415, which also reproduces the Togolok seal, and stresses the role of shamanism. Also Sarianidi, "Temples of Bronze Age Margiana," p. 394.

nium.<sup>32</sup> By 2000 B.C.E. the Oxus civilization was already the center of a network of both trans-ecological and trans-civilizational trade that reached across the entire Afro-Eurasian landmass.

Evidence such as this justifies the claim of a recent history of the Silk Roads that “by the opening of the second millennium B.C., a trading route stretched clear across Asia; not a continuous road, to be traversed by any one person, but a chain of many trading links, connecting Western Asia and China over a distance of almost 5,000 miles.” It also underpinned the claim of Frank and Gills that the whole of Eurasia belonged to a single world-system from as early as the second millennium.<sup>33</sup> By 2000 B.C.E., this world-system linked two distinct systems of exchange: an embryonic system of trans-civilizational exchanges, whose hub was the cities of the Oxus civilization; and an extensive and well-established system of exchanges within and beyond the Inner Eurasian steppes.

All in all, it seems reasonable to conclude that by 2000 B.C.E. the network of exchanges we know as the “Silk Roads” was already functioning as a system of vigorous and widespread exchanges within and sometimes beyond the Inner Eurasian steppes.<sup>34</sup> And these early systems of exchange depended largely on the role of pastoralist communities. As Franck and Brownstone point out: “at a very early time, nomads were bringing to the cities copper, tin, and turquoise from Iran, gold from the Altai Mountains of Mongolia, lapis lazuli and rubies from Afghanistan, furs from Siberia, incense from Arabia, cottons from India, and their own products like wool, hides, and livestock. In the process, they carved out the main routes across Asia, among them the Silk Road.”<sup>35</sup>

## THE SILK ROADS IN THE CLASSICAL ERA

Awareness of the deep roots of these networks of exchange, and of the primary role played within them by pastoralists, requires a serious rethinking of standard claims about the history of the Silk Roads in

<sup>32</sup> G. Ligabue, and S. Salvatori, eds., *Bactria: An Ancient Civilization from the Sands of Afghanistan* (Venice: Erizzo, 1989), p. 71.

<sup>33</sup> Franck and Brownstone, *The Silk Road*, pp. 44–45; Frank and Gills, eds., *World System*, p. 84.

<sup>34</sup> For more evidence of continuing trade between China and central Asia after 2000 B.C.E., see A. G. Frank, “The Centrality of Central Asia,” *Bulletin of Concerned Asian Scholars* 24:2 (1996): 62.

<sup>35</sup> Franck and Brownstone, *The Silk Road*, p. 39.

the classical era. We have seen that the standard chronology dates the birth of the Silk Roads from the opening of state-sponsored trade between China and central Asia at the end of the second century B.C.E. These developments were certainly important, and the fact that they were recorded in written sources may explain why they have lodged themselves so firmly in the historiography of the Silk Roads. However, if we shift our attention into the Inner Eurasian steppelands, and make more use of the archeological evidence, we are reminded that vigorous systems of trans-Eurasian exchanges existed well before the reign of Wudi. In reality, Han Wudi, like the Achaemenids and Macedonians before him, merely entered, by force, into already established systems of trans-Eurasian exchanges.

There is some evidence for an intensification of systems of exchange within the steppes early in the first millennium B.C.E. The most striking evidence comes from the rapid diffusion of new techniques and new stylistic motifs right across the steppelands. The spread from the central steppes of what we know as “Scythic” lifeways, the lifeways described in Herodotus’s account of the Scythians he encountered on the northern shores of the Black Sea, gave an exceptional homogeneity to the lifeways of Inner Eurasia. The discovery of typical Scythian stylistic motifs, together with carpets showing Iranian influences and an apparently Chinese ceremonial chariot, in the fourth- or third-century Pazyryk tombs near modern Tuva is a reminder that even communities deep in the Inner Eurasian steppes had links with both extremities of the Silk Roads in the first millennium.<sup>36</sup> Scythic cultures also exerted pressure on neighboring agrarian civilizations. Steppe invasions of India in the second millennium were merely the precursor to invasions of Iran at the beginning of the first millennium. By the eighth century Assyria was subjected to periodic invasions from the steppes, and eventually dynasties of invaders established the local ruling elites that were to create the Median and Persian empires.<sup>37</sup> At the other end of the steppes, states in northern China had to introduce cavalry armies in the fourth century to cope with increasing military pressure from pastoralists to the north who shared many elements of the Scythic culture. Increasing contact with the steppes was also

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<sup>36</sup> Karen Rubinson, “A Reconsideration of Pazyryk,” in *Foundations of Empire: Archaeology and Art of the Eurasian Steppes*, ed. G. Seaman (Los Angeles: Ethnographics Press, 1991), p. 71, argues that the Pazyryk tombs belong to the late fourth century B.C.E.

<sup>37</sup> On the pastoralist ancestry of the ruling dynasties of the Medes and Persians, see W. J. Vogelsang, *The Rise and Organisation of the Achaemenid Empire: The Eastern Iranian Evidence* (Leiden: Brill, 1992).

reflected in the spread of cavalry armies outside of the steppes, in the use of pastoralist mercenaries, and in increasing trade with the steppes, in which pastoralists exchanged horses or livestock produce for luxury goods such as silks or ceramics produced in the cities of the great agrarian civilizations.<sup>38</sup>

The emergence of powerful political and military systems in the steppes accelerated these processes of exchange. According to Herodotus, Scythian traders exchanged goods with distant communities using local interpreters.<sup>39</sup> These networks of exchange may have reached as far as the Altai, where the presence of sable fur clothing and even gold in the wealthier Pazyryk tombs suggests the existence of a flourishing trade through this part of what Rubinson has called the "fur routes," linking Siberia with China, from at least the seventh century B.C.E.<sup>40</sup> The importance of the Kerch' peninsula to both Greeks and Scythians suggests that steppe routes along the Don toward the Volga, the Urals, and Kazakhstan were already a lucrative source of commercial revenues by the mid-first millennium B.C.E. However, if there were systems of relay trade reaching through the steppes from Scythia to the Altai and beyond in Herodotus's time, they cannot have functioned regularly or systematically, for the number of goods found in Scythia from central or eastern Asia is small.<sup>41</sup>

Under the Xiongnu, who formed a steppe empire much stronger and better organized than the various polities of the Scythians, the evidence for steppeland trade is more extensive. Wudi's envoy, Zhang Qian, was surprised to find, when he reached central Asia, that some Chinese goods were already well known there, including a distinctively Chinese type of bamboo, while Parthian traders were selling

<sup>38</sup> "Bombycine," or wild silk, was produced on Cos, but in small amounts, and it was of much poorer quality than Chinese silk, being made from a different worm (not the true silk worm, *Bombyx mori*), which was not fed on mulberry leaves, and whose cocoon was not unwound in a single thread. See Boulnois, *The Silk Road*, p. 42; and Franck and Brownstone, *The Silk Road*, pp. 78–79.

<sup>39</sup> A. I. Melyukova, ed., *Stepi evropeiskoi chasti SSSR v skifo-sarmatskoye vremya* (Moscow: Nauka, 1989), p. 120; see Herodotus IV.24 on this trade route. On the problem of state formation in the steppes, see di Cosmo, "State Formation and Periodization in Inner Asian History," and David Christian, "State Formation in the Inner Eurasian Steppes," in *Worlds of the Silk Roads: Ancient and Modern*, Silk Road Studies II, ed. David Christian and Craig Benjamin (Turnhout, Belgium: Brepols, 1998), pp. 51–76.

<sup>40</sup> S. Rudenko, *The Frozen Tombs of Siberia: The Pazyryk Burials of Iron Age Horsemen* (Berkeley: University of California Press, 1970), p. 223. On the "fur route," see Rubinson, "A Reconsideration of Pazyryk," pp. 67–69; and W. Haussig, *Geschichte Zentralasiens und der Seidenstrasse in vorislamischer Zeit* (Darmstadt: Wissenschaftliche Buchgesellschaft, 1983).

<sup>41</sup> Melyukova, *Stepi evropeiskoi chasti*, p. 120.

Chinese silks to Greeks at least by 150 B.C.E.<sup>42</sup> These goods may have traveled through Xiongnu-controlled Xinjiang, or they may have traveled from China to India and then to central Asia. Either way, we can be sure that the Xiongnu were trading with, and exacting tributes from, Xinjiang (which they controlled for most of the second century B.C.E.). But they also controlled systems of exchange, and possibly tribute taking, in central Asia. The first-century B.C.E. tombs from Noin-ula in northern Mongolia contain “wool fabrics, tapestries, and embroideries brought to north Mongolia from Sogdiana, Greek Bactria, and Syria. From the Han empire to the south a huge quantity of various kinds of silk cloth, embroideries, quilted silk, and lacquerware and bronze jewelry came to the Hun headquarters.”<sup>43</sup> Han goods reached the Xiongnu in large quantities in the second century largely as a result of the “tributary” relationship established between the Han and the Xiongnu early in the century. This means that it was not Han Wudi who launched a new phase of Silk Roads history toward the end of the first millennium, but rather the pastoralist Xiongnu, under their first great leader, *shan-yü* Maodun.

What really happened as a result of the conquests of Wudi, at the end of the second century, is that a new branch of the Silk Roads was created. This bypassed the older routes, through the steppelands of Xiongnu-controlled Mongolia. What is reflected in the written record, as in accounts of the sixth-century conquests of the Achaemenids, is really an attempt by agrarian empires to secure a greater degree of control over trade routes that had previously passed through the Inner Eurasian steppes, and had been dominated by pastoralist communities. There can be little doubt that the growing interest of agrarian empires in the Silk Roads increased the amount of trade they carried, for the Achaemenid and Han empires both improved roads and protected travelers along those sectors of the Silk Roads that they controlled in the west and east.

But never did agrarian civilizations control the Silk Roads along their whole length. On the contrary, even at the end of the first millennium B.C.E. pastoralist communities remained vital to the functioning of the Silk Roads. Indeed, the states that had the most direct

<sup>42</sup> R. W. Bulliet, P. K. Crossley, D. R. Headrick, S. W. Hirsch, L. L. Johnson, and D. Northrup, *The Earth and Its Peoples: A Global History* (Boston: Houghton Mifflin, 1997), pp. 223–24.

<sup>43</sup> Evgeny Lubo-Lesnichenko, “The Huns,” in *Nomads of Eurasia*, ed. V. N. Basilov (Seattle: University of Washington Press, 1989), p. 47; and see E. D. Phillips, *The Royal Hordes: Nomad Peoples of the Steppes* (London: Thames and Hudson, 1965), pp. 114–20.

control over the Silk Roads in this period were all of pastoralist origin: the Parthians, the Xiongnu, and the Yuezhi. Further, trade continued to pass through the steppes in considerable volume even in periods of active inter-civilizational trade. For example, trade routes continued to pass through Xiongnu territory even after Han China had broken the Xiongnu monopoly and established routes of its own through Xinjiang. In 81 B.C.E. a Han official commented (in a passage that gives the lie to the view that the Chinese were not interested in trade) that "a piece of Chinese plain silk can be exchanged with the Hsiung-nu [Xiongnu] for articles worth several pieces of gold and thereby reduce the resources of our enemy. Mules, donkeys and camels enter the frontier in unbroken lines; horses, dapples and bays and prancing mounts, come into our possession. The furs of sables, marmots, foxes and badgers, coloured rugs and decorated carpets fill the imperial treasury, while jade and auspicious stones, corals and crystals become national treasures."<sup>44</sup>

The steppes were equally important in the era of the Tang dynasty. We have seen that the Tang dynasty is often credited with the revival of the Silk Roads in the seventh century C.E. In reality, the Silk Roads had revived well before the arrival of the Tang, and the credit for this development belongs to powerful pastoralist rulers, certainly to the Türks, who created a powerful empire in the sixth century, and perhaps to their predecessors, the Juan-juan. Both dynasties traded in alliance with Sogdian merchants, whose ancestors had handled similar trans-ecological exchanges for over 2,000 years. Nor is it adequately appreciated that, although the Silk Roads flourished under the Mongol empire, they did so largely because of the protection of the Mongols. The Mongols were not just surrogates for the Chinese or Persians in this respect. For a time in the mid-thirteenth century the Mongol capital of Karakorum, deep in Mongolia, was the most important single stopping point on the Silk Roads.

#### EXPANSION TO THE NORTH

Emphasizing the trans-ecological branches of the Silk Roads also highlights some distinctive features of their history during the last thousand years. Morris Rossabi has suggested that even if the traditional trans-civilizational routes of the Silk Roads may have declined from

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<sup>44</sup> Quoted in Franck and Brownstone, *The Silk Road*, p. 107.

the sixteenth century, the trans-ecological routes did not. Instead, they flourished, leading eventually to the emergence of new routes north of the steppes.<sup>45</sup> The nature of these more northerly trade routes has recently been described in great detail by Audrey Burton.<sup>46</sup> Rossabi has suggested that this northward shift was caused by disruption of traditional routes. But focusing on the trans-ecological nature of the Silk Roads suggests a deeper reason: the ecological frontiers that governed the traditional geography of the trans-ecological routes were themselves shifting. In the last two millennia the most significant shift of this kind has been associated with the spread of agriculture into the lands of what later became Rus' from c. 500 c.e., followed a thousand years later by the further expansion of Muscovy into Siberia. It is the spread of agriculture, and the appearance of large, sedentary populations in the lands north of the steppes, that explains the emergence of new, more northerly branches of the Silk Roads. Pastoralist or semi-pastoralist rulers now found large agrarian communities to the north as well as to the south, and some managed to exploit these changes with considerable success.

These changes are evident, first, in the lands west of the Urals. There had long been a trickle of trade through this region with woodland communities of Siberia. The tenth-century central Asian scholar al-Biruni (b. 973) described the "silent trade" conducted between Islamic traders and the "Yugra" (modern Khanty and Mansi): "The most distant point, where they [the people of the seventh climate] live together is the country Iura [i.e., country of the Yugra]. . . . [Travelers proceed] on wooden sleighs, in which they load supplies and which are drawn either by themselves or by dogs; and [they] also [travel] on other [sliding devices], made from bone, which they attach to their feet and with the help of which they cover great distances in short periods. Because of their wildness and timidity, the inhabitants of Iura trade in the following manner; they place their goods down in some place and leave them there."<sup>47</sup>

By the end of the first millennium c.e., however, the gravitational pull of the growing populations of Rus' had established new commercial orbits passing from central Asia, through Khazaria and Volga Bulgharia, and toward the Baltic. In recent numismatic studies Thomas

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<sup>45</sup> Rossabi, "The 'Decline' of the Central Asian Caravan Trade," pp. 81, 95–97.

<sup>46</sup> Burton, *The Bukharans*.

<sup>47</sup> Quoted in Janet Martin, *Treasure of the Land of Darkness: The Fur Trade and Its Significance for Medieval Russia* (Cambridge: Cambridge University Press, 1986), p. 21.

Noonan has traced the movement of Islamic silver dinars through this territory from the seventh century.<sup>48</sup> The emergence of these new trading systems soon stimulated the appearance of new political systems, based in part on the revenues they generated. It was on these expanding trades that the power of the Khazar empire was built from the mid-seventh century. From a base in modern Daghestan the Khazar empire expanded to become one of the great international powers of the ninth and tenth centuries, in a region that had never before sustained a polity of such power and wealth. Originally relying on their pastoralist armies, the Khazar rulers shifted their power base to trade and the collection of revenues from trade routes that passed between central Asia, the Caucasus, the Pontic steppes, the woodlands of Russia, and the Baltic. At some point in the eighth or ninth century, the Khazar rulers converted to Judaism, perhaps because of the growing influence of Jewish "Radanite" traders who dominated the trades through their territory and may even have controlled the Silk Routes along their entire length if ibn Khurdadbeh is to be believed.<sup>49</sup> In the ninth century there appeared two significant states in the woodlands north of Khazaria: the khaganate of the Volga Bulgars, and the khaganate of the Rus'. Both were led, like the Khazar empire, by warrior elites with an interest in exploiting the trade routes that flourished as agrarian populations expanded north of the steppes. Both accepted Khazar suzerainty for a time, but eventually asserted their independence, and in the tenth century a reorganized Rus' state, now aligned along the trade routes leading from the Baltic to Byzantium, overthrew Khazaria and became a major international power in its own right.<sup>50</sup>

Between the thirteenth and fifteenth centuries, the "Golden Horde," a remnant of the Mongol empire, controlled these lucrative routes from central Asia to eastern Europe and the Baltic. A new period of expansion began in the fifteenth century as an independent Muscovy expanded into, and eventually beyond, the Urals. The expansion of Muscovy led to the spread of agricultural communities in a thinning chain along the southern borders of Siberia. This created new possibilities for inter-ecological exchanges in regions previously dominated by the smaller scale exchanges of woodland foragers and

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<sup>48</sup> His work is summarized in the recent history of early Russia by S. Franklin and J. Shepard, *The Emergence of Rus 750–1200* (New York: Longman, 1996).

<sup>49</sup> Curtin, *Cross-Cultural Trade*, p. 106.

<sup>50</sup> Christian, *A History of Russia, Central Asia and Mongolia*, 1:chaps. 13 and 14; and Christian "The Khaganate of the Rus': Non-Slavic Sources of Russian Statehood," in *Challenging Traditional Views of Russian History*, ed. S. G. Wheatcroft (Basingstoke: Macmillan, in press).

steppe pastoralists. From as early as the sixteenth century, Bukharan merchants, who had long experience of trading with Inner Eurasia, played a critical role in the trade routes linking Muscovy, Siberia, and China.<sup>51</sup> Central Asian traders had traded into the lands along the Volga River and west of the Urals from the earliest days of Rus' statehood. And they were active in the region when it was dominated by the Muslim rulers of the Golden Horde and the successor states of Kazan and Astrakhan. After the conquest of these states by Muscovy in 1552 and 1556, respectively, Bukharan traders began to deal more directly with Muscovy. From the late sixteenth century delegations of traders regularly traveled from central Asia to Muscovy and also, though less often, in the opposite direction. Bukharan interest in trade with western Siberia dates from at least the late sixteenth century, when the region was dominated by Tsar Kuchum, but it continued after the occupation of the region by Muscovite forces early in the seventeenth century. By the late seventeenth century Muscovy was trading with China itself, often with the mediation of Bukharan traders who were familiar with all the major routes between Muscovy and China. Some of these routes followed traditional itineraries, leading down the Volga to central Asia and then on to Xinjiang and China. Some rejoined the old Silk Roads in east-central Asia, after passing through western Siberia and down the river Irtysh. Others bypassed the traditional routes entirely, traveling either through Mongolia to Urga, or entirely through Siberia to Nerchinsk, and then through Mongolia. Burton lists the following routes used by Bukharan traders: routes to Muscovy through Khorezm and the Kazakh steppes to Astrakhan or sailing up the Caspian to the Volga, then to Samara and Kazan; routes to the Siberian cities of Tobol'sk, Tara, Tyumen', Tomsk, Krasnoyarsk, Yeniseisk, and Irkutsk; routes to Iran and Turkey; routes to India; routes to Kashgaria and then on to China; and routes to the Kazakhs and Mongols.<sup>52</sup>

The expansion and thickening of the network of Silk Roads to the north was not simply a switch of preferences by central Asian traders. It reflected profound changes in the nature of Inner Eurasia's ecological geography. In particular, it reflected the appearance of a second trans-ecological frontier between pastoralism and agriculture, running along the northern borders of the Inner Eurasian steppes.

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<sup>51</sup> See Audrey Burton, *Bukharan Trade 1558–1718*, Papers on Inner Asia 23 (Bloomington: Indiana University, 1993); and Burton, *The Bukharans*.

<sup>52</sup> There is a detailed account of the routes used by Bukharan traders between the sixteenth and eighteenth centuries in Burton, *The Bukharans*, chap. 11.

## CONCLUSION: THE SILK ROADS AND WORLD HISTORY

The modified account of Silk Roads geography and history proposed in this paper has consequences that reach well beyond the study of the Silk Roads or even of the many different societies through which they passed. The main result of exploring the trans-ecological as well as the trans-civilizational exchanges that occurred along the Silk Roads is to show that the exchanges mediated by the Silk Roads were older and more extensive than is suggested in the conventional accounts. If this argument is accepted, it has immense significance for our understanding of the history of the entire Afro-Eurasian landmass. For it suggests that the different regions of Afro-Eurasia—the regions of agrarian civilization, as well as those of pastoralism or woodland foraging cultures—exchanged ideas, languages, goods, cultural motifs, and perhaps also disease vectors, much more vigorously and for a much longer period than is usually appreciated. This conclusion reinforces the claim of Frank and Gills that the entire Afro-Eurasian world belonged to a single world-system, perhaps since early in the second millennium B.C.E. And this suggests, as Hodgson argued long ago and Frank has recently argued in *ReOrient*, that it may be a profound mistake to focus primarily—as does the traditional historiography of Eurasia—on the various component regions or “civilizations” of Eurasia. Instead, to understand the history of each of these parts, it is necessary to see that there is, underlying them, a single Afro-Eurasian history, which is distinct from the history of other major world zones, such as the Americas, sub-Saharan Africa, or Oceania. For Afro-Eurasian societies shared many important things as a result of the exchanges that occurred along the Silk Roads.

What exactly did the different parts of Afro-Eurasia share? Here is a preliminary list. It can only be tentative, for in stressing the unity of Afro-Eurasian history, we are already off the conventional historiographical map. Afro-Eurasian societies shared, as a result of exchanges along the steppe roads, many elements of the secondary products revolution and the technologies associated with it, including the use of livestock power in agriculture, for transportation, and in war, and the use of hides and wool. In later periods new technologies, including the use of compound bows and crossbows, the use of armor in cavalry warfare, the stirrup, and techniques of siege warfare, as well as gunpowder, printing, and papermaking, all diffused throughout Afro-Eurasia. Different parts of Afro-Eurasia also shared religious motifs, including elements of shamanism, which can be detected within Zoroastrianism, Daoism, Sufism, Manicheism, Buddhism, and (according to Carlo

Ginzburg) within some forms of Christianity.<sup>53</sup> There were also more direct exchanges of religions, including Zoroastrianism, Buddhism, Nestorianism, Manicheism, and Islam.<sup>54</sup> The material cultures of different parts of Afro-Eurasia also shared many goods, including silks, carpets, metals, ceramics, furs, and livestock produce. Cultural and stylistic motifs such as Scythic art, or the Iranian cultural patterns that spread along the Silk Roads as far as Japan in the Sasanid period, also embraced large areas of Afro-Eurasia.<sup>55</sup> We have seen that Indo-European languages probably spread from somewhere in western Inner Eurasia to Europe, northern India, central Asia, Iran, and even Xinjiang, in the millennia before the birth of Christ. In the two millennia since then, the Turkic languages have spread in the opposite direction, with almost as much success. People and their genes also traveled extensively along the Silk Roads, as is shown spectacularly by recent finds of Xinjiang mummies that are clearly of Europoid origin. Immunities were also exchanged along the Silk Roads. As Jared Diamond has suggested, Afro-Eurasian communities, partly because of similar uses of livestock, acquired many diseases from their livestock, and exchanges ensured that to some extent they shared immunities to these diseases. McNeill has demonstrated this for the thirteenth century, but the plagues of later Roman history may also indicate the exchange of disease bacteria between different regions of Afro-Eurasia.<sup>56</sup> Indeed, these periodic bacterial exchanges help explain important Eurasia-wide demographic movements, including the demographic downturn of the mid-first millennium C.E. and, of course, the downturn after the Black Death. This shared immune system also helps explain the success of later Eurasian colonialisms, particularly in the Americas and Oceania, where populations lacking immunity to Eurasian diseases died off in horrifying numbers after their first contacts with Eurasians. Finally, Frank and Gills have argued that at least the agrarian civilizations of Afro-Eurasia may also have shared trade cycles, perhaps from as early as 2000 B.C.E.<sup>57</sup>

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<sup>53</sup> Carlo Ginzburg, *Ecstasies: Deciphering the Witches' Sabbath* (Harmondsworth, Middlesex, England: Penguin, 1991).

<sup>54</sup> On religious and cultural interchanges, see, for example, Bentley, *Old World Encounters*; and Samuel N. C. Lieu, *Manichaeism in the Later Roman Empire and Medieval China*, 2d ed. (Tübingen: Mohr, 1992).

<sup>55</sup> On the Iranian impact in Japan, see R. Hayashi, *The Silk Road and the Shoso-in*, trans. R. Ricketts (New York: Weatherhill/Heibonsha, 1975).

<sup>56</sup> Jared Diamond, *Guns, Germs and Steel* (London: Vintage, 1998), chap. 11; and McNeill, *Plagues and Peoples*.

<sup>57</sup> A. G. Frank and B. K. Gills, "World System Cycles, Crises, and Hegemonic Shifts, 1700 B.C. to 1700 A.D.," in Frank and Gills, *World System*, pp. 143–99.

There is no need to make too much of this conclusion, for there were many important things that were *not* exchanged along the Silk Roads. The fact that the Silk Roads were controlled by many different communities, both pastoralist and agrarian, which engaged in a lengthy and complex relay of exchanges, explains why Afro-Eurasia was not more integrated than it was. One of the things that did not travel well along the Silk Roads was accurate geographical and cultural knowledge. This is probably because very few individuals traveled the entire length of the Silk Roads before the era of the Mongol empire. There are many striking examples of the mutual ignorance of those at extreme ends of the Silk Roads. Pliny in his *Natural History*, written c. 70 c.e., described silk as the “wool” of the Chinese forests and claimed that the “Seres” had red hair and blue eyes, a comment that probably refers to Silk Road intermediaries, such as the Yuezhi. Though Pausanias, writing in the second century, knew that silk came from worms, Ammianus, writing in the fourth century, was still insisting that it came from trees. Not until the sixth century, when Byzantium acquired and began to cultivate silkworms, did good knowledge about silk production reach the Mediterranean. The reception of Marco Polo’s writings about China in the thirteenth century is a reminder that ignorance about China persisted for a long time in the West. Meanwhile, Chinese sources show an equal ignorance about the Mediterranean world.<sup>58</sup> We know of no Chinese travelers who certainly went the entire length of the Silk Roads in the classical era, though there were embassies passing between China and Parthia from c. 100 b.c.e.<sup>59</sup> In c. 97 c.e. a Chinese official, Gan Ying, was sent to Rome from Xinjiang by Ban Chao, who had reconquered the region for the later Han dynasty. Gan Ying reached “Tiaozhi,” near “the great sea” (probably in Mesopotamia), but there, Parthian officials eager to maintain their monopoly of trade with Rome dissuaded him from going farther. They told him that the journey to Rome would take at least several months and could take several years, so that many who traveled that way died of homesickness. At this, Gan Ying turned back and Chinese sources record that no one repeated his exploit.<sup>60</sup> Not until the era of the Mongol empire was it common for merchants to travel the entire length of the Silk Roads. In a strange sense, the mutual ignorance that

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<sup>58</sup> Boulnois, *The Silk Road*, pp. 45–46, 78.

<sup>59</sup> Franck and Brownstone, *The Silk Road*, p. 106, citing Sima Qian.

<sup>60</sup> Boulnois, *The Silk Road*, pp. 68–69; Franck and Brownstone, *The Silk Road*, pp. 125–29.

was sustained by the segmented nature of the Silk Roads has been preserved in a modern historiography that still finds it difficult to perceive the underlying unity of Afro-Eurasian history.

So there were, indeed, limits to the unity of Afro-Eurasia, and traditional historiography has rightly emphasized the distinctive features of each region of Afro-Eurasia. Nevertheless, the careful study of phenomena such as the Silk Roads, which linked the different regions of Afro-Eurasia over long periods of time, suggests that we must also take seriously the underlying unity of Afro-Eurasian history, and begin constructing a unified and coherent history of Afro-Eurasia. The construction of such a history would have an impact on many different fields of historiography. The recent work of Andre Gunder Frank has highlighted what may be the most striking historiographical consequence of seeing Afro-Eurasian history whole. As he has argued in *ReOrient*, such a perspective suggests that the rise of modernity itself can best be seen as a product of the rich economic and technological synergy generated over several millennia between different parts of Eurasia, rather than as a product of the peculiarities of any particular regional culture or “civilization.”<sup>61</sup> The richness and scale of the synergy generated within the Afro-Eurasian world is, of course, a direct reflection of the size and variety of the Afro-Eurasian world-system, and understanding this helps us see why modernity had its roots within this system, not elsewhere in the world. This, too, is an argument that has been anticipated in the work of Marshall Hodgson. In an essay first published in 1967 Hodgson argued:

Just as the first urban, literate life would have been impossible without the accumulation among a great many peoples of innumerable social habits and inventions, major and minor, so the great modern cultural mutation presupposed the contributions of all the several citted peoples of the eastern hemisphere. Not only were the numerous inventions and discoveries of many peoples necessary—for most of the earlier basic ones were not made in Europe. It was also necessary that there exist large areas of relatively dense, urban-dominated populations, tied together in a great interregional commercial network, to form the vast world market which had gradually come into being in the eastern hemisphere, and in which European fortunes could be made and European imaginations exercised.<sup>62</sup>

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<sup>61</sup> Frank, *ReOrient*.

<sup>62</sup> “The Great Western Transmutation,” in Hodgson, *Rethinking World History*, p. 47.

The only correction needed to this sweeping claim is to add that pastoralists also played a critical role in the system of exchanges that Hodgson describes. Pastoralists created and continued to play a vital role in the functioning of the Silk Roads, the largest single network of exchanges on earth before the sixteenth century. If Hodgson and Frank are right, we must regard modernity itself as an indirect product of the rich synergy created by the huge and ancient system of exchanges we label the "Silk Roads."