

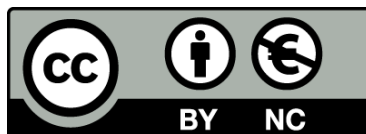


UNIVERSITAT DE
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Exploración y modelización de patrones socioecológicos y tecnoculturales en sociedades preindustriales de zonas áridas afro-asiáticas

Una aproximación multidisciplinar
desde métodos cuantitativos

Andreas Angourakis



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Bibliografía

ADAMATZKY, A., 2010. *Game of Life Cellular Automata* [en línea]. London: Springer London. ISBN 978-1-84996-216-2. Disponible en: <http://link.springer.com/10.1007/978-1-84996-217-9>.

ALIZADEH, K. y UR, J.A., 2007. Formation and Destruction of Pastoral and Irrigation Landscapes on the Mughan Steppe, North-Western Iran. *Antiquity* [en línea], vol. 81, no. 311, pp. 148-160. ISSN 0003598X. Disponible en: <http://nrs.harvard.edu/urn-3:HUL.InstRepos:4269028>.

ALLEN, C., 2009. Teleological Notions in Biology. En: EDWARD N. ZALTA (ed.), *Stanford Encyclopedia of Philosophy* [en línea]. Winter 200. S.l.: Stanford University, Disponible en: <https://plato.stanford.edu/cgi-bin/encyclopedia/archinfo.cgi?entry=teleology-biology>.

ANGOURAKIS, A., 2014. Exploring the Oases of Central Asia: a Model of Interaction between mobile livestock breeding and sedentary agriculture. En: B. ANTELA-BERNÁRDEZ y J. VIDAL (eds.), *Central Asia in Antiquity: Interdisciplinary Approaches*. Oxford: BAR International Series, pp. 3-23. ISBN 978 1 4073 1311 5.

ANGOURAKIS, A., 2016. «*Musical Chairs*» (*Version 2*) [en línea]. 2016. S.l.: CoMSES Computational Model Library. Disponible en: <https://www.openabm.org/model/4880/version/2>.

ANGOURAKIS, A., 2017a. *biplot2d3d - an R package for generating highly-customizable biplots* [en línea]. 2017. S.l.: Zenodo. Disponible en: <http://doi.org/10.5281/zenodo.897603>.

ANGOURAKIS, A., 2017b. «*Nice Musical Chairs*» (*Version 5*) [en línea]. 2017. S.l.: CoMSES Computational Model Library. Disponible en: <https://www.openabm.org/model/4885/version/5>.

ANGOURAKIS, A. y MARTÍNEZ FERRERAS, V., 2017. *cerUB - Protocols for exploring archaeometric data (R package)* [en línea]. 2017. S.l.: Zenodo. Disponible en: <http://doi.org/10.5281/zenodo.1045020>.

ANGOURAKIS, A. y MARTÍNEZ FERRERAS, V., 2018. *cerUB tutorial* [en línea].

2018. S.l.: s.n. Disponible en: https://andros-spica.github.io/cerUB{_}tutorial/.
- ANGOURAKIS, A., MARTÍNEZ FERRERAS, V., TORRANO, A. y GURT ESPARRAGUERA, J.M., 2018. Presenting multivariate statistical protocols in R using Roman wine amphorae productions in Catalonia, Spain. *Journal of Archaeological Science* [en línea], vol. 93, pp. 150-165. ISSN 0305-4403. DOI [10.1016/J.JAS.2018.03.007](https://doi.org/10.1016/J.JAS.2018.03.007). Disponible en: <https://doi.org/10.1016/j.jas.2018.03.007>.
- ANGOURAKIS, A., RONDELLI, B., STRIDE, S., RUBIO CAMPILLO, X., BALBO, A.L., TORRANO, A., MARTÍNEZ FERRERAS, V., MADELLA, M. y GURT ESPARRAGUERA, J.M., 2014. Land Use Patterns in Central Asia. Step 1: The Musical Chairs Model. *Journal of Archaeological Method and Theory* [en línea], vol. 21, no. 2, pp. 405-425. ISSN 1072-5369. DOI [10.1007/s10816-013-9197-0](https://doi.org/10.1007/s10816-013-9197-0). Disponible en: <http://dx.doi.org/10.1007/s10816-013-9197-0>.
- ANGOURAKIS, A., SALPETEUR, M., MARTÍNEZ FERRERAS, V., GURT ESPARRAGUERA, J.M., FERRERAS, V.M. y GURT ESPARRAGUERA, J.M., 2017. The Nice Musical Chairs Model: Exploring the Role of Competition and Cooperation Between Farming and Herding in the Formation of Land Use Patterns in Arid Afro-Eurasia. *Journal of Archaeological Method and Theory* [en línea], vol. 24, no. 4, pp. 1177-1202. ISSN 1072-5369. DOI [10.1007/s10816-016-9309-8](https://doi.org/10.1007/s10816-016-9309-8). Disponible en: <http://dx.doi.org/10.1007/s10816-016-9309-8>.
- ANGOURAKIS, A., SANTOS, J.I., GALÁN, J.M. y BALBO, A.L., 2015. Food for all: An agent-based model to explore the emergence and implications of cooperation for food storage. *Environmental Archaeology* [en línea], vol. 20, no. 4, pp. 349-363. ISSN 1461-4103. DOI [10.1179/1749631414Y.0000000041](https://doi.org/10.1179/1749631414Y.0000000041). Disponible en: <http://dx.doi.org/10.1179/1749631414Y.0000000041>.
- ANTHONY, D.W., 2007. *The Horse, the Wheel, and Language: How Bronze-Age Riders from the Eurasian Steppes shaped the Modern World*. Princeton: Princeton University Press. ISBN 9780691148182.
- ARMBRUSTER, B.R., 2010. Technological Aspects of Selected Gold Objects in the Oxus Treasure. En: J. CURTIS y S.J. SIMPSON (eds.), *The World of Achaemenid Persia*. London: I. B. Tauris, pp. 397-408.
- ASIMOV, M.S. y BOSWORTH, C., 1998. *History of Civilizations of Central Asia, Volume IV, The age of achievement: A.D. 750 to the end of the fifteenth century, Part*

One: The historical, social and economic setting. S.l.: UNESCO Publishing.

AXELROD, R. y HAMILTON, W.D., 1981. The evolution of cooperation. *Science (New York, N.Y.)* [en línea], vol. 211, no. 4489, pp. 1390-6. ISSN 0036-8075. DOI [10.1126/SCIENCE.7466396](https://doi.org/10.1126/SCIENCE.7466396). Disponible en: <http://www.ncbi.nlm.nih.gov/pubmed/7466396>.

BARCELÓ, J.A., 2009. *Computational Intelligence in Archaeology*. S.l.: IGI Global. ISBN 9781599044897.

BARCELÓ, J.A., 2012. Computer simulation in archaeology. Art, science or nightmare? *Virtual Archaeology Review* [en línea], vol. 3, no. 5, pp. 8. ISSN 1989-9947. DOI [10.4995/var.2012.4489](https://doi.org/10.4995/var.2012.4489). Disponible en: <http://polipapers.upv.es/index.php/var/article/view/4489>.

BARCELÓ, J.A. y BOGDANOVIC, I., 2015. *Mathematics and archaeology* [en línea]. S.l.: CRC Press. ISBN 9781482226812. Disponible en: <https://www.crcpress.com/Mathematics-and-Archaeology/Barcelo-Bogdanovic/p/book/9781482226829>.

BARCELÓ, J.A., ACHINO, K.F., BOGDANOVIC, I., CAPUZZO, G., DEL CASTILLO, F., MOITINHO DE ALMEIDA, V. y NEGRE, J., 2015. Measuring, Counting and Explaining: An Introduction to Mathematics in Archaeology. En: J.A. BARCELÓ y I. BOGDANOVIC (eds.), *Mathematics and Archaeology*. Boca Raton FL: CRC Press, pp. 3-64.

BAUMER, C., 2012. *The History of Central Asia: Volume 1: The Age of the Steppe Warriors*. S.l.: I. B. Tauris. ISBN 978-1-78076-060-5.

BAUMS, S., 2017. Greek or Indian? The Questions of Menander and onomastic patterns in early Gandhāra. *Buddhism and Gandhara* [en línea]. S.l.: Routledge India, pp. 33-46. Disponible en: <https://www.taylorfrancis.com/books/9781351252751/chapters/10.4324/9781351252768-2>.

BIRD, D.W. y BIRD, D.W., 1997. Delayed Reciprocity and Tolerated Theft: The Behavioral Ecology of Food-Sharing Strategies. *Current Anthropology* [en línea], vol. 38, no. 1, pp. 49-78. ISSN 0011-3204. DOI [10.1086/204581](https://doi.org/10.1086/204581). Disponible en: <https://www.journals.uchicago.edu/doi/10.1086/204581>.

BIVAR, A.D.H., 2014. *Kushan dynasty: i. Dynastic history* [en línea]. 2014. S.l.: s.n.

Disponible en: <http://www.iranicaonline.org/articles/kushan-dynasty-i-history>.

BOLELOV, S.B., 2001. Gontxarnaia mastyerskaia III-II vyekov do H.E. na Kampyrtepa. En: E.V. RTVELADZE (ed.), *Matyerialy Tokharistanskoy Ekspyeditsii: Arkhyeologichyeskiye isslyedovaniya Kampyrtepa 2*. Tashkent: Academy of Fine Arts of Uzbekistan, San'At, pp. 15-30.

BOLELOV, S.B., 2011. Proizvodstvyennyy tsyentr epokhi Ellinizma na Tsitadyeli Kampyrtepa. *Matyerialy Tokharistanskoy Ekspyeditsii: Arkhyeologichyeskiye isslyedovaniya Kampyrtepa 8*. Yelyest: Academy of Fine Arts of Uzbekistan, San'At, pp. 48-79.

BOWLES, S., 2004. *Microeconomics: Behavior, Institutions, and Evolution*. Princeton: Princeton University Press.

BRIANT, P., 2002. *From Cyrus to Alexander: A History of the Persian Empire*. Winona Lake, Indiana: Eisensbraun. ISBN 1575061201.

CAPDETREY, L., 2012. Fondations, diasporas et territoires dans l'Asie hellénistique au IIIe siècle. *Pallas* [en línea], no. 89, pp. 319-344. ISSN 0031-0387. DOI [10.4000/pallas.943](https://doi.org/10.4000/pallas.943). Disponible en: <http://journals.openedition.org/pallas/943>.

CEGIELSKI, W.H. y ROGERS, J.D., 2016. Rethinking the role of Agent-Based Modeling in archaeology. *Journal of Anthropological Archaeology* [en línea], vol. 41, pp. 283-298. ISSN 0278-4165. DOI [10.1016/J.JAA.2016.01.009](https://doi.org/10.1016/J.JAA.2016.01.009). Disponible en: <https://doi.org/10.1016/j.jaa.2016.01.009>.

CHERNYKH, E.N., 1992. *Ancient Metallurgy in the USSR: The Early Metal Age*. Cambridge: Cambridge University Press.

CHERNYKH, E.N., 2008. The «Steppe Belt» of stockbreeding cultures in Eurasia during the Early Metal Age. *Trabajos de Prehistoria*, vol. 65, no. 2, pp. 73-93. ISSN 0082-5638. DOI [10.3989/tp.2008.08004](https://doi.org/10.3989/tp.2008.08004).

CLARKE, D.L., 1968. *Analytical Archaeology*. London: Methuen.

CLARKE, D.L., 1972. *Models in Archaeology*. London: Methuen.

COOK, N.D., 2015. *The Bronze Age Civilization of Central Asia* [en línea]. S.l.: Routledge. ISBN 9781315642185. Disponible en: <https://www.taylorfrancis.com/books/>

9781315642185.

COSTOPOULOS, A. y LAKE, M.W., 2010. *Simulating Change: Archaeology into the Twenty-First Century*. Salt Lake City: University of Utah Press.

CURTIS, J., 2012. *The Oxus Treasure*. London: British Museum Press.

DALY, P. y EVANS, T.L., 2006. *Digital Archaeology: Bridging Method and Theory* [en línea]. New York: Routledge. ISBN 9781134388196. Disponible en: <https://www.taylorfrancis.com/books/9781134388196>.

DANI, A.H. y BERNARD, P., 1994. Alexander and his Successors in Central Asia. *History of civilizations of Central Asia, Volume II, The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250*. S.l.: UNESCO Publishing, pp. 65-95.

DE BARROS DAMGAARD, P., MARTINIANO, R., KAMM, J., MORENO-MAYAR, J.V., KROONEN, G., PEYROT, M., BARJAMOVIC, G., RASMUSSEN, S., ZACHO, C., BAIMUKHANOV, N., ZAIBERT, V., MERZ, V., BIDDANDA, A., MERZ, I., LOMAN, V., EVDOKIMOV, V., USMANOVA, E., HEMPHILL, B., SEGUIN-ORLANDO, A., YEDIAY, F.E., ULLAH, I., SJÖGREN, K.-G., IVERSEN, K.H., CHOIN, J., FUENTE, C. de la, ILARDO, M., SCHROEDER, H., MOISEYEV, V., GROMOV, A., POLYAKOV, A., OMURA, S., SENYURT, S.Y., AHMAD, H., MCKENZIE, C., MARGARYAN, A., HAMEED, A., SAMAD, A., GUL, N., KHOKHAR, M.H., GORIUNOVA, O.I., BAZALIISKII, V.I., NOVEMBRE, J., WEBER, A.W., ORLANDO, L., ALLENTOFT, M.E., NIELSEN, R., KRISTIANSEN, K., SIKORA, M., OUTRAM, A.K., DURBIN, R. y WILLERSLEV, E., 2018. The first horse herders and the impact of early Bronze Age steppe expansions into Asia. *Science* [en línea], no. May, pp. eaar7711. ISSN 0036-8075. DOI [10.1126/science.aar7711](https://doi.org/10.1126/science.aar7711). Disponible en: <http://www.sciencemag.org/lookup/doi/10.1126/science.aar7711>.

DIAMOND, J., 1997. *Guns, Germs, and Steel*. New York: Norton. ISBN 0393038912.

DJINDJIAN, F., 2015. A Short History of the Beginnings of Mathematics in Archaeology. En: J.A. BARCELÓ y I. BOGDANOVIC (eds.), *Mathematics in Archaeology*. Boca Raton FL: CRC Press, pp. 65-85.

DOYLE, C.C., MIEDER, W. y SHAPIRO, F.R., 2012. *The Dictionary of Modern Proverbs* [en línea]. New Haven; London: Yale University Press. ISBN 9780300136029.

Disponible en: <https://www.jstor.org/stable/j.ctt1nq6jk>.

ENOKI, K., KOSHELENKO, G.A. y HAIDARY, Z., 1994. The Yüeh-Chin and their migrations. En: J. HARMATTA, B.N. PURI y G.F. ETEMADI (eds.), *History of civilizations of Central Asia, Volume II, The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250*. Paris: UNESCO Publishing, pp. 165-183.

EPSTEIN, B., 2015. *The Ant Trap: Rebuilding the Foundations of the Social Sciences*. Oxford: Oxford University Press.

EPSTEIN, J.M., 2008. Why Model? *Journal of Artificial Societies and Social Simulation* [en línea], vol. 11, no. 4, pp. 12. Disponible en: <http://jasss.soc.surrey.ac.uk/11/4/12.html>.

EVANS, T.L., 2004. You, me and IT: The application of simple quantitative techniques in the examination of gender, identity and social reproduction in the Early to Middle Iron Age of north-eastern France. En: P. DALY y T.L. EVANS (eds.), *Digital Archaeology: Bridging Method and Theory*. New York: Routledge, pp. 51-81.

FALK, H., 1989. Soma I and II. *Bulletin of the School of Oriental and African Studies, University of London*, vol. 52, no. 1, pp. 77-90. ISSN 0095-8972. DOI [10.1080/00958979708023574](https://doi.org/10.1080/00958979708023574).

FALK, H., 2004. The Kaniska era in Gupta records. *Silk Road Art and Archaeology*, vol. X.

FALK, H. y BENNETT, C., 2009. Macedonian Intercalary Months and the Era of Azes. *Acta Orientalia*, vol. 70, pp. 197-216.

FANG, J.-Q. y LIU, G., 1992. Relationship between climatic change and the nomadic southward migrations in eastern Asia during historical times. *Climatic Change* [en línea], vol. 22, no. 2, pp. 151-168. ISSN 0165-0009. DOI [10.1007/BF00142964](https://doi.org/10.1007/BF00142964). Disponible en: <http://link.springer.com/10.1007/BF00142964>.

FAO GEONETWORK, 2015. *Global map of aridity - 10 arc minutes (GeoLayer)* [en línea]. 2015. S.l.: s.n. [Consulta: 3 mayo 2018]. Disponible en: <http://data.fao.org/ref/221072ae-2090-48a1-be6f-5a88f061431a.html?version=1.0>.

FERRERA, M., 1996. The 'Southern Model' of welfare in social europe. *Journal of*

European Social Policy, vol. 1, pp. 17-37.

FICK, S. y HIJMANS, R., 2017. *Worldclim 2: New 1-km spatial resolution climate surfaces for global land areas* [en línea]. 2017. S.l.: International Journal of Climatology. Disponible en: <http://worldclim.org/version2>.

FRACHETTI, M.D., SMITH, C.E., TRAUB, C.M. y WILLIAMS, T., 2017. Nomadic ecology shaped the highland geography of Asia's Silk Roads. *Nature* [en línea], vol. 543, no. 7644, pp. 193-198. ISSN 0028-0836. DOI [10.1038/nature21696](https://doi.org/10.1038/nature21696). Disponible en: <http://www.nature.com/doifinder/10.1038/nature21696>.

FRANCESCHINI, F., 2007. *I nomadi della Media Valle dello Zeraвшan Territorio e identità culturale attraverso i tumuli funerari* [en línea]. Ph. D. S.l.: Università di Bologna. Disponible en: <http://amsdottorato.unibo.it/1206/>.

FRANCFORT, H.-P., 1989. *Fouilles de Shortughai, Recherches sur l'Asie centrale protohistorique. Mémoires de la Mission archéologique française en Asie centrale, tome II*. Paris: Centre National de la Recherche Scientifique.

FRANCFORT, H.-P., 2009. L'âge du bronze en Asie centrale: La civilisation de l'Oxus. *Anthropology of the Middle East* [en línea], vol. 4, no. 1, pp. 91-111. ISSN 1746-0719. DOI [10.3167/ame.2009.040106](https://doi.org/10.3167/ame.2009.040106). Disponible en: <http://berghahnjournals.com/view/journals/ame/4/1/ame040106.xml>.

FUSSMAN, G., 1996. Southern Bactria and Northern India before Islam: A Review of Archaeological Reports. *Journal of the American Oriental Society* [en línea], vol. 116, no. 2, pp. 243-259. ISSN 00030279. DOI [10.2307/605700](https://doi.org/10.2307/605700). Disponible en: <https://www.jstor.org/stable/605700?origin=crossref>.

GAMO, M., SHINODA, M. y MAEDA, T., 2013. Classification of arid lands, including soil degradation and irrigated areas, based on vegetation and aridity indices. *International Journal of Remote Sensing* [en línea], vol. 34, no. 19, pp. 6701-6722. ISSN 0143-1161. DOI [10.1080/01431161.2013.805281](https://doi.org/10.1080/01431161.2013.805281). Disponible en: <http://www.tandfonline.com/doi/abs/10.1080/01431161.2013.805281>.

GARDIN, J.-C., 1985. Pour une géographie archéologique de la Bactriane. *Actes du Colloque franco-soviétique L'Archéologie de la Bactriane Ancienne, Dushanbe (U.R.S.S.), 27 octobre-3 novembre 1982*. Paris: Éditions du Centre National de la Recherche

Scientifique, pp. 39-46.

GEEL, B. van, BOKOVENKO, N., BUROVA, N., CHUGUNOV, K., DERGACHEV, V., DIRKSEN, V., KULKOVA, M., NAGLER, A., PARZINGER, H., PLICHT, J. van der, VASILIEV, S. y ZAITSEVA, G., 2004. Climate change and the expansion of the Scythian culture after 850 BC: a hypothesis. *Journal of Archaeological Science* [en línea], vol. 31, no. 12, pp. 1735-1742. ISSN 0305-4403. DOI [10.1016/J.JAS.2004.05.004](https://doi.org/10.1016/J.JAS.2004.05.004). Disponible en: <https://www.sciencedirect.com/science/article/pii/S0305440304000883>.

GILBERT, N. y TROITZSCH, K.G., 2006. *Simulación para las ciencias sociales*. Madrid: McGraw-Hill.

GINTIS, H., 2000. *Game Theory Evolving: A Problem-centered Introduction to Modeling Strategic Interaction*. Princeton: Princeton University Press.

GOODY, J., 2012. *El milagro euroasiático*. S.l.: Alianza. ISBN 978-84-206-0864-8.

GRAUWIN, S., SZELL, M., SOBOLEVSKY, S., HÖVEL, P., SIMINI, F., VANHOOF, M., SMOREDA, Z., BARABÁSI, A.-L. y RATTI, C., 2017. Identifying and modeling the structural discontinuities of human interactions. *Scientific Reports* [en línea], vol. 7, no. 1, pp. 46677. ISSN 2045-2322. DOI [10.1038/srep46677](https://doi.org/10.1038/srep46677). Disponible en: <https://doi.org/10.1038/srep46677>.

GRENET, F. y RAPIN, C., 1998. Alexander, Aï Khanum, Termez: Remarks on the Spring Campaign of 328. *Bulletin of the Asia Institute* [en línea], vol. 12, pp. 79-89. DOI [10.2307/24049095](https://doi.org/10.2307/24049095). Disponible en: <http://www.jstor.org/stable/24049095>.

GRIMM, V., POLHILL, G. y TOUZA, J., 2017. Documenting Social Simulation Models: The ODD Protocol as a Standard. En: B. EDMONDS y R. MEYER (eds.), *Simulating Social Complexity* [en línea]. S.l.: Springer, Cham, pp. 349-365. Disponible en: http://link.springer.com/10.1007/978-3-319-66948-9{_}15.

GUILAINE, J., 2001. La diffusion de l'agriculture en Europe : une hypothèse arithmétique. La difusión de L'agricultura en Europa : una hipótesis aritmética. *Zephyrus*, vol. 53-54, pp. 267-272.

GURT ESPARRAGUERA, J.M. y PIDAEV, S.R., 2010. *IPAEB: Preliminary Report of the work of the International Pluridisciplinary Archaeological Expedition to Bactria*

2009, Vol. 4. Barcelona: s.n.

GURT ESPARRAGUERA, J.M. y PIDAEV, S.R., 2011. *IPAEB: Preliminary Report of the work of the International Pluridisciplinary Archaeological Expedition to Bactria 2010*, Vol. 5. Barcelona: s.n.

GURT ESPARRAGUERA, J.M., ARIÑO GIL, E., MARTÍNEZ FERRERAS, V. y PIDAEV, S.R., 2015. The Buddhist occupation of Tchingiz Tepe (Termez, Uzbekistan) in the Kushan period through the ceramic contexts. *Archaeological Research in Asia* [en línea], vol. 3, pp. 19-33. ISSN 2352-2267. DOI [10.1016/J.ARA.2015.04.003](https://doi.org/10.1016/J.ARA.2015.04.003). Disponible en: <https://doi.org/10.1016/j.ara.2015.04.003>.

GURT ESPARRAGUERA, J.M., PIDAEV, S.R., RAURET, A.M. y STRIDE, S., 2007. *IPAEB: Preliminary Report of the work of the International Pluridisciplinary Archaeological Expedition to Bactria 2006*, Vol. 1. Barcelona: s.n.

GURT ESPARRAGUERA, J.M., PIDAEV, S.R., RAURET, A.M. y STRIDE, S., 2008. *IPAEB: Preliminary Report of the work of the International Pluridisciplinary Archaeological Expedition to Bactria 2007*, Vol. 2. Barcelona: s.n.

GURT ESPARRAGUERA, J.M., PIDAEV, S.R., RAURET, A.M. y STRIDE, S., 2009. *IPAEB: Preliminary Report of the work of the International Pluridisciplinary Archaeological Expedition to Bactria 2008*, Vol. 3. Barcelona: s.n.

HARDIN, G., 1968. The tragedy of the commons. The population problem has no technical solution; it requires a fundamental extension in morality. *Science (New York, N.Y.)* [en línea], vol. 162, no. 3859, pp. 1243-8. ISSN 0036-8075. DOI [10.1126/SCIENCE.162.3859.1243](https://doi.org/10.1126/SCIENCE.162.3859.1243). Disponible en: <http://www.ncbi.nlm.nih.gov/pubmed/5699198>.

HARMATTA, J., 1992. The Emergence of the Indo-Iranians: the Indo-Iranian languages. *History of civilizations of Central Asia, Volume I, The dawn of civilization: earliest times to 700 B.C.* Paris: UNESCO Publishing, pp. 346-370.

HARMATTA, J., PURI, B.N., LELEKOV, L., HUMAYUN, S. y SIRCAR, D.C., 1994. Religions in the Kushan Empire. *History of civilizations of Central Asia, Volume II, The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250.* Paris: UNESCO Publishing, pp. 305-322.

HIEBERT, F.T., 1994. *Origins of the Bronze Age oasis civilization in Central Asia.* S.l.:

- Peabody Museum of Archaeology; Ethnology, Harvard University. ISBN 9780873655453.
- HIEBERT, F.T. y LAMBERG-KARLOVSKY, C.C., 1992. Central Asia and the Indo—Iranian Borderlands. *Iran* [en línea], vol. 30, no. 1, pp. 1-15. DOI [10.1080/05786967.1992.11834486](https://doi.org/10.1080/05786967.1992.11834486). Disponible en: <https://www.jstor.org/stable/4299865>.
- HOUAL, J.-b., 2016. The Hellenistic Period through the ceramic of Termez Uzbekistan and Balkh Afghanistan. En: S. JAPP y P. KÖGLER (eds.), *Traditions and Innovations. Tracking the Development of Pottery from the late Classical to the Early Imperial Periods* [en línea]. Vienna: Phoibos Verlag, pp. 465-478. ISBN 978-3-85161-160-1. Disponible en: <https://halshs.archives-ouvertes.fr/halshs-01495067/>.
- HUGGETT, J., 2015. Challenging Digital Archaeology. *Open Archaeology* [en línea], vol. 1, no. 1. ISSN 2300-6560. DOI [10.1515/opar-2015-0003](https://doi.org/10.1515/opar-2015-0003). Disponible en: <https://doi.org/10.1515/opar-2015-0003>.
- ILKHAMOV, A., 2004. Archaeology of Uzbek identity. *Central Asian Survey* [en línea], vol. 23, no. 3-4, pp. 289-326. ISSN 02634937. DOI [10.1080/0263493042000321380](https://doi.org/10.1080/0263493042000321380). Disponible en: <http://www.tandfonline.com/doi/abs/10.1080/0263493042000321380>.
- ISAKOV, A.I., 1994. Sarazm: An Agricultural Center of Ancient Sogdiana. *Bulletin of the Asia Institute* [en línea], vol. 8, pp. 1-12. DOI [10.2307/24048761](https://doi.org/10.2307/24048761). Disponible en: <http://www.jstor.org/stable/24048761>.
- KANIUTH, K., 2007. The Metallurgy of the Late Bronze Age Sapalli Culture (Southern Uzbekistan) and its implications for the 'tin question'. *Iranica Antiqua* [en línea], vol. 42, no. March, pp. 23-40. ISSN 0021-0870. DOI [10.2143/IA.42.0.2017869](https://doi.org/10.2143/IA.42.0.2017869). Disponible en: <https://doi.org/10.2143/IA.42.0.2017869>.
- KARPOVA, E., VASILIEV, V., MAMATYUK, V., POLOSMAK, N. y KUNDO, L., 2016. Xiongnu burial complex: A study of ancient textiles from the 22nd Noin-Ula barrow (Mongolia, first century AD). *Journal of Archaeological Science* [en línea], vol. 70, pp. 15-22. ISSN 0305-4403. DOI [10.1016/J.JAS.2016.04.001](https://doi.org/10.1016/J.JAS.2016.04.001). Disponible en: <https://doi.org/10.1016/j.jas.2016.04.001>.
- KHAZANOV, A.M., 2001. Nomads in the History of the Sedentary World. En: A.M. KHAZANOV (ed.), *Nomads in the Sedentary World* [en línea]. Richmond, Surrey: Curzon Press, pp. 1-23. ISBN 0700713697; 0700713700. Disponible en:

https://books.google.com/books?hl=es&lr=&id=z96HrZh4__N4C\&pgis=1.

KIM, H.J., 2016. *The Huns*. New York: Routledge.

KINTIGH, K.W., 2015. Concluding Address: Ruminations on Mathematics in Archaeology. En: J.A. BARCELO y I. BOGDANOVIC (eds.), *Mathematics and Archaeology*. Boca Raton FL: CRC Press, pp. 487-490.

KOHL, P.L., 1981. The Namazga Civilization: An Overview. *Soviet Anthropology and Archaeology* [en línea], vol. 19, no. 1, pp. vii-xxxviii. ISSN 1061-1959. DOI [10.2753/AAE1061-1959190102vii](https://doi.org/10.2753/AAE1061-1959190102vii). Disponible en: <https://doi.org/10.2753/AAE1061-1959190102vii>.

KOHL, P.L., 1984. *Central Asia: Paleolithic beginnings to the Iron Age. Synthèse no. 14*. Paris: ERC.

KOHL, P.L., 2007. *The Making of Bronze Age Eurasia*. S.l.: Cambridge University Press.

KOLLOCK, P., 1998. Social Dilemmas: The Anatomy of Cooperation. *Annual Review of Sociology* [en línea], vol. 24, no. 1, pp. 183-214. ISSN 0360-0572. DOI [10.1146/annurev.soc.24.1.183](https://doi.org/10.1146/annurev.soc.24.1.183). Disponible en: <http://www.annualreviews.org/doi/10.1146/annurev.soc.24.1.183>.

KUIJT, I., 2008. Demography and Storage Systems During the Southern Levantine Neolithic Demographic Transition. *The Neolithic Demographic Transition and its Consequences* [en línea]. Dordrecht: Springer Netherlands, pp. 287-313. Disponible en: http://link.springer.com/10.1007/978-1-4020-8539-0__11.

KUIJT, I., 2009. What Do We Really Know about Food Storage, Surplus, and Feasting in Preagricultural Communities? *Current Anthropology* [en línea], vol. 50, no. 5, pp. 641-644. ISSN 0011-3204. DOI [10.1086/605082](https://doi.org/10.1086/605082). Disponible en: <http://www.journals.uchicago.edu/doi/10.1086/605082>.

KURBANOV, A., 2010. *The Hephthalites*. Ph. D. S.l.: Freie Universität Berlin.

KUZ'MINA, E.E., 2007. *The Origin of the Indo-Iranians*. Leiden Ind. Leiden; Boston: Brill. ISBN 9788578110796.

LEBEDYNSKY, I., 2006. *Les Saces*. S.l.: Errance. ISBN 2877723372.

LERICHE, P., 2007. Bactria, Land of a Thousand Cities. *After Alexander Central Asia*

before Islam. S.l.: Proceedings of the British Academy, pp. 121-153.

LERICHE, P., 2013. L'apport de la Mission archéologique franco-ouzbègue (MAFOuz) de Bactriana du Nord à l'histoire de l'Asie centrale. En: J. BENDEZU-SARMIENTO (ed.), *L'archéologie française en Asie centrale. Nouvelles recherches et enjeux socioculturels*. (Cahiers d. Paris-Bichkek-Kaboul: De Boccard, pp. 135-164.

LERICHE, P. y PIDAEV, S.R., 2007. Termez in Antiquity. *After Alexander Central Asia before Islam*. S.l.: Proceedings of the British Academy, pp. 179-211.

LERICHE, P. y PIDAEV, S.R., 2008. *Termez sur Oxus. Cité-capitale d'Asie Centrale*. Paris: Maisonneuve & Larose.

LEWONTIN, R.C., 2000. *The Triple Helix: Gene, Organism, and Environment*. Cambridge (MA): Harvard University Press.

LHUILIER, J., 2013. Les cultures « à céramique modelée peinte » en Asie Centrale: Un aperçu de l'assemblage céramique de la deuxième moitié du 2e millénaire AV. N.È. *Iranica Antiqua* [en línea], vol. XLVIII, pp. 103-146. DOI [10.2143/IA.48.0.2184697](https://doi.org/10.2143/IA.48.0.2184697). Disponible en: http://poj.peeters-leuven.be/content.php?url=article{\&}id=2184697{\&}journal{_}code=IA.

LI, S., SCHLEBUSCH, C. y JAKOBSSON, M., 2014. Genetic variation reveals large-scale population expansion and migration during the expansion of Bantu-speaking peoples. *Proceedings of the Royal Society B* [en línea], vol. 281, pp. 20141448. ISSN 1471-2954. DOI [10.1098/rspb.2014.1448](https://doi.org/10.1098/rspb.2014.1448). Disponible en: <http://www.ncbi.nlm.nih.gov/pubmed/25209939> <http://www.pubmedcentral.nih.gov/articlerender.fcgi?>

LITVINSKY, B.A., 1994. Cities and urban life in the Kushan Kingdom. En: J. HARMATTA, B.N. PURI y G. ETEMADI (eds.), *History of civilizations of Central Asia, Volume II, The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250*. Paris: UNESCO Publishing, pp. 283-304.

LITVINSKY, B.A., GUANG-DA, Z. y SAMGHABADI, R.S., 1996. *History of Civilizations of Central Asia, Volume III, The crossroads of civilizations: A.D. 250 to 750*. S.l.: UNESCO Publishing. ISBN 978-92-3-103211-0.

LITVINSKY, B.A., HUSSAIN SHAH, M. y SHABANI SAMGHABADI, R., 1994. The rise of Sasanian Iran. *History of civilizations of Central Asia, Volume II, The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250*. Paris:

UNESCO Publishing, pp. 464-475.

LIU, X., 2010. *The Silk Road in World History*. New York: Oxford University Press.

LUNEAU, E., 2010. *L ' âge du Bronze final en Asie centrale méridionale (1750-1500 / 1450 avant n . è .) : la fin de la civilisation de l ' Oxus Final Bronze Age in southern Central Asia (1750-1500 / 1450 B . C .) : the end of the Oxus civilization* [en línea]. Ph. D. S.l.: Université Panthéon-Sorbonne. Disponible en: <https://tel.archives-ouvertes.fr/tel-00776198>.

LYMAN, R.L. y O'BRIEN, M.J., 1997. The Concept of Evolution in Early Twentieth-Century Americanist Archaeology. *Archaeological Papers of the American Anthropological Association*, vol. 7, no. 1, pp. 21-48.

LYONNET, B., 2005. Another Possible Interpretation of the Bactro-Margiana Culture (BMAC) of Central Asia: The Tin Trade. En: C. JARRIGE y V. LEFÈVRE (eds.), *South Asia Archaeology 2001, vol. 1, Prehistory*. Paris: Éditions Recherche sur les Civilisations, pp. 191-200.

MADELLA, M., RONDELLI, B., LANCELOTTI, C., BALBO, A.L., ZURRO, D., RUBIO CAMPILLO, X. y STRIDE, S., 2014. Introduction to Simulating the Past. *Journal of Archaeological Method and Theory* [en línea], vol. 21, no. 2, pp. 251-257. ISSN 1072-5369. DOI [10.1007/s10816-014-9209-8](https://doi.org/10.1007/s10816-014-9209-8). Disponible en: <http://link.springer.com/10.1007/s10816-014-9209-8>.

MANTLE, M.W., 2015. *Digital archaeology*. 2015. S.l.: s.n. ISBN 0415310504.

MARTÍNEZ FERRERAS, V., ANGOURAKIS, A., HEIN, A., AULINAS JUNCÀ, M., GARCIA-VALLÈS, M., GURT ESPARRAGUERA, J.M., ARIÑO GIL, E., SANCHEZ DEL CORRAL, A. y PIDAEV, S.R., [sin fecha]. Assessing Hellenistic to nomadic cultural patterns through pottery in ancient Termez, Uzbekistan. *Geoarchaeology*,

MARTÍNEZ FERRERAS, V., ANGOURAKIS, A., HEIN, A., GURT ESPARRAGUERA, J.M., SVERCHKOV, L.M. y SÁNCHEZ DEL CORRAL, A., 2016. Pottery in Hellenistic tradition from ancient Bactria: The Kurganzol fortress (Uzbekistan, Central Asia). *Journal of Archaeological Science: Reports* [en línea], ISSN 2352-409X. DOI [10.1016/J.JASREP.2016.11.049](https://doi.org/10.1016/J.JASREP.2016.11.049). Disponible en: <https://doi.org/10.1016/j.jasrep.2016.11.049>.

MARTÍNEZ FERRERAS, V., ARIÑO GIL, E., GURT, J.M. y PIDAEV, S.R., 2014.

The Enclosure of Tchingiz-Tepe (Ancient Termez, Uzbekistan) during the Kushan and Kushan-Sassanian Periods. *Iranica Antiqua* [en línea], vol. 49, pp. 413-469. ISSN 0021-0870. DOI [10.2143/IA.49.0.3009247](https://doi.org/10.2143/IA.49.0.3009247). Disponible en: <https://doi.org/10.2143/IA.49.0.3009247>.

MARTÍNEZ FERRERAS, V., GURT ESPARRAGUERA, J.M., HEIN, A., PIDAEV, S.R., RTVELADZE, E.V. y BOLELOV, S.B., 2016. Tableware in the Hellenistic Tradition from the City of Kampyr Tepe in Ancient Bactria (Uzbekistan). *Archaeometry* [en línea], pp. 736-764. ISSN 0003813X. DOI [10.1111/arcm.12199](http://doi.wiley.com/10.1111/arcm.12199). Disponible en: <http://doi.wiley.com/10.1111/arcm.12199>.

MARTÍNEZ FERRERAS, V., GURT ESPARRAGUERA, J.M., PIDAEV, S.R. y TSANTINI, E., 2011. Archaeometrical study of Greco-Bactrian, Kushan and Islamic pottery from ancient Termez and Kampyr Tepe. En: J.M. GURT ESPARRAGUERA y S. PIDAEV (eds.), *IPAEB: Preliminary Report of the work of the International Pluridisciplinary Archaeological Expedition to Bactria, Vol. 5*. Barcelona: s.n., pp. 267-362.

MARTÍNEZ FERRERAS, V., TSANTINI, E., GURT ESPARRAGUERA, J.M. y PIDAEV, S.R., 2009. Provenience and Technological study of the ceramics coming from the archaeological sites of Termez, Kampyr Tepe and Zar Tepe in Uzbekistan. En: J.M. GURT ESPARRAGUERA, S. PIDAEV, A.M. RAURET y S. STRIDE (eds.), *IPAEB: Preliminary Report of the work of the International Pluridisciplinary Archaeological Expedition to Bactria, Vol. 3*. Barcelona: s.n., pp. 231-248.

MARTÍNEZ FERRERAS, V., TSANTINI, E., GURT ESPARRAGUERA, J.M. y PIDAEV, S.R., 2010. Archaeometrical study of archaeological ceramics. Extension of provenance and technological analysis with new materials from ancient Termez, Kampyr Tepe and Tchurobkurgan sites. En: J.M. GURT ESPARRAGUERA y S. PIDAEV (eds.), *IPAEB: Preliminary Report of the work of the International Pluridisciplinary Archaeological Expedition to Bactria, Vol. 4*. Barcelona: s.n., pp. 291-418.

MARWICK, B., 2017. Computational Reproducibility in Archaeological Research: Basic Principles and a Case Study of Their Implementation. *Journal of Archaeological Method and Theory* [en línea], vol. 24, no. 2, pp. 424-450. ISSN 1072-5369. DOI [10.1007/s10816-015-9272-9](http://link.springer.com/10.1007/s10816-015-9272-9). Disponible en: <http://link.springer.com/10.1007/s10816-015-9272-9>.

MASSON, V.M., 1988. *Altyn-depe*. Philadelphia: The University Museum-University of

Pennsylvania.

MASSON, V.M., 1992. The Bronze Age in Khorasan and Transoxania. En: A.H. DANI y V.M. MASSON (eds.), *History of civilizations of Central Asia, Volume I, The dawn of civilization: earliest times to 700 B.C.* Paris: UNESCO Publishing, pp. 217-236.

MITHEN, S.J., 1989. Modeling Hunter-Gatherer Decision Making: Complimenting Optimal Foraging Theory. *Human Ecology*, vol. 17, no. 1, pp. 59-83. ISSN 0300-7839. DOI [10.1007/BF01047652](https://doi.org/10.1007/BF01047652).

MONTERO, N.O., 2014. En torno a la adscripción lingüística de los heftalitas. *Faventia* [en línea], vol. 34, pp. 249-266. ISSN 0210-2773. Disponible en: <https://www.raco.cat/index.php/Faventia/article/view/320938/411423>.

MORGAN, C. y EVE, S., 2012. DIY and digital archaeology: what are you doing to participate? *World Archaeology* [en línea], vol. 44, no. 4, pp. 521-537. ISSN 0043-8243. DOI [10.1080/00438243.2012.741810](https://doi.org/10.1080/00438243.2012.741810). Disponible en: <http://www.tandfonline.com/doi/abs/10.1080/00438243.2012.741810>.

MUKHAMEDJANOV, A.R., 1994. Economy and social system in Central Asia in the Kushan Age. En: J. HARMATTA, B.N. PURI y G. ETEMADI (eds.), *History of civilizations of Central Asia, Volume II, The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250.* Paris: UNESCO Publishing, pp. 256-282.

MUNSON, J.L. y MACRI, M.J., 2009. Sociopolitical network interactions: A case study of the Classic Maya. *Journal of Anthropological Archaeology* [en línea], vol. 28, no. 4, pp. 424-438. ISSN 02784165. DOI [10.1016/j.jaa.2009.08.002](https://doi.org/10.1016/j.jaa.2009.08.002). Disponible en: <https://www.sciencedirect.com/science/article/pii/S0278416509000452>.

NEHRU, L., 2017. *Khalchayan* [en línea]. 2017. S.l.: s.n. Disponible en: <http://www.iranicaonline.org/articles/khalchayan>.

NEWMAN, M.E.J., 2004. Detecting community structure in networks. *The European Physical Journal B - Condensed Matter* [en línea], vol. 38, no. 2, pp. 321-330. ISSN 1434-6028. DOI [10.1140/epjb/e2004-00124-y](https://doi.org/10.1140/epjb/e2004-00124-y). Disponible en: <http://www.springerlink.com/openurl.asp?genre=article&id=doi:10.1140/epjb/e2004-00124-y>.

NICHOLS, A., 2008. *The Complete Fragments of Ctesias of Cnidus: Translation and*

Commentary with an Introduction. PhD. S.l.: University of Florida.

NOVAK, M., 2006. *Evolutionary Dynamics: Exploring the Equations of Life*. S.l.: Belknap Press.

OLBRYCHT, M.J., 2015. Arsicid Iran and the Nomads of Central Asia – Ways of Cultural Transfer. En: J. BEMMANN y M. SCHMAUDER (eds.), *Complexity of Interaction Along the Eurasian Steppe Zone in the First Millenium CE*. Bonn: Rheinische Friedrich-Wilhelms-Universität Bonn, January 2015, pp. 333-390.

ORTON, C., 2000. *Sampling in archaeology*. S.l.: Cambridge University Press. ISBN 9780521566667.

PALEY, W., 1851. *Natural Theology: Or, Evidences of the Existence and Attributes of the Deity (original 1802)*. Boston, MA: Gould; Lincoln.

PALOMBINI, A., 2017. The rights of reproducing Cultural Heritage in the digital Era. An Italian Perspective. *Ex Novo*, vol. 2, pp. 49-61.

PAVOINE, S., VALLET, J., DUFOUR, A.-B., GACHET, S. y DANIEL, H., 2009. On the challenge of treating various types of variables: application for improving the measurement of functional diversity. *Oikos* [en línea], vol. 118, no. 3, pp. 391-402. ISSN 00301299. DOI [10.1111/j.1600-0706.2008.16668.x](https://doi.org/10.1111/j.1600-0706.2008.16668.x). Disponible en: <http://doi.wiley.com/10.1111/j.1600-0706.2008.16668.x>.

PEEL, M.C., FINLAYSON, B.L. y MCMAHON, T.A., 2007. Updated world map of the Köppen-Geiger climate classification. *Hydrology and Earth System Sciences* [en línea], vol. 11, no. 5, pp. 1633-1644. ISSN 1607-7938. DOI [10.5194/hess-11-1633-2007](https://doi.org/10.5194/hess-11-1633-2007). Disponible en: <https://doi.org/10.5194/hess-11-1633-2007>.

POLOSMAK, N.V., 2010. «We drank Soma, we became immortal...» *SCIENCE First Hand* [en línea], vol. 26, no. 2, pp. 26. Disponible en: <https://scfh.ru/en/papers/we-drank-soma-we-became-immortal/>.

POSSEHL, G., 2002. *The Indus civilization: a contemporary perspective*. Walnut Creek, CA: AltaMira Press.

PREISER-KAPPELLER, J., 2011. Networks of Border Zones: Multiplex Relations of Power, Religion and Economy in South-Eastern Europe, 1250-1453 AD. *Proceeding of the 39th Conference on Computer Applications and Quantitative Methods in Archaeology*.

Beijing, 12-16 April 2011, pp. 381-393.

PRIGOGINE, I., 1987. Exploring complexity. *European Journal of Operational Research*, vol. 30, no. 2, pp. 97-103. ISSN 03772217. DOI [10.1016/0377-2217\(87\)90085-3](https://doi.org/10.1016/0377-2217(87)90085-3).

PUGACHENKOVA, G.A., 1971. *Skul'ptura Khalchaiana*. Moskva:

PUGACHENKOVA, G.A., 2000. URBAN DEVELOPMENT AND ARCHITECTURE, TRANSOXANIA AND KHURASAN. *History of civilizations of Central Asia, Volume IV, The age of achievement: A.D. 750 to the end of the fifteenth century, Part Two: The achievements*. S.I.: UNESCO Publishing, pp. 513-528.

PURI, B.N., 1993. *Buddhism in Central Asia*. Delhi: Motilal Banarsidass.

PURI, B.N., 1994. The Kushans. En: J. HARMATTA, B.N. PURI y G.F. ETEMADI (eds.), *History of civilizations of Central Asia, Volume II, The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250*. Paris: UNESCO Publishing, pp. 239-255.

P'YANKOVA, L., 1993. Pottery of Margiana and Bactria in the Bronze Age. *IASCCA Information Bulletin*, vol. 19, pp. 109-127.

P'YANKOVA, L., 1994. Central Asia in the Bronze Age: sedentary and nomadic cultures. *Antiquity* [en línea], vol. 68, no. 259, pp. 355-372. ISSN 0003-598X. DOI [10.1017/S0003598X00046718](https://doi.org/10.1017/S0003598X00046718). Disponible en: <https://doi.org/10.1017/S0003598X00046718>.

RAHMAN, A. ur, GRENET, F. y SIMS-WILLIAMS, N., 2006. A Hunnish Kushan-shah. *Journal of Inner Asian Art and Archaeology* [en línea], vol. 1, pp. 125-131. ISSN 1783-9025. DOI [10.1484/J.JIAAA.2.301930](https://doi.org/10.1484/J.JIAAA.2.301930). Disponible en: <https://www.brepolonline.net/doi/10.1484/J.JIAAA.2.301930>.

RINDOS, D., 1984. *The Origins of Agriculture: An evolutionary Perspective*. London: Academic Press.

RINDOS, D., 1985. Darwinian Selection, Symbolic Variation, and the Evolution of Culture. *Current Anthropology*, vol. 26, no. 1, pp. 65-88.

ROMANOWSKA, I., 2015. So You Think You Can Model? A Guide to Building and Evaluating Archaeological Simulation Models of Dispersals. *Human Biology Open Access Pre-Prints* [en línea], vol. 79. Disponible en:

<http://digitalcommons.wayne.edu/humbiol/preprints/79>.

ROSENBERG, M., 1998. Cheating at Musical Chairs. *Current Anthropology* [en línea], vol. 39, no. 5, pp. 653-681. ISSN 0011-3204. DOI [10.1086/204787](https://doi.org/10.1086/204787). Disponible en: <http://www.journals.uchicago.edu/doi/10.1086/204787>.

ROSENFELD, J.M., 1967. The creation of the empire. *The dynastic arts of the Kushans*. S.l.: s.n., pp. 7-27.

ROSS ASHBY, W., 2004. Principles of the self-organizing system. *E:CO Emergence: Complexity and Organization*, vol. 6, no. 1-2, pp. 102-126. ISSN 15213250. DOI [10.1080/00221309.1947.9918144](https://doi.org/10.1080/00221309.1947.9918144).

RSTUDIO TEAM, 2016. *RStudio: Integrated Development for R*. RStudio, Inc. [en línea]. 2016. Boston, MA: s.n. Disponible en: <http://www.rstudio.com/>.

RTVELADZE, E.V., 1994. Kampir-Tepe: Structures, Written Documents, and Coins. *Bulletin of the Asia Institute* [en línea], vol. 8, pp. 141-154. DOI [10.2307/24048771](https://doi.org/10.2307/24048771). Disponible en: <https://www.jstor.org/stable/24048771>.

RTVELADZE, E.V., 2009. *Civilizations, States, and Cultures of Central Asia*. Tashkent: «Forum of Culture and Arts of Uzbekistan» Foundation-University of World Economy; Diplomacy. ISBN 998-9943-340-09-5.

SALVATORI, S. y TOSI, M., 2008. *The Bronze Age and Early Iron Age in the Margiana Lowlands. Facts and Methodological Proposals for A Redefinition of the Research Strategies, The Archaeological Map of the Murghab Delta Studies and Reports vol. II*. Oxford: Archaeopress.

SARIANIDI, V.I., 1981. Margiana in the Bronze Age. *Soviet Anthropology and Archaeology* [en línea], vol. 19, no. 3-4, pp. 165-193. DOI [10.2753/AAE1061-1959190304165](https://doi.org/10.2753/AAE1061-1959190304165). Disponible en: <https://doi.org/10.2753/AAE1061-1959190304165>.

SARIANIDI, V.I., 1990. *Drevnosti strany Margush*. Ashkhabad: Ylym.

SARIANIDI, V.I., 1992. Food-Producing and Other Neolithic Communities in Khorasan and Transoxania: Eastern Iran Soviet Central Asia and Afganistan. En: A.H. DANI y V.M. MASSON (eds.), *History of civilizations of Central Asia, Volume I, The dawn of*

- civilization: earliest times to 700 B.C.* Paris: UNESCO Publishing, pp. 105-122.
- SCHELLING, T.C., 1978. *Micromotives and macrobehavior*. New York: Norton.
- SHENNAN, S., 1988. *Quantifying archaeology* [en línea]. S.l.: Edinburgh University Press. ISBN 9780126398601. Disponible en: <https://www.sciencedirect.com/science/book/9780126398601>.
- SHUCKBURGH, E.S., 2012. *The History of Polybus. Translated from the text of F. Hulstsch, Vol. 1*. S.l.: Cambridge University Press. ISBN 978-1-108-05078-4.
- SIMÉON, P., 2012. Les ateliers de potiers en Asie Centrale, entre Samarqand et Nishāpūr :approche critique, de la conquête musulmane au XIIe siècle. *Actes du colloque AIECM2 (2009)*. Venezia: Università Ca' Foscari, pp. 15-21.
- SIMON, H.A., 1955. A Behavioral Model of Rational Choice. *The Quarterly Journal of Economics* [en línea], vol. 69, no. 1, pp. 99. ISSN 00335533. DOI [10.2307/1884852](https://doi.org/10.2307/1884852). Disponible en: <https://academic.oup.com/qje/article-lookup/doi/10.2307/1884852>.
- SIMS-WILLIAMS, N. y CRIBB, J., 1995. A new Bactrian inscription of Kanishka the Great. *Silk Road Art and Archaeology*, vol. 4, pp. 76-142.
- SOBOLEVSKY, S., SZELL, M., CAMPARI, R., COURONNÉ, T., SMOREDA, Z. y RATTI, C., 2013. Delineating Geographical Regions with Networks of Human Interactions in an Extensive Set of Countries. En: Y. MORENO (ed.), *PLoS ONE* [en línea], vol. 8, no. 12, pp. e81707. ISSN 1932-6203. DOI [10.1371/journal.pone.0081707](https://doi.org/10.1371/journal.pone.0081707). Disponible en: <http://dx.plos.org/10.1371/journal.pone.0081707>.
- SPENGLER, R.N. y WILLCOX, G., 2013. Archaeobotanical results from Sarazm, Tajikistan, an Early Bronze Age Settlement on the edge: Agriculture and exchange. *Environmental Archaeology* [en línea], vol. 18, no. 3, pp. 211-221. ISSN 1461-4103. DOI [10.1179/1749631413Y.0000000008](https://doi.org/10.1179/1749631413Y.0000000008). Disponible en: <https://doi.org/10.1179/1749631413Y.0000000008>.
- STAVISKII, B. y MKRTYCHEV, T., 1996. Qara-Tepe in Old Termez: On the History of the Monument. *Bulletin of the Asia Institute* [en línea], vol. 10, pp. 219-232. DOI [10.2307/24048898](https://doi.org/10.2307/24048898). Disponible en: <http://www.jstor.org/stable/24048898>.
- STRIDE, S., 2005. *Géographie archéologique de la province du Surkhan Darya (Ouzbékistan, Bactriane du nord)* [en línea]. Tesis doctoral. S.l.: Université Paris 1. Disponible

en: <http://www.theses.fr/2005PA010523>.

STRIDE, S., RONDELLI, B. y MANTELLINI, S., 2009. Canals versus horses: political power in the oasis of Samarkand. *World Archaeology* [en línea], vol. 41, no. 1, pp. 73-87. ISSN 0043-8243. DOI [10.1080/00438240802655302](https://doi.org/10.1080/00438240802655302). Disponible en: <http://www.tandfonline.com/doi/abs/10.1080/00438240802655302>.

SVERCHKOV, L.M., 2008. The Kurganzol fortress (on the history of central Asia in the Hellenistic era). *Ancient Civilizations from Scythia to Siberia*, vol. 14, no. 1-2, pp. 123-191. ISSN 0929077X. DOI [10.1163/092907708X339607](https://doi.org/10.1163/092907708X339607).

SZELL, M., LAMBIOTTE, R. y THURNER, S., 2010. Multirelational organization of large-scale social networks in an online world. *Proceedings of the National Academy of Sciences of the United States of America* [en línea], vol. 107, no. 31, pp. 13636-41. ISSN 1091-6490. DOI [10.1073/pnas.1004008107](https://doi.org/10.1073/pnas.1004008107). Disponible en: www.pnas.org/cgi/doi/10.1073/pnas.1004008107.

TRABUCCO, A. y ZOMER, R., 2009. *Global Potential Evapo-Transpiration (Global-PET) and Global Aridity Index (Global-Aridity) Geo-Database* [en línea]. 2009. S.I.: CGIAR Consortium for Spatial Information. Disponible en: <http://www.cgiar-csi.org/data/global-aridity-and-pet-database>.

TURCHIN, P., 2003. *Historical dynamics*. Princeton-Oxford: Princeton University Press. May. ISBN GB.

TURCHIN, P., CURRIE, T.E., WHITEHOUSE, H., FRANÇOIS, P., FEENEY, K., MULLINS, D., HOYER, D., COLLINS, C., GROHMANN, S., SAVAGE, P., MENDEL-GLEASON, G., TURNER, E., DUPEYRON, A., CIONI, E., REDDISH, J., LEVINE, J., JORDAN, G., BRANDL, E., WILLIAMS, A., CESARETTI, R., KRUEGER, M., CECCARELLI, A., FIGLIULO-ROSSWURM, J., TUAN, P.-J., PEREGRINE, P., MARCINIAK, A., PREISER-KAPPELLER, J., KRADIN, N., KOROTAYEV, A., PALMISANO, A., BAKER, D., BIDMEAD, J., BOL, P., CHRISTIAN, D., COOK, C., COVEY, A., FEINMAN, G., JÚLÍUSSON, Á.D., KRISTINSSON, A., MIKSIC, J., MOSTERN, R., PETRIE, C.A., RUDIAK-GOULD, P., HAAR, B. ter, WALLACE, V., MAIR, V., XIE, L., BAINES, J., BRIDGES, E., MANNING, J., LOCKHART, B., BOGAARD, A. y SPENCER, C., 2018. Quantitative historical analysis uncovers a single dimension of complexity that structures global variation in human social organization. *Proceedings of the National Academy of Sciences* [en línea], vol. 115,

no. 2, pp. E144-E151. ISSN 0027-8424. DOI [10.1073/pnas.1708800115](https://doi.org/10.1073/pnas.1708800115). Disponible en: <http://www.pnas.org/lookup/doi/10.1073/pnas.1708800115>.

VAISSIÈRE, E. de la, 2014. The Steppe World and the Rise of the Huns. En: M. MAAS (ed.), *The Cambridge companion to the age of Attila*. S.l.: Cambridge University Press, pp. 175-191.

VON BERTALANFFY, L., 1968. the Meaning of General System Theory. *General System Theory*. New York: George Braziller, pp. 30-53. ISBN 9788578110796.

VON BERTALANFFY, L., 1972. The History and Status of General Systems Theory. *The Academy of Management Journal* [en línea], vol. 15, no. 4, pp. 407-426. Disponible en: <https://www.jstor.org/stable/255139>.

VON BERTALANFFY, L., 1976. Teoría general de los sistemas. *Teoría General de Sistemas: fundamentos, desarrollo y aplicaciones*, pp. 1-37.

VON NEUMANN, J. y MORGENSTERN, O., 1944. *Theory of Games and Economic Behavior*. Princeton: Princeton University Press.

VÖPEL, F.G., 2009. Digitale Rekonstruktion der Reliefs im Audienzsaal von Khalchajan (Chaltschajan) für die Ausstellung ‘Alexander der Große und die Öffnung der Welt. Asiens Kulturen im Wandel’ in den Sebastian Barz [Reconstrucción digital de los relieves en la sala de audi. En: V.S. HANSEN, A. WIECZOREK y M. TELLENBACH (eds.), *Alexander der Große und die Öffnung der Welt. Asiens Kulturen im Wandel* [en línea]. S.l.: Regensburg (Schnell y Steiner), Disponible en: <http://fritzvoepel.net/rekonstruktion/khalchajan>.

WATERFIELD, R., 2011. *Dividing the Spoils: The war for Alexander the Great's empire*. S.l.: Oxford University Press.

WEN, B., LI, H., LU, D., SONG, X., ZHANG, F., HE, Y., LI, F., GAO, Y., MAO, X., ZHANG, L., QIAN, J., TAN, J., JIN, J., HUANG, W., DEKA, R., SU, B., CHAKRABORTY, R. y JIN, L., 2004. Genetic evidence supports demic diffusion of Han culture. *Nature* [en línea], vol. 431, no. 7006, pp. 302-305. ISSN 0028-0836. DOI [10.1038/nature02878](https://doi.org/10.1038/nature02878). Disponible en: <http://www.nature.com/articles/nature02878>.

WIENER, N., 1948. *Cybernetics: Or Control and Communication in the Animal and*

the Machine. Paris-Cambridge, MA: Hermann & Cie-MIT.

WINSBERG, E., 2010. *Science in the Age of Computer Simulation*. S.l.: University of Chicago Press. ISBN 9780226902043.

WITTFOGEL, K., 1957. *Oriental Despotism: A Comparative Study of Total Power*. New Haven, Connecticut: Yale University Press.

YABLONSKY, L.T., 1990. Burial place of a Massagetan warrior. *Antiquity*, vol. 64, no. 243, pp. 288-296. ISSN 0003-598X. DOI [10.1017/S0003598X00077905](https://doi.org/10.1017/S0003598X00077905).

YABLONSKY, L.T., 1995. Some ethnogenetical hypotheses. En: L.T.Y. JEANNINE DAVIS-KIMBALL, VLADIMIR A. BASHILOV (ed.), *Nomads of the Eurasian Steppes in the Early Iron Age*. Berkeley: Zinat Press, pp. 241-252.

YARSHATER, E., 1983. *The Cambridge History of Iran, Volume 3*. S.l.: Cambridge University Press.

ZARGHAMEE, R., 2013. *Discovering Cyrus: The Persian Conqueror Astride the Ancient World*. Washington DC: Mage. ISBN 978-1-933823-38-6.