**Incursions, Climate Change, and Early Globalization Patterns[[1]](#footnote-1)**

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...we live in the midst of an intricate series of cycles, some of which are closely associated with atmospheric differences (Huntington, 1972)

“Barbarian” incursions are fascinating in their own right. They show up at interesting times and places throughout much of Eurasian history.[[2]](#footnote-2) They pit lean and mean horsemen (after a certain point) against more powerful urbanized powers who often lose their confrontations to the ostensibly weaker opponent. In some cases, the incursions appear to be game changers. The ultimate example is the Mongol conquest of two-thirds of Eurasia in the 13th century CE. Yet one could easily add the Barbarian invasions that played some role in the fall of the Roman Empire or the Muslim expansion that burst forth from the Saudi peninsula in the 7th century CE.

They are also interesting because they are possibly important parts of systematic rise-and-fall dynamics that drove ancient and medieval history in a variety of places. Should climate change be a key variable in fashioning a Big History interpretation? Did societies collapse because they were attacked intermittently by nomads from the desert and mountains? Did societies collapse because they exhausted their resource bases and had to de-centralize as a consequence? Or, did societies collapse because climate change pulled the rug out from underneath agrarian systems operating on the margins of survivability? For that matter, did barbarian incursions accelerate, thwart, or play little role in the jerky movement toward greater Eurasian interdependence over the past 4 to 5 millennia?

My position is that incursions from the mountains, steppes, and deserts are part of recurring processes that stimulated societal organization and re-organization throughout recorded history, and probably before that time as well.[[3]](#footnote-3) Eurasia became a more integrated system in part due to the role of incursions, at least in the long term if not always in the short term. But the main reason that this significant role has occurred is due less to the military capabilities of the marauding attacks and invasions and more to the primary reason barbarian incursions took place. Incursions reflect, for the most part, cyclical climate change in Eurasia predicated in part on the nature of monsoon rains coming in from Africa and the Indian Ocean. When these rains were less favorable and other things being equal, urbanized agrarian systems became much more vulnerable. So, too, did nomads who need grass for their flocks and herds. More arid conditions would push nomads towards the rivers on or near which cities were built. Clashes would take place in which the highlanders or steppe dwellers could win if the urbanized areas were in decline. If they were not in decline, the nomads would be far less likely to attack in the first place. In addition, temperature changes – colder to warmer and vice versa – tended to impact differently in different parts of Eurasia. Cooler weather, for instance, could be good for Near Eastern/Mediterranean cities but less desirable for the steppes farther to the north. Warmer weather could work in the opposite direction. Hence, temperature and precipitation could have differential impacts. One question is to what extent they worked in tandem – as in higher temperatures and less precipitation or the reverse? Another is just how much change in one direction or another was experienced. Current arguments about the different effects of 2 degrees Centigrade on up the scale are applicable to earlier eras as well.

In any event, the general rule was that nomads or tribal forces from the hinterlands fought sedentary center forces throughout time.[[4]](#footnote-4) They had incentives to cooperate given their different political economies but conflict was fairly prevalent. When the center was strong, it was all the more likely to attack the hinterland if for no other reason than to demonstrate its power and expand its influence. When the center was weak, hinterland nomads and tribal forces were more likely to attack and to be successful in their attacks. This type of generalization could be supported by a host of power configurations. Empires rose and fell. Thus we might expect more imperial aggression towards the hinterland in the earlier years and more hinterland aggression in the declining years of an imperial trajectory, assuming appropriate hinterland populations in the vicinity – of which there were usually plenty. But the question is whether this pattern is merely a reflection of imperial rise and decline or something more systematic?

There is evidence to suggest that it is both. Exogenous variables worked to strengthen and weaken centers and hinterlands. Climate change is not the only variable that is important but it may have been the most important one and, as well, often the least visible one. It is not that historians have missed the role of climate change altogether but they have tended to downplay its significance in three ways. One has to do with the ideological stance that resilient individuals make their own destinies regardless of how impactful systemic processes may be. This presumption may or may not be very accurate but it certainly has been pervasive. A second problem is the tendency to focus on specific time periods and areas without attending to the bigger picture. Serial crises are less likely to be recognized if analysts spend most of their time looking at one crisis. Broader spatial patterns are less likely to be identified if analysts devote themselves exclusively to more narrow activities. It becomes only too easy to assume that one corner of the world is distinctive and has little in common with other parts. Finally, the third problem is that climate change evidence has been missing, vague or ambiguous. Only in more recent years has systematic evidence been developed that suggests that while climate change cannot be expected to be wholly uniform throughout a large area such as Eurasia, significant changes have occurred that have wide impacts throughout the continent.

Brooke (2014) is a landmark study that reflects an overcoming of all three sets of problems. Brooke is an historian who argues that climate has been and probably continues to be highly significant in shaping political-economic success and failure since the origins of our species and, of course, even earlier. Yet it is difficult to downplay the critical role of climate in political-economies geared to agrarian production. As he notes,

…With the near complete dependence on agriculture emerging from the global late Neolithic secondary products revolution, the threat of crop failure hung over human societies. In years of good, predictable rainfall, the people of villages and cites fared well and accumulated surpluses. But when harvests fell short these surpluses were consumed and hoarded by the more prosperous; the poor faced scarcity and then starvation if the reach of the polity could not distribute grain among affected regions. If crop failures were general and persisted for as few as three years, even the prosperous would be reduced to eating their see grain and slaughtering the last of their livestock; before mass famine took hold rebellions and insurrections could shake and even bring down ruling elites ( Brooke, 2014: 276).

Brooke goes on to present evidence of global climate change and its impact that is quite ambitious in its scope. His central assertion is that “major climate events shaped ‘strange parallels’ of global reach driving the very different circumstances in which premodern peoples worked to maintain and develop their societies (Brooke, 2014: 279).”[[5]](#footnote-5) But Brooke remains a historian in the sense that the climate change evidence is segregated from the narrative. Clumps of graphs on change are interspersed with discussions of the societal impacts of climate change. If one reads the narrative, the sense of impact is intense and widespread but it is not quite clear how close the evidence on climate change fits the evidence on various dependent variables such as incursions, regime collapses, or trade. For that, we need a more social science-type approach that scrutinizes the degree of fit between independent and dependent variables. Fortunately, Brooke deviates from his historian persona sufficiently to propose the global schedule of climate change advanced in table 1.

Two columns are given – to the right are periods of more favorable climate and the left are years of less favorable climate. A few amendments to Brooke’s schedule are inserted in boldface.[[6]](#footnote-6) This summary guide is most helpful given the many pieces of evidence on climate change based on ice cores, ocean sediments, and tree rings which are rarely coordinated into a single schedule. Of course, there are more precise ways to generate a summary schedule but we should appreciate the utility of a starting point. The question is how good of a guide is it in explaining the ups and downs of the kinds of things in which we are interested?

Table 1: Brooke’s Binary Climate Schedule, with Modifications in Bold

|  |  |
| --- | --- |
| **LESS FAVORABLE CLIMATE** | **MORE FAVORABLE CLIMATE** |
| 12000-9600 BCE  Younger Dryas |  |
|  | 9600-7000 BCE  Early Holocene Optimum |
| 7000-6000 BCE  Early Neolithic Crises |  |
|  | 6000-4000 BCE  Late Neolithic Optimum |
| 4000-3000 BCE  Mid-Holocene Crisis |  |
| **[2200-2000** BCE **Akkadian Crisis]**  **[1700-1500 BCE Hyksos Crisis]** | 3000-1300 BCE  Bronze Age Optimum |
| 1300-700 BCE  Preclassical Crisis |  |
|  | 700 BCE-300 CE  Ancient Optimum |
| 300-900 CE  Ancient World Collapse |  |
| **[950-1072 CE E. Mediterranean Crisis]** | 900-1400 CE  Medieval Optimum |
| 1400-1700 CE  Little Ice Age |  |
|  | 1700- **2000?** CE  Modern Anthropocene/Optimum? |
| **[2000- CE]**  **Global Warming** |  |

Source: Based on Brooke (2014:279). The Akkadian Crisis, the Hyksos Crisis, and contemporary global warming are discussed by Brooke but for some reason do not make it into his schedule. The E. Mediterranean Crisis is based on the argument in Ellenblum (2012) and might represent an eastern Mediterranean extension of the “Ancient World Collapse.”

The basic binary pattern in table 1 is an alternation of good and bad climate. Periods of optimal climate become progressively shorter. The Early Holocene and Late Neolithic periods are recorded as two or more millennia in length. The Bronze Age optimum was a bit less than two millennia. The Ancient Optimum was one millennium in length. The medieval optimum was only half that length. And, if we impose a 2000 CE threshold somewhat arbitrarily as demarcating entry into a less favorable phase, the modern optimum lasted for only 300 years. In addition, some of the optimal periods were interrupted by crises that brought temporarily less than optimal conditions. Presumably, the most general expectation is that more optimal climate conditions made some types of activities easier to carry out and other types of activities became less likely. Less optimal conditions had the opposite effect.

The next question is just what kinds of things should we be interested in? I have suggested earlier a model, portrayed in figure 1, that places climate change at the center of regime changes, incursions, economic conditions, and trade flows.[[7]](#footnote-7) This model was developed to account for changes that took place between the 4th millennium BCE and the 1st millennium BCE in southwest Asia or the Near East/Mediterranean. Roughly at the end of the 4th, 3rd, and 2nd millennia, water became less available, regimes collapsed, incursions increased and were more successful, economic conditions deteriorated, and trade flows were interrupted. Centuries later, things improved.[[8]](#footnote-8) New regimes emerged, economic conditions became better, and incursions declined in frequency and significance. At the time of developing the model, it was not clear if the key climate changes were limited the Near Eastern/Mediterranean area. Brooke’s (2014) argument would suggest it was not. Can the model in figure 1 then be extended to other parts of Eurasia and other eras in Eurasian history. Again, Brooke’s argument, summarized in table 1, would suggest that it can be. Keep in mind, though, that this is not a univariate explanation. Everything does not ride on the vagaries, however systematic, of climate change. The question, however, is to what extent, does climate change appear systematically in fluctuations in human activities? If it is always there or almost always there in some significant way, it deserves much more credit for contributing to societal change than we have been willing to give it. As we enter another phase of generally unfavorable climate, it may be that we will become all the more sensitive to the role of climate in human affairs.

Figure 1: Some Climate Change Effects

More specifically, however, we should expect optimal periods to be disproportionately associated with new regimes, favorable economic conditions, expanding trade flows, and fewer incursions. Less favorable phases should be disproportionately associated with regime termination (societal collapse), unfavorable economic conditions, restricted trade flows, and increased incursions that are difficult to resist. One caveat here is that the restricted trade flows would normally and logically be expected to be anti-globalization in impact. However, what was found in the ancient Near East was a tendency for periods of restricted trade to be followed by re-orientations of trade ultimately on a bigger scale. This is why the expectation is that incursions (and the other processes at work simultaneously) tend to have differentiated short-term and long-term outcomes. In the short-term, greater interdependence is interrupted (although not always).[[9]](#footnote-9) In the long-term, greater interdependence is stimulated if not accelerated. In addition, it would be possible to take advantage of the situation and extend the scope of the analysis to encompass population growth and disease but these topics, with one exception, are best left to other venues. A series on urbanization in the ancient world’s urbanized population is introduced in conjunction with the regime analysis in order to provide a more dynamic counterweight to the

**Regimes and Climate**

We begin with an old regime sample put together by someone else– Taagapera’s sample of empires dating back nearly 40 years in provenance. While it is not clear how the sample was constructed, it has the advantage of a “failure date.” [[10]](#footnote-10) The obvious question is how often do these empires “fail” during a less than favorable climate according to Brooke’s schedule in table 1? Twenty BCE empires are listed in table 2. At least 12 – and perhaps 14 depending on dating disagreements ended in less than favorable climate conditions. Five of the 6 that were terminated in more favorable conditions fell during a 525-620 interval characterized by a great deal of expansionary conquest by states. While such evidence is interesting, it is less than overwhelming. Still, one can say that Taagapera’s empires were more than twice as likely to collapse in poor climate contexts than they were to do so in more favorable periods.

Table 2: Taagapera’s Imperial Sample

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Empire** | **Location** | **Maximum Stable Size (Mm squared)** | **Failure Date** | **Brooke**  **Climate** |
| Hsia-Shang | China | .85 | 950 | Worse |
| New Empire | Egypt | .8 +/- 0.2 | 1000 | Worse |
| Old Empire | Egypt | .35 | 2300 | [Worse]\* |
| New Assyrian | Mesopotamia | 1.0 | 620 |  |
| Middle Empire | Egypt | .45 | 1700 | Worse |
| Hittite | Anatolia | .4 | 1190 | Worse |
| Harappa | Indus | .2? | ----- | [Worse]\*\* |
| Late Period | Egypt | .5 | 525 |  |
| Akadia | Mesopotamia | . 2+/- 0.05 | 2210 | Worse |
| Babylon (Hammurabi) | Mesopotamia | .2 +/- 0.05 | 1500 | Worse |
| Elam | Mesopotamia | .1 +/- 0.03 | 600? |  |
| Hyksos | Syria | .6 | 1570 | Worse |
| Lydia | Anatolia | .4 +/- 0.1 | 550 |  |
| Mitanni | Mesopotamia | .25 | 1360 |  |
| Middle Assyrian | Mesopotamia | .25 | 1040 | Worse |
| New Babylon | Mesopotamia | .45 | 540 |  |
| Babylon | Mesopotamia | .12 +/- 0.05 | 750 | Worse |
| Urartu | Mesopotamia | .18 /- 0.05 | 720 | Worse |
| Phrygia | Anatolia | .18 +/- 0.05 | 700 | Worse/Better\*\*\* |
| Old Assyrian | Mesopotamia | .12 | 1700 | Worse |

Source: Based on Taagapera (1978b:191). Brooke climate cells left empty to make them easier to read were categorized as more favorable climates; however each one was conquered by another group or empire – New Assyrian: Babylonians, Chaldeans, Medes/Persians, and Scythians; Late Period Egypt: Persians; Elam: Assyria; Lydia: Persia; Mitanni: Hittites; New Babylon: Persia.

* \* Probably mis-dated
* \*\* Harappa or Indus could be ended in either 2000 or 1700.
* \*\*\* 700 BCE is on the cusp between worse and better.

Pursuing this question more selectively, tables 3-6 list regime chronologies for China, Egypt, Mesopotamia, and Elam primarily for the ancient era. There are, of course, other and less well known dynastic sequences that might have been examined as well but at least the first three are fairly standard fare. The starting and ending dates of these regimes are differentiated by their occurrence in less or more favorable climate phases according to Brooke (2014). It would be ideal perhaps if regimes began only in good climates and perished in poor climates but that is a most unreasonable expectation. Climate is not regarded in this respect as an absolutely determining factor. Rather, it facilitates and hinders various types of activity. Nevertheless, if climate is a very strong factor in agrarian economies, one might expect some positive correlation between starts and benign weather and a positive relationship between endings and poor weather.

Table 3: Chinese Regimes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Regime** | **Timing** | **Less Favorable Climate** | **More Favorable Climate** | **Incursion**  **Comments** |
| Xia | 2070-1600 | starts and ends in crisis | -------------------------------- |  |
| Shang | 1600-1050 | starts and ends | ---------------------------------- | Western origins of Shang? |
| W. Zhou | 1050-770 | ---------------------- |  | Western elements in founding coalition |
| E. Zhou | 770-250 | Starts | ------------------------------- | Western pressures encourage moving capital to east |
| Qin | 221-206 |  | ---------------------------------- |  |
| W. Han | 206-23/25 |  | ------------------------------------- |  |
| E. Han | 25-220 |  | ------------------------------------------ | Considerable  Xiongnu pressures resisted |
| Three Kingdoms | 220-265/80 |  | ------------------------------------------ |  |
| W. Jin | 265-317 | Ends | ------------------------------------ |  |
| E. Jin | 317-420 | ---------------------------- |  |  |
| Southern/Northern | 386/420-589 | ------------------------------- |  | Hsien-pei dominate northern China (386-550) |
| Sui | 581-618 | -------------------------------- |  |  |
| Tang | 618-907 | ------------------------------ | Ends | Turk forces assist Tang victory over Sui: Uighurs assist suppressing rebellion in mid-8th century but China still lost control over eastern territory |
| Five Dynasties/Ten Kingdoms | 907-960 |  | ---------------------------------------- |  |
| N. Song | 960-1127 |  | ---------------------------------------- | Overrun by |
| S. Song | 1127-1279 |  | -------------------------------------------- | Defeated by Mongols |
| Yuan | 1271-1368 |  | ----------------------------------------- |  |
| Ming | 1368-1644/62 | ------------------------------ | Starts | Defeated by Manchu |
| Qing | 1636-1911 | Starts | ---------------------------------- |  |

Table 4: Egyptian Regimes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Regime** | **Timing** | **Less Favorable Climate** | **More Favorable Climate** | **Incursion**  **Comments** |
| Merimde-Baderi | 5000-4000 BCE |  | ---------------------- |  |
| Naqada I-II | 4000-3200 | --------------------- |  |  |
| Naqada III | 3200-3050 | --------------------- |  |  |
| Early Dynastic | 3050-2575 | starts | Ends |  |
| Old Kingdom | 2575-2150 | ends | Starts |  |
| First Intermediate | 2150-1980 | -------------------- |  | Some Bedouin/”Asiatic” pressure in the northeast |
| Middle Kingdom | 1980-1630 | ends | ---------------------- | Nubian pressures |
| Second Intermediate | 1630-1520 | --------------------- |  | Hyksos |
| New Kingdom | 1540-1070 | starts and ends | --------------------- | Libyans, Sea Peoples, Nubians towards end (c. 1100) |
| Third Intermediate | 1070-715 | **---------------------** |  | Libyans, Nubians and others |

Table 5: Mesopotamian Regimes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Regime** | **Timing** | **Less Favorable Climate** | **More Favorable Climate** | **Incursion**  **Comments** |
| Ubaid | 5000-4000 |  | ------------------------- |  |
| Uruk | 4000-3100 | ------------------------- |  | Groups from Caucuses blocking northern trade in Anatolia |
| Jemdat Nasr | 3100-2900 | Starts | Ends |  |
| Early Dynastic | 2900-2300 |  | ------------------------ |  |
| Akkad | 2350-2150 | Ends | Starts | Gutians, Lullabi, Hurrians |
| Third Dynasty of Ur III | 2100-2000 | -------------------------- |  |  |
| Old Babylonian | 2000-1600 | Ends | -------------------------- | Amorites, Chaldeans, Sutaeans, Hurrians, Kassites |
| Kassite | 1590s-1150 | starts and ends | ------------------------- |  |
| Various Dynasties in Babylon | 1150-730 | --------------------------- |  | Arameans |

Table 6: Elamite Regimes

|  |  |  |  |
| --- | --- | --- | --- |
| **Regime** | **Timing** | **Less Favorable Climate** | **More Favorable Climate** |
| Avan Dynasty | c. 2500-2240 |  | ------------------------- |
| Simash Dynasty | 2030-? | ? |  |
| Elam Dynasty | c. 1900-1770 |  | ------------------------ |
| Babylonian Dynasty | c. 1770 - c. 1500 | ------------------------ | Starts |
| Igehalkid Dyansty | c. 1350 – c. 1200 | ------------------------ |  |
| Shutrukid Dynasty | c. 1205- c. 1110 | --------------------------- |  |
| Late Elam Dynasty | 743-644 |  | ------------------------- |

Source: based on Shahmri n.d.

Table 7 summarizes the regime starting and ending information indicated in tables 3-6. The outcome is split in a curious fashion. China and Elam demonstrate few differences between the opposing climate regimes, although Chinese regimes are slightly more likely to begin and end in more favorable phases. Egypt and Mesopotamia, on the other hand, are biased toward regimes beginning and ending in less favorable climate periods. There are several ways to interpret this outcome. It may be that climate information is not as helpful as one might expect in tracking the rise and fall of political/cultural regimes.[[11]](#footnote-11) Or, it could be that climate was a more significant a factor in Egypt and Mesopotamia than in China or Elam. The problem here, however, is that one might expect Elam to behave very similarly to Mesopotamia given Elam’s adjacent location, and it does not.

Table 7: Selected Regime Beginnings and Endings

|  |  |  |
| --- | --- | --- |
| Area | Less Favorable Climate | More Favorable Climate |
| **China** |  |  |
| Starts | 8 | 10 |
| Ends | 8 | 11 |
| **Egypt** |  |  |
| Starts | 7 | 3 |
| Ends | 9 | 1 |
| **Mesopotamia** |  |  |
| Starts | 6 | 3 |
| Ends | 7 | 2 |
| **Elamite** |  |  |
| Starts | 3 | 4 |
| Ends | 3 | 3 |

Another possible problem is that this examination is simply too static. Climate regimes are not evenly good or bad across time. Less favorable climates may go from poor to worse just as more favorable regimes may slide from good to mediocre. A quick remedy is to look at urbanized population trends in the ancient world. The premise is that political regimes were increasingly built around major cities that fluctuated in size in part due to how well the political regime was doing. One might expect some de-urbanization as regimes deteriorated or collapsed. Table 8 offers a quick scan of trends in ancient urbanization.[[12]](#footnote-12) However, figure 2 is probably easier to read.

Table 8: Older Urbanization Trends

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Ancient World** | **Year** | **Mediterranean/ Southwest Asia\*** |
| 3700 BCE | 8 | 1000 BCE | 320 (220) |
| 3500 | 34 | 900 | 300 (200) |
| 3300 | 70 | 800 | 300 (200) |
| 3000 | 110 | 700 | 400 (200) |
| 2800 | 318 | 600 | 400 (200) |
| 2500 | 525 | 500 | 800 (500) |
| 2400 | 540 | 400 | 1070 (670) |
| 2300 | 540 | 300 | 1850 (1550) |
| 2200 | 385 | 200 | 1710 (1510) |
| 2100 | 425 | 100 | 2325 ( 2025) |
| 2000 | 400 | 1 CE | 2660 (2160) |
| 1900 | 266 | 100 | 3515 (3015) |
| 1800 | 422 | 200 | 3640 (3640) |
| 1700 | 191 | 300 | 3265 (3065) |
| 1600 | 285 | 400 | 2620 (2270) |
| 1500 | 170 | 500 | 1900 ( 1400) |
| 1400 | 280 | 600 | 1675 (1175) |
| 1300 | 490 | 700 | 1500 (600) |
| 1200 | 830 | 800 | 2380 (500) |
| 1100 | 437 | 900 | 3000 (800) |
| 1000 | 407 | 1000 | 3580 (900) |

Source: calculated from Modelski (2000) by aggregating estimates for city size.

Note \* Mediterranean Cities in parentheses

Source: based on the aggregated information in table 8.

Ancient urbanization, according to these data, accelerated after 3000 BCE and peaked around 2300 BCE before beginning a general, if uneven, trend downwards to 1500 BCE. Aggregate urbanization then began to increase to 1200 BCE before moving downward to a floor in the first half of the first millennium BCE. The Greco-Roman era ushers in a new acceleration of urbanization with a peak around 200 CE, followed by the decline associated with the decay of the Roman Empire.

These numbers seem roughly in accord with an initially benign climate phase, Brooke’s (2014) “Bronze Age Optimum” that was interrupted by crises in 2200-2000 BCE and 1700-1500 BCE. Once those crises were surmounted, urbanization expanded until the end of the second millennium BCE crisis. Urbanization next began to expand after 500 BCE (although not the 700 BCE turning point Brooke has suggested). Still, Brooke’s “Ancient Optimum” (700 BCE-300 CE ) roughly encompasses the 500 BCE-200 CE expansion readily demonstrated in figure 2. Where the trend turns upward in the early medieval era (at the end of Brooke’s “Ancient World Collapse” -300 CE-900CE) depends on whether one focuses on the combination of western Asia and the Mediterranean (after 700 CE) or just the Mediterranean cities (after 900 CE). In general, the aggregated correspondence seems reasonably good.

**Incursions and Climate**

Tables 3-6 also provide some information on incursions in columns on the far right. There is an obvious empirical problem with counting incursions. We have good reasons to anticipate that most attacks from the desert, highlands, or steppes go undercounted. The ones that receive the most attention are the ones that seem so successful in bringing about the demise or defeat of their sedentary targets. Once they are defeated, we are even less likely to have an accurate read on the further occurrence of attacks. Moreover, if the targets record that they beat off the attacks that is something that is only probably true some of the time.

The Chinese table 3 message on incursions suggests three main phases. In the early regimes (Shang, Zhou), nomads on the western frontier caused problems and also coalesced with regime-ending rebellions led by Chinese states near the frontier. In the Han period, western nomads, primarily Xiongnu, caused even more problems but these could be managed by a relatively strong Chinese regime. In the third phase, though, Chinese regimes began to lose control over territories in the west and north before the Sui-Tang era. The Northern Song were defeated completely as, ultimately, were the Southern Song, albeit by different groups.

The first three transitions (from Xia to Shang to Western Zhou to Eastern Zhou) all took place in less than favorable climate periods. The Xiongnu problems were managed in a relatively benign environment. Decentralization within the Chinese empire and the gradual loss of territorial control to western groups (beginning with the Hsien-pi in the late 300s) ensued in a return to less favorable climate conditions. All this fits until one enters Brooke’s “Medieval Optimum” between 900 and 1400 CE. The nomadic pressures and raids did not cease in or around 900 CE. They kept coming and grew even more successful. One caveat is that the Mongols are now believed to have benefitted from good climate conditions by expanding their horse resources. Instead of being forced to seek better pastures, the Mongols are depicted as expanding because they were stronger than they had been – as opposed to the conventional nomadic narrative. The succeeding Yuan regime may have thus benefitted from decent weather conditions in most years but had to contend with the death, destruction, and disease that they wrought in their conquest of China.

The ancient Egyptian record in table 4 works neatly in the sense that the major incursions were associated with the end of the Middle and New Kingdoms, most definitely in periods of crisis that encompassed deteriorating climates. Egypt initially enjoyed some insularity from external attacks (“Asiatics” from an Egyptian perspective came from the east and Libyans from the west). Some groups in what became Palestine caused problems in the First Intermediate but nothing on the scale of the Second and Third Intermediate eras. Eventually, Egypt simply lost its autonomy completely to expanding states (e.g., Persians, Greeks, Romans).

The ancient Mesopotamian story provides a similar good fit. Uruk’s trading activities were interrupted externally by groups migrating into the Near East from an area around the Black Sea. Internally, there were problems at home as well that might have been climate-driven since conditions had become increasingly arid in the second half of the 4th millennium. Amorites from the Syrian Desert migrated into Mesopotamia and eventually took over as manifested in the Akkadian empire. But this empire was overrun by various highland groups and especially Guti. A brief period of Mesopotamian revival (Ur III) was supplanted by Amorite and Kassite groups moving in and establishing their own Mesopotamian states in the first half of the 2nd millennium BCE. While Mesopotamia seems to have escaped the destruction associated with Sea Peoples, other hinterland groups were taking over further inland as well.[[13]](#footnote-13)

A different set of evidence is put forward by Issar and Zohar (2007) in a book that makes the strongest argument for climate-driven activity in the Near East.[[14]](#footnote-14) Their argument is actually not limited to the Near East since they begin their discussion with the role of the Near East as a bridge between Africa and Eurasia that was crossed by hominids and our own species on multiple occasions. Climate deterioration in East Africa encouraged movements northward and also made the Near East less arid and therefore more hospitable. They advocate the Younger Dryas hypothesis on the emergence of agriculture as a response to climate deterioration after a period of more favorable climate had increased population in the Fertile Crescent area. But, the basic argument sketched in table 9 is one of variable mixtures of cold and dry climates encouraging people to move towards warmer and wetter areas. This led to groups from the steppes, mountains, and deserts moving into sedentary/urbanized zones resulting in clashes, destruction, and assimilation. One of the advantages of their survey, however, is the long duree they focus on. Not only do they begin millions of years ago with hominid migrations, they also do not stop with the 4th through 1st millennium BCE sequence. Alexander the Great, the rise and fall of Rome, and the 7th century Muslim movement out of the desert are noted, as are the Crusades and later Ottoman setbacks that help make the long-term, Near Eastern narrative more coherent.

Table 9: Issar and Zohar’s Near Eastern Timeline

|  |  |
| --- | --- |
| **Timing** | **Phase Description** |
|  | Climate fluctuations in “Near Eastern bridge” made passage from East Africa more feasible in cyclical fashion. |
|  | Younger Dryas warm spell accompanied by sedentary population and deteriorating food supply, thereby encouraging the development of agriculture and irrigation. |
| 1st half 5th millennium | Cold spell north of Black Sea and Caucasus encourages migration southward  but Mesopotamian population initially limited in size and therefore less affected |
| 4000-3100 BCE | Proliferation of urban settlements and nomads |
| 3500-3000 BCE | Warm and dry; semitic pastoral groups encouraged to move into northern Mesopotamia from desert |
| 3000-2300 BCE | Cool and humid |
| 2400-2000 BCE | Increasing dryness encourages many groups to move towards areas with water- widespread abandonment/destruction of urban areas from the Balkans to Mesopotamia and Palestine; Akkad, Old Kingdom Egypt, Troy, and Indus collapsed. |
| 2000-1500 BCE | Climate deterioration (warm and dry) through 1800 and then improvement and gradual revival; however, increased precipitation less than optimal thereby continuing to apply pressure on nomads to migrate (e.g., Hyksos into Egypt and collapse of Old Kingdom Egypt) |
| 1500-1200 BCE | Cold and humid |
| 1200-850 BCE | Warm and dry, considerable pressure on Mesopotamian farming and herding; waves of people of Eurasian steppes move towards Anatolia; Sea Peoples reflect farmers marginalized by climate and turning to nomadism/migration with movements into Balkans, Greece, and Anatolia; Libyans moving east into Egypt |
| 850-350 BCE | Climate improving toward 350 BCE; colder and more humid after 300 BCE but the degree of change remains moderate; Libyans, Nubians, Assyrians, Parni, Greeks and Romans enter Egypt |
| 350 BCE- 150 CE | Cooling trend underway in Mediterranean area, with worsening climate in Eurasian steppes; nomads successfully resisted by Han Chinese military putting more pressure on west; Parni move into Iran from Caspian region; Nabateans attacking Petra 312 BCE; Alexander the Great benefitted from improving climate as did the foundation of the Roman Empire; Germanic groups begin to be pushed into Roman empire by nomads from steppes; Roman climate highly favorable with above average rainfall (50-250 CE) and then rainfall levels decline |
| 150 CE- 550 CE | In 3rd century CE, rapid turnover of Roman rulers, along with mismanagement, heavy taxation, inflation, famines, climate improvement to 550 CE (with reinforcement of Byzantine Empire and then deteriorating to c. 900 CE; Goths moving into Roman territory 251 CE; Franks attack Gaul; some of the tribes responding to Hun pressures in 5th century |
| 550-900 CE | Desert dessication from 7th century-1000 CE; Muslims move out of deserts; later, Vikings, Turks, Normans, and others on move into Near East |
| 900-1500/1600 | Favorable climate at turn of millennium; cooling peaks c. 1500 CE; Near East climate favorable despite Crusader invasion |
| 1700-1800 | Warm and dry; Ottoman Empire setbacks |

Source: Based on the discussion in Issar and Zohar (2007: 39-225).

So far, the incursions discussion has focused primarily on the Near East with some allusions to China. There is, of course, much more activity deserving of attention in Eurasia but space and time constraints restrict attention in this paper to only two major clusters of movement and conflict. Table 10 outlines the Indo-European phenomenon which is believed to have persisted for some 4 millennia. Interpretation disagreements continue but the crux of the argument involve multiple waves of people moving out of the area immediately north of the Black Sea in various directions into central Europe, the Balkans, the Near East, Iran and South Asia, and towards China. Sometimes the movements involved well-armed elites who may have been able to take over less well-armed societies into which they entered. In other cases, the movements involved larger numbers of people setting up the domination of new groups (Hyksos and Kassites in the Near East, Mycenaeans in Greece) and down-the line sequences in which defeated groups fled one area only to attack other weaker groups (Cimmerians, Scythians, and Yuezhi) with a variety of repercussions ranging from the establishment of new empires (Kushan) to the encouragement of the emergence of new empires by groups resisting the attacks of the marauding horsemen. For instance, Macedonians, as the northernmost “Greeks,” learned and adopted cavalry tactics from their conflicts with Scythians. Macedonian cavalry was one of the military advantages Philip and Alexander employed against first the Greeks to the south and later the Persians to east.

Table 10: Indo-Europeans on the Move Hypothetically

|  |  |  |
| --- | --- | --- |
| **Episodes** | **Timing** | **Comments** |
| 1 | 4200-3800 BCE | Nomads moving into Balkans, Danube area, Serbia, Hungary; climate change 4200-3800 contributes to settlement collapse and chronic war in Old Europe, especially in SE Europe |
| 2 | 3500/3000 BCE | Nomads moving into northern Europe and across Kazakhstan; Yamnaya migration towards west from Black Sea area c. 3300 |
| 3 | 3100/3000-  2800-2600 BCE | Nomads moving into Danube area and then splitting into pre-Italic, Celtic, and German groups – then Baltic/Slav split and pre-Armenian; Tocharians toward China; through Caucuses and into Anatolia Early Trans-Caucasian culture groups attack Mesopotamian trading centers thereby contributing to collapse of Uruk long distance network |
| 4 | C 2700/2600-2400 | Luwian movement in Anatolia west to east; Corded Ware group moves into Danube, Germany, and Scandinavia; |
| 5 | c. 17th century BCE | Nomads to western Europe (Mycenaens into Greece), Middle East (Maryuanu into Syria/Palestine; Hyksos into Egypt; Kassites into Mesopotamia), and India (Punjab area); Iranian/ Central Asian trading towns abandoned; Indo-Aryans split from Iranians (1800-1600) and chased to Levant (establishing Mittani) and India |
| 6 | Late 2nd or beginning 1st millennium BCE | Celtic, Slavic, Albanian, and Iranian migrations, Dorian group into Greece; Sea Peoples into E. Mediterranean, Anatolia, Syria, Canaan, Cyprus, Egypt and coming from Greece, Italy, and Anatolia; Phrygians from Balkans into Anatolia; Pre-Armenians (Muski?) into Armenia |
| 7 | 8th- late 6th century BCE | Cimmerians moving into Near East - Scythians pushing west and south in Anatolia and active throughout Near East until defeated by Medes c. 585 and retreating to northern steppes |
| 8 | 2nd century BCE | Yuezhi in Tarim defeated by Xiongnu; most Yuezhi move west to Ili Valley displacing Scythians/Saka (who move into N. India) and then, in turn, driven to Sogdia and Bactria by Wusun, later expanding south to create Kushan Empire (50 BCE) |

Source: based on Mallory (1988), Drews (2004),Anthony (2007), and Beckwith (2009).

The main reason to include attention to the Indo-European phenomenon is that it appears to reflect a long sequence of climate-driven movements out of the southern Russian steppe area in multiple directions encompassing literally all, or almost all, of Eurasia. Military and other types of technological diffusion are associated with these movements, as are a rather impressive number of languages with common roots.

Finally, table 11 summarizes the processes surrounding what are often referred to as the barbarian invasions of Europe in the first millennium CE. The invasions themselves are often treated but it is less clear that we have captured the bigger picture accurately and adequately. Beckwith (2009), for example, argues for a context in which the two successful empires in the east and the west (Han and Rome) tended to destabilize the groups lying between them in Central Asia. The subsequent decline of the two empires (and climate change) encouraged movements and pressures both east and west. Chinese and Roman control of their western and eastern frontiers, respectively, disintegrated. The Hsien-pei became dominant in former parts of the Han Empire. In the west, groups moving south collided with groups moving west resulting in a combination of “down-the-line pressures (as in Goths fleeing Huns moving into Roman territory), mixing of tribal groups, and the creation of new elite structures in much of post-Roman Europe. The process did not end with the feudalization of much of Europe. Rather, it continued for another 1000 years with subsequent waves of Vikings, Normans, Pechenegs, Magyars, and Mongols responding to climate change cues and looking for rich targets and arable land in various corners of Eurasia.

Table 11: “Barbarian” Invasions of Europe

|  |  |  |
| --- | --- | --- |
| **Phase** | **Timing** | **Comments** |
| 1 | 1000-300 BCE | Germanic groups move south from Scandinavia and Germany after 1000; second wave move east and south to southern shore of the Baltic and inland, moving up Vistula and Carpathians between 600 and 300 BCE; Parthian Empire established in Iran and Near East (238BCE-c. 220 CE) |
| 2 | 300-500 CE | Roman and Chinese conquests in Central Eurasia encouraged divisions and destabilization within areas not controlled directly. Partial closing of frontiers to trade and subsequent imperial declines and recessions encouraged Central Eurasian migrations to areas encompassing Western Europe and North Africa, Persia (Hephtalites), and western and northern parts of East Asia (Hsien-pei dominant in North China, 380s-550s)/ Avars – Jou-jan in eastern steppe); Goths moving south from Baltic towards Black Sea area; Huns subordinate Sarmatians, Alans, and Goths in western steppes by 375; Huns push Visigoths into Roman territory in 376; Huns also attacking Persia 395-6 but repelled; Visigoths attack Rome 410 before settling in Gaul and Iberia; another wave of in-movement in 476 attacks Rome, followed by Ostrogoths; Franks move into northern Gaul; Anglo-Saxons into England; Burgundians into Italy, Switzerland and France |
| 3 | 500-725 CE | Slavs moving into eastern Europe; Slavs, Avars, Bavarians, and Franks into Italy; Arabs and Berbers moving into Persia, Near East, North Africa, Europe; Turks predominant in Central Eurasia except in Tibet |
| 4 | 8th-11th century | Vikings into England, France and Russia; Khazar, Pecheneg, Hungarian conflict in western steppes and raiding into Europe; Hungarians into Carpathian region; Normans into England and Italy |
| 5 | 13-14th centuries | Mongol control of much of Eurasia short of western Europe |
| 6 | 15th century on | In wake of collapse of Timurid Empire, Ottomans, Safavids, and Mughals expand control in different directions |

Source: based primarily on Beckwith (2009).

**Globalization, Trade and Inter-Connectivities**

So, what do climate, regime transitions and incursions have to do with boundary making? I have no quarrel with making distinctions about bulk/luxury trade, political-military interactions, and ideational influences. These categorizations are logical and defensible even if we may quibble about how to date the attainment of critical thresholds of connectivity. Yet there are other types of connections. Climate change, regime transitions, and hinterland incursions suggest that Eurasia has been connected, albeit intermittently or cyclically, for some time in terms of a near-global climate system, responses to its fluctuations, and the repercussions of people pushed and pulled by water supply and temperature changes.

Some of the climate-driven behavior represents indirect exchanges. The down-the-line process of stronger groups forcing weaker groups to move and leading to the ostensibly weaker groups beating up on some other, even weaker group sets up indirect lines of interaction. Such a sequence is not unlike the nature of early trade movements in which goods were exchanged from village to village in a process that eventually could encompass thousands of miles, albeit slowly. The fact that is indirect does not mean that it is not in play. We should be reluctant to overlook indirect exchanges if they are significant to understanding what seems to be going on.

In other cases, the action is more long-term in effect. For instance, successful hinterland incursions tend to interrupt the functioning of trading systems. But the longer the interruption persists, the greater is the probability that the people most affected will create alternative trade routes. In the Mesopotamian case, northern trade interruptions in the Uruk era ultimately led to the development of a maritime route connecting Indus, Dilmun and Mesopotamia.[[15]](#footnote-15) The later decline of Indus and Mesopotamia shifted attention toward Egypt and the Aegean. The revival of eastern Mediterranean trade after the 1200-1100 BCE crisis led to an increasingly western orientation of trade encompassing more of the Mediterranean than before.

In the Roman and Chinese cases, nomadic interruptions of overland trade to the west also led to the development of maritime alternatives utilizing different sectors of the Indian Ocean. Arab-Persian trade with China after the 8th century CE re-stimulated east-west exchange as a form of medieval globalization. China, increasingly cut off from the land Silk Roads in the Song era, became the leading naval power in world by the early Ming era sending powerful fleets as far as the African coast in the 14th century. Genoa and Venice competed in the Black Sea and Mediterranean for control of the alternating land and maritime termini of the Silk Roads. Portugal stumbled into a way to circumvent the Middle Eastern/Venetian middle men altogether, at least for a while.

Thus short-term blockages have tended to lead to long-term urges to go around the blockages. In the process, globalization, intermittently, has been re-stimulated over and over again. Much of this earlier trade was about luxury goods consumed by small numbers of elites. Yet those elites and their desire for luxury goods had disproportionate effects on the long-term course of globalization and the breaking down of boundaries.

As for the exogeneity of incursive raiders (Chase-Dunn, Inoue, and Neal, 2016), that remains an interesting empirical question. Some were exogenous (Sea Peoples). Some were not (Guti in Akkad). It may very well be that a majority began as exogenous entities and if they melted away after a quick raid, they probably would have remained exogenous. The problem is that the ones in which we are most interested refused to melt away. By sticking around, they eventually have to be counted as endogenous. Otherwise, it becomes too easy to dismiss them as Tainter’s (1988) elusive ghosts that provide too-convenient explanations for societal/polity collapse. They are neither ghosts nor are they without explanatory potential. But neither were their activities deterministic in their effects. The more important contextual variable of climate change helps to explain why various groups are engaging in incursions and why their targets are often highly vulnerable to the attacks when they were not before.

What it comes down to is a meteorological interdependence that provides an outer shell for the nesting of information, political-military, prestige and bulk goods systems. There are definitely limits to the significance of this contextual interdependence. Egyptians, Mesopotamians, and Chinese knew nothing about Mayan droughts or Peruvian El Nino problems even though their climate systems may have been linked globally. Within Eurasia, however, meteorological interdependence worked to build boundaries in the short term and break them down in the long term. Regime transitions, incursions, economic contractions, and trade collapses were key processes in carrying out these developments. To ignore them is to make too much of the walls built by Mesopotamians, Romans, and Chinese to keep outsiders away. The walls did not work very well then any more than they do today. Given the appropriate incentives and context, boundaries become porous and elastic.

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1. Paper to be presented at the Workshop on Systemic Boundaries, Institute for Research on World-Systems, University of California, Riverside, March 5. [↑](#footnote-ref-1)
2. Africa and the Americas will not receive any attention in this paper. Parts of Eurasia (southeast and south Asia) will also be slighted. [↑](#footnote-ref-2)
3. See Thompson (2002, 2004a, 2004b, 2006, 2006b, 2006c); Frank and Thompson (2005, 2006); and Modelski and Thompson (1998, 2002). [↑](#footnote-ref-3)
4. The natural limitations on this generalization are two - sedentary and nomadic life styles first had to emerge and, eventually, the capabilities of the sedentary overwhelmed nomadic capabilities but not until the 18th century CE. [↑](#footnote-ref-4)
5. The reference to “strange parallels” is to the usage of the phrase in Lieberman’s (2003, 2009) work on state formation in southeast Asia bearing some resemblance to activities in western Eurasia. [↑](#footnote-ref-5)
6. Most of these amendments are discussed or mentioned in Brooke’s narrative sections but for some reason did not make it into the general climate schedule. [↑](#footnote-ref-6)
7. Clearly, more arrows could be inserted into figure 1 to connect the four outer balls with one another. In the Near East, four of the five items in figure 1 were significantly correlated. Only economic contractions proved to be less well connected – which only means that economic contractions could occur in the absence of climate change. [↑](#footnote-ref-7)
8. See, for instance, Chew (2006). [↑](#footnote-ref-8)
9. The Mongol interlude is the most obvious exception. [↑](#footnote-ref-9)
10. Size and “familiarity” had something to do with the sample’s construction. [↑](#footnote-ref-10)
11. It does not appear to be related to being loose on what is counted in the Chinese series. If one drops the medieval and early modern regimes, the ratio across climate phases only becomes more similar. At the same time, chronologies are crude guidelines and tend to be modified every so often. [↑](#footnote-ref-11)
12. One analytical problem is that the minimum threshold for city inclusion changes over time. The source initially requires a minimum of 10k people to qualify as a countable city. The minimal threshold shifts upward to 100k after we move out what is designated as the ancient world. In figure 2, the two series are spliced together at 1000 BCE where they are not too far apart. [↑](#footnote-ref-12)
13. Information problems in tracking incursions involving ancient Elam seem unavoidable. That they occurred is unquestionable. Delineating the pattern is a murkier process. [↑](#footnote-ref-13)
14. It is enlightening to compare Issar and Zohar (2007) with Liverani’s (2014) treatment of the role of incursions in Near Eastern history. Near Eastern history has long suffered under the thrall of assumptions about the absence of significant fluctuations in climate and the limited impact of climate on human behavior. [↑](#footnote-ref-14)
15. Ancient Egyptian connections to the Levant also oscillated between overland and maritime routes depending on the volatility of risks associated with making use of the land routes. [↑](#footnote-ref-15)