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THE BRONZE AGE AS THE FIRST WORLD-SYSTEM:
THESES FOR A RESEARCH AGENDA

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ԲՐՈՆԶԻ ԴԱՐԸ՝ ՈՐՊԵՍ ԱՌԱՋԻՆ ՀԱՄԱԾԵԱՐՀԱՅԻՆ ՀԱՄԱԿԱՐԳ. ԹԵԶԵՐ
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THE BRONZE AGE AS THE FIRST WORLD-SYSTEM: THESES FOR A RESEARCH AGENDA

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Abstract: *Bronze Age is traditionally viewed as historical period in the third and second millennia BCE. My key contention is that it is more meaningfully considered in geographic terms, as interconnected space of trade and cultural exchanges encompassing Afro-Eurasia but not Tropical Africa, let alone Australia and the Americas. The Bronze-age world-system extended from Scandinavia and British Isles to Egypt and Mesopotamia, from the Indus valley civilization and ancient Arabia to the Urals and western Siberia, possibly, also China and South-East Asia. Geologically, copper and tin as two metal components of bronze are randomly distributed on the planet which necessitated long-distance trade. In turn, the world trade in metals created whole cascades of logistical needs and opportunities. The consequences included the emergence of social complexity: chiefly powers, diplomacy, merchants, specialist coppersmiths and weapons-makers, professional warriors. New means of transportation emerged such as sailed ship and domesticated pack animals (donkey, camel, horse). The exchange in secondary products (wine, cloth, elaborate pottery) led to a revolution in conspicuous consumption. These theses are intended to generate a discussion about the earliest world-system, its morphology and flows. This may also extend to the comparative analysis of later world-systems known to us Antiquity, the Medieval 'Silk Roads', and modern capitalism.*

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A scientific revolution is happening in the study of the origins of human societies. Its scale is breathtaking. Our textbook maps of early civilizations depicted them as isolated islands ‘caged’ in the river valleys of Mesopotamia, Indus, Nile, Huang-He.² The rest of Afro-Eurasia seemed vast white spots, the blanks probably once populated by primitive bands and roaming ‘barbarians’. Today scholars from many countries are filling the blanks with data from an array of new scientific methods: paleoclimate geology, comparative linguistics, C-14 chemical dating, osteological and pollen sampling, strontium in dental enamel and CT-scans, DNA sequencing, the microscopic traceology of tools.³

A prominent Soviet archeologist once quipped that his discipline is a forensic investigation coming centuries late.⁴ Like in the Sherlock Holmes stories, archeology used to be an individual enterprise. No longer. The massive mining of data invites social science theory building and testing. A whole world economy emerges from the depths of the third-second millennium BCE. It was due to bronze.

Bronze is an alloy of 90% copper and 10% tin. Geologically, the two metals are usually found far apart. Moreover, river-valley civilizations were extremely rich in fertile mud and therefore human labor — but hardly any minerals. Transition to metallurgy necessitated the far-flung networks of trade because the sources of metals and semi-precious stones (diorite, cornelian, lapis lazuli used in royal rituals) were typically located beyond the limited range of conquest. Ancient warriors in the Middle East were limited in their forays outside the fertile river valleys by the amount of water they could carry across the deserts in goat skins. The Sinai copper mines directly controlled and exploited by the Old-kingdom Egypt were a partial exception which proves the rule. Therefore, peaceful trade, even if disguised as the exchange of diplomatic gifts or tribute, became a universal necessity.⁵

² Michael Mann. *The Sources of Social Power. Volume 1: A History of Power from the Beginning to AD 1760* (Cambridge University Press, 1986).

³ Randall Collins. “Why the social sciences won't become high-consensus, rapid-discovery science.” *Sociol Forum* 9, (1994): 155–177.

⁴ Клейн, Л. С. «Методологическая природа археологии», *Российская Археология*. 4 (1992): 86—96.

⁵ William McNeill. *The Rise of the West*. (Chicago: University of Chicago Press, 1963).

Cultural exchange, in the broadest sense, certainly accompanied the extension of trade. This is what was traditionally presented as the diffusion of cultural patterns, sometimes seen in different and perhaps clumsily imitational contexts. Instead of the pharaonic beads of precious lapis-lazuli, the royal tombs of semiperipheral Mycaene (*i.e.* located halfway between the mineral-rich mountains of Europe and the civilization centers of Near East) contained similar beads made from the much cheaper blue glass paste. The intricate cylindrical seals originating in Mesopotamia, once discarded upon the death of their original owners, could themselves become beads in the necklace on some very important and likely illiterate chieftain from the ‘barbarian’ periphery. The goblets made from precious metals and used probably for drinking wine in the wealthier centers of civilization a couple centuries later and a few hundred or even thousand kilometers away could appear in the form of ceramic or horn vessels used probably for some kind of alcoholic beverages made of honey and berries.⁶

Trade always requires the protection of caravans and their merchandise. In turn, this could generate differentiated protection rents that benefitted some merchants over others.⁷ Diplomacy is another side of armed protection. The traveling merchants and powers behind them (empires, temples, city-states, tribal chiefs) weaved continuously their networks of mutual obligations fleshed out in treaties, regular gift-giving, hospitality rituals, confraternization, exchange of brides, or sharing their gods. By the beginning of the second millennium BCE these networks covered the vast expanses from Scandinavia to Greece and Egypt, from Siberia to India and China. Hence the remarkably simultaneous appearance of bronze technologies all over these places.⁸

⁶ Lauren Ristvet. *In the Beginning: World History from Human Evolution to the First States*. (New York: McGraw-Hill, 2007).

⁷ Frederic Lane. *Profits from Power. Readings in Protection Rent and Violence-Controlling Enterprises*. (Albany, NY: State University of New York Press, 1979); Волков, Вадим. «Новгородская республика как тип охранного контракта», *Неприкосновенный запас* №5, 2007

⁸ Philippe Beaujard. *The Worlds of the Indian Ocean: Volume 1, From the Fourth Millennium BCE to the Sixth Century CE: A Global History (The Worlds of the Indian Ocean 2 Hardback Book Set)*_Transl. from French. (New York: Cambridge University Press, 2019)

The United Arab Emirates, or what the ancient cuneiform tablets called the ‘land of Magan’ (Oman), had a significant role in this earliest world economy for three reasons. It is located half-way between India and Mesopotamia. In fact, the objects from both civilizations, Sumer and Indus (Harappa, the ancient Meluhha), were simultaneously found in the UAE.⁹ Second, there are accessible copper deposits in Al Ain and elsewhere with the evidence of mining. Third, Magan was the source of beautiful black stone called diorite. The splendid Sumerian royal statues, now on display at major museums like Louvre, would not be possible without a steady supply of diorite.

World trade, its extensive logistics, opportunities and profits, brought massive changes. New technologies spread. Pack animals (camel, donkey) had to be domesticated and bred on a large scale. The new generations of animals needed specialist breeders and tamers as well as caravan drivers and guides. Whole artisanal industries must have emerged to supple saddles and other girding for the animals, possibly, also carts in order to maximize the weight carried by donkeys. But carts required at least basically paved roads to protect the valuable and breakable cart axles. Oftentimes the roads had to cross natural obstacles which required the construction and maintenance of bridges. Archeologists only recently began systematically looking for such very ancient bridges — and they were found, at least in the territory of Greece. These Mycenaean-period stone structures have been long known but mis-identified as much later artefacts of classical Antiquity or even medieval.

Bridges offered excellent opportunities to collect tolls on the roads. The same must have been true of caravan sarays. It is estimated that nearly eight tons of water could be consumed every night by a caravan of 500 donkeys, an ordinary size already in the XIXth century BCE, according to the cuneiform tablets from ancient Kanesh.¹⁰ The infamously murderous

⁹ Peter Magee. *The archaeology of prehistoric Arabia: adaptation and social formation from the Neolithic to the Iron age*. (Cambridge University Press, 2014)

¹⁰ Gojko Barjamovic. *A Historical Geography of Anatolia in the Old Assyrian Colony Period*. (Chicago University Press, 2011)

Bronze-Age battle in Tollnse, Germany, apparently happened over a bridge.¹¹

The local societies acquired complexity evidenced in rich burials. Artisans specialized. Merchants and their self-governing city-states first appeared. Chieftains equipped the now professional warriors with bronze weapons which were no longer suitable for hunting like the old disposable arrowheads of flintstone. This was proven in experimental reconstructions, a booming new method.¹²

Gender and rank inequalities become visible for the first time. This brings more puzzles. In the mounds of copper-rich steppes in Russia, Kazakhstan, and Ukraine archeologists found prominent males buried in woman's dress: a transgender ritual?¹³

Chariots were also found in large number (over twenty now) in the burial mounds of Sintashta culture in today's Chelyabinsk province of Russia, on the border with Kazakhstan. The swift spoked wheels are now dated to the 21st century BCE, the earliest known in the world. The DNA of horses indicates the domestication of this animal between river Don and the Urals mountains.¹⁴

This contradicts received knowledge regarding technological innovation.¹⁵ Apparently, it often spread from the 'barbarian' periphery rather than civilized cores.¹⁶

¹¹ Andrew Curry. "Slaughter at the bridge: Uncovering a colossal Bronze Age battle". (24 March 2016). *Science*. <https://www.science.org/content/article/slaughter-bridge-uncovering-colossal-bronze-age-battle> Retrieved 04 October 2022

¹² Иван Семьян. *Пробиваем доспех из лука: какая стрела уложит противника?* [АНТРОПОГЕНЕЗ.РУ](https://www.youtube.com/watch?v=s2198SrllLw) Ученые против мифов-17. 22 апреля 2022 <https://www.youtube.com/watch?v=s2198SrllLw> Retrieved 04 October 2022.

¹³ Епимахов А. В. и коллектив авторов. *Южный Урал в начале эпохи металлов. Бронзовый век.* (Челябинск: Издательство Южноуральского государственного университета, 2021).

¹⁴ Librado, P., Khan, N., Fages, A. *et al.* The origins and spread of domestic horses from the Western Eurasian steppes. *Nature* **598**, (2021): 634–640.

¹⁵ T.D. Hall, Nick Kardulias, P. & Chase-Dunn, C. World-Systems Analysis and Archaeology: Continuing the Dialogue. *J Archaeol Res* **19** (2011): 233–279.

¹⁶ Kristiansen, Kristian, with Thomas Lindkvist and Janken Myrdal (eds.) *Trade and Civilisation. Economic Networks and Cultural Ties from Prehistory.* (Cambridge University Press, 2018)

Sail had to be invented in the early Bronze Age. At New York University in Abu Dhabi a team of scholars led by the Dutch marine archeologist and museum curator Prof. Robert Parthesius reconstructed from the Mesopotamian seals and material evidence a ship made of bundled reeds covered in bitumen and under a woolen sail.¹⁷ We now know why the Sumerian sources praised the ‘black-sailed ships’ — the natural color of goat wool.

Still more significant was the invention of keeled ship.¹⁸ Its origins so far remain contested. Perhaps, it was in the Eastern Mediterranean, and certainly long before the Viking drakkar previously considered the earliest prototype.

The caravan trails and shipping lanes connected what now emerges as a much bigger space of interactions than what was cautiously believed just a couple decades ago. The remnants of brightly colored cotton cloth of indubitably Indian origin were identified in the southern Urals, so rich in copper and gold deposits, and also in the Caucasus, the source of metals and earliest wines. It now seems incontrovertible that wine was a major innovative export of Kuro-Arax culture to the (traditionally beer-drinking) Mesopotamia and Levant.¹⁹

Once again, we might be seeing in this instance a backflow of innovation from periphery to the core of the contemporary world-system. This furthermore extends on the famous (and therefore often criticized) concept of the ‘secondary products revolution’ of the prominent British archeologist Andrew Sherratt.²⁰

¹⁷ The Má II Project: Ancient Boat Lab. NYUAD <https://nyuad.nyu.edu/en/research/faculty-labs-and-projects/ma-the-ancient-boat-lab.html> Retrieved 04 October 2022

¹⁸ Sherratt, S. & Sherratt, A. “From luxuries to commodities; The nature of Bronze Age trading systems.” *Bronze age trade in the Mediterranean: Papers presented at Rewley House*. (Oxford, December, 1989).

¹⁹ Patrick E. McGovern. *Ancient Wine: The Search for the Origins of Viniculture*. (Princeton: Princeton University Press, 2006); Yasur-Landau, Assaf. “Levant”. Pp. 832-848 in: Cline, E. H. ed. *The Oxford Handbook of the Aegean Bronze Age*. (Oxford: Oxford University Press, 2010).

²⁰ Marciniak, A. “The Secondary Products Revolution: Empirical Evidence and its Current Zooarchaeological Critique.” *Journal of World Prehist* **24**, 117–130 (2011).

In Denmark, the big data sets of things as mundane as the teeth of ancient cows and cattle urine saturating the floors of cowsheds correlate with the volumes of copper and tin imports. There had to be a trade balance. Did Denmark specialize in dairy exports two millennia prior to the Viking age?²¹ Curiously, copper ingots from the Uluburun shipwreck near the southern coast of Anatolia were shaped as cowhides. The ingots also had the standardized weight of 26 kg, *i.e.* the Biblical talent.²²

Silver, a rather impractical metal, assumes the earliest function of global money.²³ This English word itself might be traced to the Babylonian measure of precious weight, the *mina*. Moreover, trade brought the cultural abstraction of standard colors: green, blue, red.²⁴ In an illustrative anecdote, the American archeologist Eric Cline cites the instance when Babylonian king Hammurabi (the same of the famous laws inscription) ordered to send back the pair of red shoes of Creto-Minoan manufacture that he for some reason disliked. Just like on Amazon.com today! (Cline, 2020.)

The ongoing excavations in ancient Kanesh, a trading town in Anatolia whose population proved unexpectedly large (20-35 thousand) and ethnically mixed. Judging by the personal names, toponyms, and the scant word borrowings, the local natives were some of the earliest known Hittites or, perhaps, the speakers of other Indo-European languages of ancient Anatolia. The expat Assyrian merchants wrote and apparently spoke in a western Semitic language delivered a treasure-trove of correspondence from the 19th century BCE. This subverts the common assumption that literacy was confined to priests and scribes. Evidently, many more Assyrians than previously assumed were literate. Importantly, this included women, at least

²¹ Timothy Earle. *How Chiefs Come to Power: The Political Economy in Prehistory*. Stanford University Press, 1997

²² Pare, C. "Weighing, commodification, and money", pp. 508–527 in: H. Fokkens, A. Harding (eds.) *Oxford Handbook of the European Bronze Age*, (Oxford University Press, 2013).

²³ Colin Renfrew. "Systems of value among material things: The nexus of fungibility and measure", pp. 249–260 in: J. K. Papadopoulos, G. Urton (eds.) *The Construction of Value in the Ancient World*, Cotsen Institute of Archaeology Press, 2012.

²⁴ Kristiansen, Kristian, with Thomas Lindkvist and Janken Myrdal (eds.) *Trade and Civilisation. Economic Networks and Cultural Ties from Prehistory*. Cambridge University Press, 2018

from the merchant households. Some 9000+ cuneiform letters were recovered so far, an archive rivaling the medieval Medicis. It is being translated by the team of Harvard-based Danish assyriologist Gojko Barjamovic. The data call for a socio-economic interpretation.

Much attention was drawn to the mysteriously sudden and simultaneous demise of no less than seven Bronze-age great powers ca. 1177 BCE. This event constitutes the main focus in the eponymous international bestseller.²⁵ But what was that had collapsed? How did it emerge in the first place? And what came after it? Urartu and the neo-Assyrian empire, classical China and Rome. What were the successor world-systems? Ian Morris and Walther Scheidel suggested pioneering formulations in this regard.²⁶ The space can no longer be called uncharted.

Our focus might be on the earlier, still coalescing world economy of Bronze Age and, *inter alia*, the place of Armenian highlands in this big picture. A lot is to be excavated and interpreted. But no less is to be gleaned from the connections transpiring in the panoramic view of the earliest known world-economy. The founders of world-systems analysis, Fernan Braudel still in the 1940s-1970s and later Immanuel Wallerstein in the 1980s-2000s on various occasions hypothesized that world-economis could have existed in much earlier epochs. But Braudel and Wallerstein chose to focus of the early modern origins of capitalism. Evidently, digging deeper in history in their lifetimes was hardly supported by archeological and epigraphic evidence. This situation has been rapidly changing in the early twenty-first century. An exciting scientific revolution is happening today in the study of earliest complex societies. I call on you to become part of this intellectual movement.

²⁵ Eric Cline. *1177 B.C.: The Year Civilization Collapsed*. (Princeton University Press, 2014).

²⁶ Ian Morris. *Why the West Rules—For Now?* New York: Farrar, Straus and Giroux, 2010; Idem, *The Measure of Civilisation: How Social Development Decides the Fate of Nations*. (Princeton: Princeton University Press, 2010).

**ԲՐՈՆՉԻ ԴԱՐԸ՝ ՈՐՊԵՍ ԱՌԱՋԻՆ ՀԱՄԱՇԽԱՐՀԱՅԻՆ
 ՀԱՄԱԿԱՐԳ. ԹԵՉԵՐ ՀԵՏԱՉՈՏԱԿԱՆ ՕՐԱԿԱՐԳԻ ՀԱՄԱՐ
 Գևորգի Դեղուզյան
 Ամփոփագիր**

Բրոնզի դարը ավանդաբար դիտվում է որպես մ.թ.ա. երրորդ և երկրորդ հազարամյակների պատմական ժամանակաշրջան: Իմ հիմնական պնդումն/ամսաձայնությունը այն է, որ Բրոնզի դարը ավելի իմաստալից է դիտարկվում աշխարհագրական առումով, որպես առևտրի և մշակութային փոխանակումների փոխկապակցված տարածք, որն ընդգրկում է Աֆրո-Եվրասիան, բայց ոչ արևադարձային Աֆրիկան, էլ չասած Ավստրալիան և Ամերիկան: Բրոնզեդարյան համաշխարհային համակարգը տարածվում էր Սկանդինավիայից և Բրիտանական կղզիներից մինչև Եգիպտոս և Միջագետք, Ինդոսի հովտի քաղաքակրթությունից և Հին Արաբիայից մինչև Ուրալ և Արևմտյան Միբիր, հնարավոր է նաև Չինաստան և Հարավարևելյան Ասիա: Աշխարհագրական առումով, պղինձը և անագը, որպես բրոնզի երկու մետաղական բաղադրիչներ, պատահականորեն բաշխված են մոլորակի վրա, ինչը պարտադրեց առևտուրը երկար տարածությունների վրա: Իր հերթին, մետաղների համաշխարհային առևտուրը ստեղծեց լոգիստիկ կարիքների և հնարավորությունների ամբողջ համակարգեր: Հետևանքները ներառում էին սոցիալական բարդ կառույցների առաջացումը՝ իշխանություններ, դիվանագիտություն, վաճառականներ, մասնագետ պղնձագործներ և զենքեր պատրաստողներ, պրոֆեսիոնալ ռազմիկներ: Ի հայտ եկան նոր փոխադրամիջոցներ, ինչպիսիք են առագաստանավը և ընտանի կենդանիները (էշ, ուղտ, ձի): Երկրորդական ապրանքների (գինի, կտորեղեն, մշակված խեցեղեն) փոխանակումը հանգեցրեց հեղափոխության սպառման մեջ: Այս թեզերը նպատակ ունեն քննարկում առաջացնել ամենավաղ աշխարհակարգի, նրա մորֆոլոգիայի և հոսքերի մասին: Սա կարող է տարածվել նաև ավելի ուշ համաշխարհային համակարգերի համեմատական վերլուծության վրա, որոնք մեզ հայտնի են Հին շրջան, միջնադարյան «Մետաքսի ճանապարհ» և ժամանակակից կապիտալիզմ եզրերով: