Book Review of

The Horse, the Wheel, and Language

by David W. Anthony (2007)

The Chaostician

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[*Epistemic Status: Not my ideas.*]

The full text of this book can be found here:
https://archive.org/details/horsewheelandlanguage/mode/2up

Indo-European is by far the most successful language family. Here is a list of the 15 most commonly spoken languages, with non-Indo-European languages in parentheses:

1. English
2. (Chinese)
3. Hindi
4. Spanish
5. French
6. (Arabic)
7. Bengali
8. Russian
9. Portuguese
10. (Indonesian)
11. Urdu
12. German
13. (Japanese)
14. (Swahili)
15. Marathi

This is not just a result of European colonialism: through most of history, including today, the largest Indo-European state has been centered in either India or Persia.

Who were the original Indo-Europeans? How did they come to such dominance?
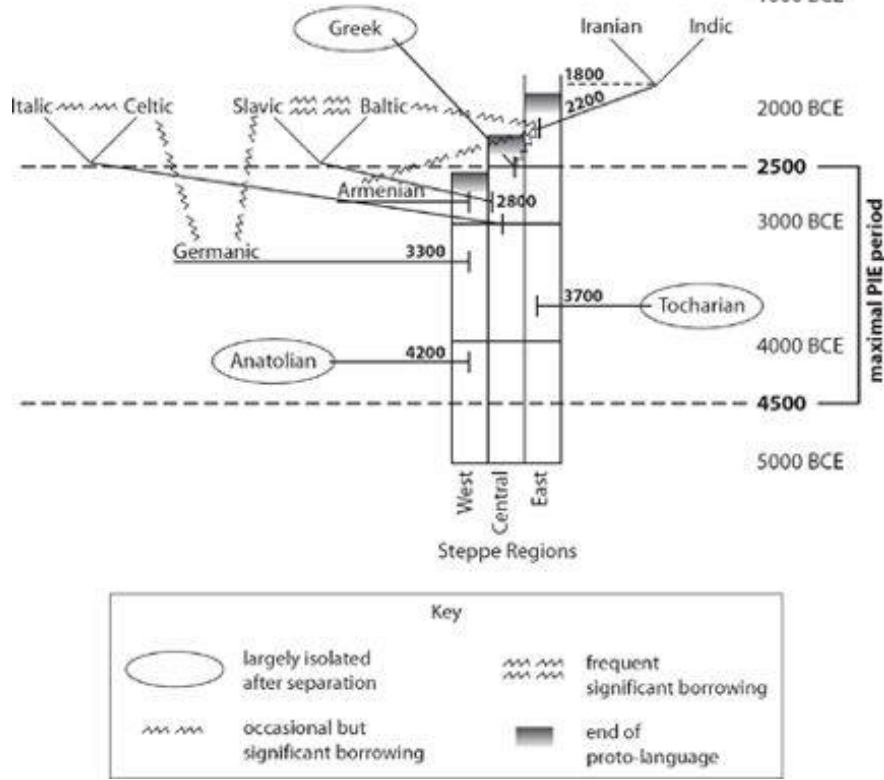

Figure 1: Anthony's Figure 5.2. It shows the relationships between the various branches of Indo-European. Early Proto-Indo-European starts at the bottom. Anatolian splits off first, then Tocharian, then . . . . Some of the relationships between the European branches are unclear because the language families continued to influence each other after they separated.

To answer this question requires both linguistics and archaeology.

By comparing widely dispersed, ancient and modern, Indo-European languages, we can reconstruct Proto-Indo-European words. Some of these recreated words refer to ideas that can be found in any group: pronouns, body parts, and family relationships. Some of these recreated words refer to climate: snow and lynx, but not tiger and elephant. Some of these recreated words refer to technology: bread, cheese, wool, mead, axle, and multiple words for wheel. Some of these recreated words refer to aspects of their society: warrior, priest, oath, and guest/host.

> *I have a question inspired by the linguistics section of this book:*
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> *When describing how to figure out Proto-Indo-European root words from modern and ancient languages, the book stated that certain sound shifts are more likely to happen that others. For example, hard consonants (k,g) are more likely to shift to soft consonants (s,sh) than vice versa. Then where did the hard consonants initially come from? There are other ways in which languages tend to shift in certain directions. How did proto-languages get to such a linguistically unlikely state to begin with?*
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> *There is a similar not-fully-solved question in physics. Since we know that entropy always increases, the early universe must have had very little. How did the early universe get into such a low entropy state? Other similar problems in physics have been solved. If uranium (and various radioactive isotopes) decay, where did the original uranium come from? The answer is from events that release extraordinary amounts of energy (supernova & neutron star collisions), a small fraction of which is used to make radioactive elements and fling them across the universe.*
>
> *I can think of several possibilities:*
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> *1. Although the various linguistic processes have direction individually, collectively they form cycles. A possible example I just made up:*
> $$hard\ consonant \to soft\ consonant$$
> $$soft\ consonant \to vowel$$
> $$too\ many\ vowels \to glottal\ stop$$
> $$glottal\ stop \to hard\ consonant$$
> *2. There was far more linguistic diversity in the stone age than today. (It's not clear to me if this would be true. Less travel suggests more languages, but fewer people suggests fewer languages.) Only a few of these languages have descendants. The ones that survived happened to be ones that were linguistically unlikely. This also suggests that there was some selection bias here. Perhaps some languages made people more likely to adopt agriculture or new technology and so outcompete their neighbors.*
> *3. Linguistic rules are different in nomadic societies than in sedentary societies. Or some other division might be important. There are some aspects of language that do follow different rules in different situations: isolated languages tend to become grammatically more complicated, while languages in close contact with other languages tend to become grammatically simpler. Any variations in linguistic rules should have modern consequences.*
> *4. Divine creation of language, which has subsequently decayed.*
>
> *Is there any research on this entropy problem of linguistics?*

Once we have an idea of the environment and society these people lived in, we can look at the archeological record to see if any cultures match the Proto-Indo-European language.

This history is not yet settled science, but agreement is growing along multiple lines of evidence. Anthony has been in the middle of these debates. This book contains some of his original work.

Proto-Indo-European is associated with the domestication of the horse and the advent of wagon-based nomads in the steppes of Ukraine and southern Russia from 4000-2500 BC.

Farming and domesticated animals had spread from the Middle East to the Lower Danube Valley (Old Europe) by 6000 BC. From there, domesticated cattle, sheep, and goats spread onto the steppes. Limited agriculture also spread to river valleys. Although domesticated animals allow more productivity, they also involve changes to society. Herds allow greater wealth concentration and result in more frequent raiding. People on the steppes west of the Urals adopted domesticated animals, but the people east of the Urals remained hunter-gatherers.

Many of the cultural features of the Proto-Indo-Europeans developed during this time. Large, raised mounds containing the graves of chieftains or warriors (kurgans), with black, red, and white dirt, parts of sacrificed animals, and weapons, including animal-head stone maces. Funeral feasts that could feed hundreds accompanied some of the larger kurgans. Themes common to later Indo-European religions may have begun: Sky Father & Earth Mother, a primordial cow, division of society into priests-warriors-commoners, epic poems, and oaths of fealty.

Figure 2: This figure is not from Anthony's book. I found this image online and removed the false attribution. It shows the geographic locations of the major Indo-European cultures discussed. Anthony spells some of them differently (Yamna vs Yamnaya, Maykopf vs Maikop). Another difference is that Anthony describes the Germanic languages coming directly from the Yamnaya culture north of the Carpathian Mountains, instead of by way of the Danube Valley. I removed an arrow labeled 'Wisun' from the picture because they're not mentioned in the book and it's in the wrong place. Despite these flaws, this picture is the best large-scale overview I've seen of the pre-historic spread of Indo-European.

Horses were likely domesticated on the steppes by 4000 BC. They were likely originally raised as food that requires less winter maintenance, but soon were ridden as well. Anthony's own research has shown bit wear on horse teeth by 3500 BC. War was revolutionized by the increased mobility of fighters, not (yet) by the use of horses in battle.

The first migration off of the steppes into Old Europe also began. Most of the cities in the Danube Valley were abandoned, due to climate shifts and increased warfare. The evidence for the migration is primarily from kurgans in the Danube delta, so we don't know whether it was a mass migration or an elite migration that than became culturally dominant. These people would probably go on to form the Hittite Empire in Anatolia, with the first written Indo-European language.

After a few hundred years, Old Europe began to reassert itself, building the largest urban areas that had yet existed (∼10,000 people). Unlike contemporary Ur or Sumer in Mesopotamia, these were towns, not cities. There is no evidence of political hierarchy or centralized power. About every 70 years, the town was intentionally burned and a new one founded at a nearby site.

Across the Black Sea, the northern slopes of the Caucasus Mountains came in contact with Mesopotamia. Kurgans start having finely decorated silver, complete with Mesopotamian symbols of royalty – the lion & bull. Wheels spread north onto the steppe.

Between 3300-3000 BC, a single culture spread across the entire European steppes: the Yamnaya Horizon. Kurgans appeared for the first time days away from water sources. Some Yamnaya kurgans included wagons. Wagons allow people to become nomadic in the steppes and to journey, with their herds, for days across the dry grasslands. Previously, only areas near river valleys had been inhabited. Now, the entire steppe could be used. The Yamnaya Horizon marks the group who spoke Proto-Indo-European.

This wildly successful group expanded more. First, a group crossed Kazakhstan, past the horse-riding hunter-gatherers. The descendants of this group would become the Tocharians, who lived in Western China until 800 AD. Then, they expanded across Europe. The ancestors of Celtic and Italic moved up the Danube River, the ancestors of Germanic moved west north of the Carpathian Mountains, and the ancestors of Slavic and Baltic moved north into the forest. The Corded Ware Horizon marks the expansion of Indo-Europeans across northern Europe.

These migrations, and the other Indo-European migrations before and after, were more likely elite migrations than mass migrations. Imitation of wealthy immigrants and assimilation of ambitious individuals likely played a larger role than conquest and domination. Successful herders could amass huge amounts of highly mobile wealth. Chiefs would migrate to find new clients, and then established their ritual and social institution in the new land. Oaths of fealty allowed strangers to fully join their society. Indo-European religion demanded that the right rituals be performed in the right language, but was not concerned with ancestry.

At around 2000 BC, more changes were occurring at the southern end of the Ural Mountains, the eastern edge of the Proto-Indo-European homeland. Metallurgy became extremely common – there are heavily fortified settlements within which every house contained tools for smelting bronze. Much of this bronze was traded south to the cities of Central Asia, then through Persia to Mesopotamia or India.

The earliest chariots were found in their kurgans. Unlike wagons, chariots are designed to be light and fast. Their wheels are spoked, not solid. Chariots revolutionized warfare. They were the first horses to be used in battle – true cavalry wouldn't be developed for another thousand years.

Chariot warriors spread south across Central Asia to the already-old civilizations of Persia, Mesopotamia, and India. These civilizations either rapidly adopted chariots or were conquered. They brought with them early Sanskrit and Persian, and enter the historical record.

The Vedas, the oldest Hindu texts, describe the Aryans entering India from the north, before 1500 BC. They contain funeral hymns that harken to the kurgan burials and feasts on the steppes. In Syria, the Mitanni Kingdom had Sanskrit-speaking elites who worshiped Hindu gods (contemporary with Moses). The Mycenaeans presumably came around the other side of the Black Sea to establish the first truly Greek civilization. Their society was described in the Iliad and Odyssey.

From here, we can follow the historical record, rather than relying on archaeology and linguistics.

The story I've told here is much simpler than the one told in Anthony's book. I have purposefully neglected to mention the names of the many archaeological cultures described (including Poltavka, Potapovka, Pokrovka, and Petrovka). My story also has no pottery – although there are pages of pictures of pots in the book – Anthony is an archaeologist. The archaeological detail does make the book harder to follow. Luckily, each chapter has at least one map showing the cultures and sites described in the chapter. When reading it, I kept a finger on that chapter's map and another finger in the endnotes. Anthony is trying to tell the entire history of multiple groups of people for thousands of years, so a complicated story is expected. The book contains a remarkable amount of information.