Laudation: Dr. Lucía Cobo-Sánchez, Twenty-fourth Recipient of the Tübingen Prize for Early Prehistory and Quaternary Ecology

Laudatio: Dr. Lucía Cobo-Sánchez, vierundzwanzigste Trägerin des Tübinger Förderpreises für Ältere Urgeschichte und Quartärökologie

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Ladies and gentlemen, Dean Stehle, representatives of Romina EiszeitQuell, dear colleagues, students, and friends of the Institute, dear Dr. Cobo-Sánchez,

it is a great honor and pleasure for me to introduce the 24th laureate of the Tübingen Prize for Early Prehistory and Quaternary Ecology. Covering nearly twenty-five years now, the prize-winning works depict the breadth of research on human evolution from around three-million-year-old beginnings in Africa to the settlement of Australia and the Americas and late foraging communities in Mesolithic Europe. They show a broad variety of approaches including the physical, cultural and cognitive development of hominins, their technologies, subsistence patterns and migrations. We have seen the field and our knowledge expanding through technical innovations and new perspectives such as aDNA and proteomics, progress in dating, the detection of microwear patterns and residues on artifacts. Based on the combination of scientific, cultural, and progressively digital approaches, the questions as well as the answers have become increasingly multifaceted. This year's laureate is one of the candidates who integrates different approaches to give us new insights into the deep history of humankind. In 2008, Charles Egeland won the prize for his dissertation on "Zooarchaeological and taphonomic perspectives on hominid and carnivore interactions at Olduvai Gorge, Tanzania." Dr. Lucía Cobo-Sánchez's work concerns the same region, partially covering the same period and addresses similar questions. New finds from a site excavated with modern methods and advanced possibilities of data processing and statistical analysis, however, provide a new view on the social organization of hominins nearly two million years ago. This is how science works! Archaeologists—as scientists—don't produce eternal truth, but ask questions again, discover new evidence, analyze old and new finds with known and innovative methods, and take new perspectives on the in-

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terpretation of results. The basic set of finds and data derived from it represents only a small window onto past worlds, blurred by the loss of details and context over thousands of years. A comprehensive documentation and discussion, however, allows the interpretation of finds and data to be tested and consequently confirmed, adapted, or revised. Thus, we get a clearer sketch of past worlds. The work of this year's laureate is an excellent example of this hypothesis-driven approach that has found high esteem among the referees. As always at this point, I would like to express the jury's gratitude to all of the applicants; the importance of the Tübingen Prize is grounded upon their research. Every year the jury members are excited about which fresh ideas, inspiring work, and fascinating results will be revealed. It is a privilege to review the new approaches and findings. And it is a pleasure to see many of the awardees, promising young scholars of their time, now holding permanent positions and having major impact on the development of the field through their research and teaching. Today it is my honor to present to you, on behalf of the jury and our sponsor Romina EiszeitQuell, this year's winner of the award, Dr. Lucía Cobo-Sánchez.

Award ceremony of the twenty-fourth Tübingen Prize for Early Prehistory and Quaternary Ecology on February 03, 2022, at Castle Hohentübingen / Verleihung des 24. Tübinger Förderpreises für Ältere Urgeschichte und Quartärökologie auf Schloss Hohentübingen am 03. Februar 2022. From left to right / Von links nach rechts: Dr. Claudio Tennie (jury), Corinna Patroi, Hannah Moosherr (both Romina EiszeitQuell, sponsor), Prof. Nicholas J. Conard Ph.D., Priv.-Doz. Dr. Miriam N. Haidle, Prof. Dr. Cosimo Posth (all jury), Dr. Lucía Cobo-Sánchez (recipient / Preisträgerin), Dr. Flavia Venditti (jury), Prof. Dr. Thilo Stehle (Dean, Faculty of Science, Tübingen University), Prof. Dr. Harald Floss, Prof. Dr. Michael Bolus, Prof. Dr. Christopher E. Miller (all jury). Photo: Svenja Schray, Tübingen.

Lucía Cobo-Sánchez was born in Madrid in 1991. She began her studies in Archaeology with specialization in Prehistory and Archaeozoology at the Universidad Complutense de Madrid in 2010. Between 2013 and 2014 she came with an Erasmus scholarship to the Eberhard Karls University in Tübingen where she added physical anthropology to her fields of study. Back in Madrid, she earned her B.Sc. in 2014 focusing on "Early Pleistocene Archaeology in Africa." From 2014 to 2015, she continued her studies at the University of Cambridge with a special focus on Human Evolutionary Studies. She finished her Master's degree in 2015 with a thesis entitled "Is the Howieson's Poort a short sharp Middle Stone Age anomaly or the source of the LSA? A stratigraphic approach." In the same year, she took up her Ph.D. project on "Taphonomic and spatial study of the archaeological site DS from Bed I in Olduvai Gorge (Tanzania)" at the Universidad Complutense de Madrid. Parallel, between 2013 and 2017, she studied Social and Cultural Anthropology at the Spanish National Distance Education University (UNED). She defended her doctoral thesis in December 2020 with distinction *cum laude*. Dr. Cobo-Sánchez is currently a postdoctoral researcher at the BMBF-funded project "Modelling prehistoric hunting behavior" at the University of Cologne, Germany. In collaboration with Prof. Dr. Eleftheria Paliou and Dr. Tilman Lenssen-Erz, she is conducting research on hunter-gatherer movements and foraging behavior with the aim to build up computational models of hunter gatherer mobility in open landscapes.

Lucía Cobo-Sánchez's CV shows a deep interest in the early phases of human evolution and a high mobility to learn and discover more about this period. Beside her studies in Madrid, Tübingen and Cambridge, she gathered practical experience at several excavations including Schöningen and Sibudu. As a member of the Olduvai Paleoanthropology and Paleoecology Project, she has been responsible for the excavations and analyses of the archaeofaunal assemblage from David's Site at Olduvai Gorge in Tanzania under the direction of Prof. Dr. Manuel Domínguez-Rodrigo since 2015. Based on an extensive education in archaeozoology, Lucía Cobo-Sánchez has broadened her expertise in the last years towards computer-aided analyses and cultural-social interpretations. She has been active in presenting her work at international conferences and co-authored several articles in high-ranking, international journals such as *Journal of Human Evolution*, *Journal of Archaeological Science*, *Archaeological and Anthropological Sciences*, *PLoS ONE*, *Paleogeography–Paleoclimatology–Paleoecology*, *Journal of Quaternary Science*, *Quaternary International*, and *Scientific Reports*.

The Tübingen Prize for Early Prehistory and Quaternary Ecology focuses on Dr. Cobo-Sánchez's doctoral dissertation entitled "Taphonomic and spatial study of the archaeological site DS from Bed I in Olduvai Gorge (Tanzania)" supervised by Prof. Dr. Manuel Domínguez Rodrigo and Prof. Dr. Gonzalo Ruiz Zapatero from the Universidad Complutense de Madrid. The starting point was the excavation of a large, new anthropogenic site, David's Site, at Olduvai Gorge in Tanzania which is dated to about 1.84 million years ago, comparable only to the famous FLK site Level 22 nearby. Harkening back to excavators Mary and Louis Leakey in the 1960s, researchers have interpreted the function of FLK Zinj in numerous ways, but so far, no consensus has been reached regarding how hominins acquired their prey. In 2018, Jennifer Parkinson again

documented hominin and carnivore modifications on the faunal assemblage and analyzed the patterns. She concluded that hominins had early access to carcasses and probably hunted at least smaller prey. With David's Site as a contemporary second site excavated and documented using modern methods, Lucía Cobo-Sánchez had the opportunity to apply new approaches to old, but still highly debated questions.

To ask the right questions is one of the trickiest things at the beginning of any archaeological research, or to quote Dr. Cobo-Sánchez's own words: "One of the most important challenges faced by archaeologists and taphonomists is to find the link between the fossil record and the theories in the form of testable hypotheses." She asked three questions central to the long-lasting scientific debate: about hominin agency, early and primary access to meat resources, and early human hunting and confrontational scavenging. The basis of her answers were state-of-the-art archaeozoological and taphonomic analyses on faunal remains from an exceptionally well-preserved site. Detailed studies examined site integrity, skeletal part representation, bone breakage patterns, bone surface modifications, and bovid mortality profiles. The data gained were processed and statistically tested in sophisticated ways, also using machine learning algorithms. As a result, she confirmed that a high degree of hominin agency (and only limited carnivore activity) was involved in site formation. Hominins had primary access to meat resources and brought complete bodies of small and medium-sized ungulates to the site. Hunting was their main strategy of prey acquisition, and their selection of the highest-ranking prey – prime adults – indicates efficient, experienced, and regular hunters who probably used ambush techniques. At this point, however, Dr. Cobo-Sánchez didn't just stop: she continued asking whether David's Site could be seen as a central place within the paleo-landscape of hominins 1.84 million years ago. Taphonomic studies pointed to repeated use of the location with a few prolonged reoccupations over a period of just one to two years. Spatial analyses of the site showed clusters of lithic tool manufacture and prey processing activities. The transport of lithic raw material and food resources beyond the capacity of one individual led her to conclude that co-operation and food sharing formed the basis of social organization in early humans. The manufacturing of stone tools was a regular part of their activities. Comparing the structure of David's Site to contemporary locations at Olduvai, as well as modern forager sites and finds, showed that DS is totally unlike modern sites. Its much smaller extent, but much higher density of materials indicates that hominins congregated at more restricted places to consume carcasses repeatedly. In sum, Dr. Cobo-Sánchez accredits early hominins with a significant behavioral complexity including planning, cooperation, and coordination. Their cohesive social structure was clearly distinct from other primates including modern humans.

It is the great merit of Lucía Cobo-Sánchez's work that she has drawn attention to the potential of archaeofaunal remains to elucidate the social behavior of early humans. Her archaeozoological and taphonomic analyses are thorough, and the comparison of the results not only with contemporary sites but also modern ethnographic data is creative. The use of machine learning to support the traditional taphonomic and spatial approaches is innovative and trend-setting. She should be honored for her excellent formulation of hypotheses, their subsequent testing, and

finally courageous interpretations attempting to visualize a lively picture of subsistence and social life. Lucía Cobo-Sánchez's work points the way to integrated research of human evolution combining scientific, humanistic-social and data-driven methods. It will be exciting to watch her approach flourish in the future.

Ladies and gentlemen, I hope that this brief introduction has picked your interest in Dr. Cobo-Sánchez's research and her insights into the social organization of hominins around 2 million years ago. It is my pleasure to introduce our guest of honor, Dr. Lucía Cobo-Sánchez, who will give us a much more in-depth presentation about her work. On behalf of the jury and our sponsor, the Romina EiszeitQuell, I would like to express our affectionate congratulations and present to you the 24th winner of the Tübingen Prize for Early Prehistory and Quaternary Ecology, Dr. Lucía Cobo-Sánchez!