

dern (wohl eine Zeichensprache und keine krankhaften Veränderungen, wie man häufig liest) vorkommen, chronologische Unterschiede ableiten lassen. Rechteckige und klammerförmige Zeichen waren im Solutréen in identischer oder nahe verwandter Form von Südfrankreich bis nach Kantabrien verbreitet, waren also in einem bestimmten Zeithorizont weiträumig bekannt. Zweigartige Zeichen wurden hier erstmals ausführlich beschrieben. Wahrscheinlich waren sie weiter verbreitet, als man annehmen möchte, da sie bislang kaum Beachtung in der Literatur gefunden haben. Einige Exemplare gibt es im Axialen Gang von Lascaux, dessen Malereien geringfügig jünger sind als die von Cosquer. Sie können nun kulturgeschichtlich besser eingeordnet werden. Das gleiche gilt für einige spitzovale Zeichen S77, S100 und S116 von Cosquer, die in zwei Grotten des Ardèchets vorkommen (Grotte Sombre, Le Colombier II).

Die Tierbilder zeichnen sich dadurch aus, dass sie in vielen Details sehr naturalistisch, die (Vorder-)Beine aber stets nebeneinander angeordnet sind und keine Gelenke besitzen. Diese Eigenheit könnte als eine Ungeschicklichkeit des Zeichners verstanden werden. Sie ist jedoch zeittypisch, kehrt sie doch in chronologisch vergleichbarer Position in einer ganzen Reihe von Höhlen bis in den Westen der Iberischen Halbinsel wieder. Aus der stratigraphisch gesicherten Abfolge der Kleinkunst in der Cueva de Parpalló bei Valencia, mit der die Grotte Cosquer manches verbindet, weiß man, dass Dreidimensionalität und die Wiedergabe von Binnendetails erst gegen Ende des Solutréen gewonnen und dann systematisch angewendet worden sind. Auch andere Details ließen sich weiträumig in Frankreich, Spanien und Portugal verfolgen. Damit kann die Grotte Cosquer als eine wichtige Referenzstation für die Entwicklungsgeschichte der Kunst des mittleren Jungpaläolithikums gewertet werden. Andere mehr oder weniger einphasige Ensembles der Kleinkunst und der Wandkunst lassen sich nach Stil und Themen der Zeichen usw. dagegen abgrenzen und sind für andere Epochen charakteristisch. Dank der schnellen Vorlage der neuen Forschungen haben sich für die älteste Kunst Europas ganz neue Erkenntnismöglichkeiten eröffnet, die es in Zukunft auszuschöpfen gilt.

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**MARSHA LEVINE/COLIN RENFREW/KATIE BOYLE (Eds), Prehistoric steppe adaptation and the horse.** McDonald Institute Monographs. McDonald Institute for Archaeological Research 2003. Vertrieb durch Oxbow Books, Oxford/U.K. £ 45,—. ISBN 1-902937-09-0. XII. ISSN 1363-1349. 428 Seiten mit zahlreichen Abbildungen.

In January 2000 a conference was held at Cambridge University entitled 'Late Prehistoric Exploitation of the Eurasian Steppe', which was also the title of a book previously published by the McDonald Institute for Archaeological Research and which was distributed to the participants for the January 2000 conference (M. LEVINE/Y. RASSAMAKIN/A. KISLENKO, Late Prehistoric Exploitation of the Eurasian Steppe [Cambridge 1999]). 'Prehistoric Steppe Adaptation and the Horse', the book under review here, represents the second published volume of the papers presented at that conference, the first appeared in 2002, edited by K. BOYLE,

C. RENFREW and M. LEVINE (Ancient interactions: East and west in Eurasia [Cambridge 2002]). To a certain extent, these three volumes must be considered together for they constitute a sustained scholarly debate on early utilization of the horse and its effects on cultural developments throughout the Eurasian steppes during Chalcolithic and Bronze Age times.

M. Levine's article in the 1999 volume: "The Origins of Horse Husbandry on the Eurasian Steppe" skeptically reviewed theories of horse domestication and was particularly critical of the evidence from Dereivka, the Sredny Stog culture site in Ukraine that has long been considered the type site documenting the earliest horse husbandry, an interpretation which Levine considers a 'myth' exposed in terms of the presence at the site of mixed, much later materials, including the ritual horse skull dated by radiocarbon determinations to a much later period. Levine concluded her review agnostically by admitting that she does not know where or when the horse was domesticated and exhorting her colleagues to devise new methods for determining whether horses were ridden, such as examining horse skeletal remains for pathological developments in their lower vertebrae. Y. Rassamakin followed with an overview of cultural developments on the Black Sea steppe 4500–2300 B.C. His perspective continued the assault on traditional interpretations, presenting a very complex "cultural-chronological model" in which he defined several new archaeological cultures (e.g. the Skelya and Kvityana cultures), emphasizing aspects of their interactions in prestige exchange networks and debunking evidence for successive waves of migrations east to west by kurgan-raising, mounted warriors during this period. His revisionist interpretation, in turn, has provoked a spirited response, including articles by D.Y. Telegin and V. Dergachev, in the second Cambridge volume mentioned above. As its title suggests, this latter volume focuses on evidence for exchange and interconnections west and east of the Urals, including an overview by G. B. and D. G. Zdanovich to the Sintashta-Arkaim "Country of Towns" materials found immediately east of the southern Urals.

Several of the 25 articles collected in 'Prehistoric Steppe Adaptation and the Horse' continue this debate, though their overall focus is not only concerned with the early exploitation of the horse, but also with the reconstruction of the steppe environment (cf. articles by K. V. Kremenetski and M. A. Bower) and early subsistence economies, including some evidence for agriculture (articles by K. P. Bunyatin, G. Pashkevich, and Y. P. Gershkovich), fishing (article by O'Connell, Levine and Hedges), and the emergence of principally herding mobile economies (an important overview by E. E. Kuzmina). Articles by K. M. Linduff and V. H. Mair carefully review archaeological evidence for horses (and chariots) in China, both concluding that the significant use of domesticated horses in China proper only began during the Late Shang period (1250–1050 B.C.) and that the horses and the technology for riding and harnessing them were imported from more pastorally-oriented peoples to the north and west. In other words, the diffusion of horses and horse related technologies into China closely parallels the widely accepted, somewhat earlier diffusion of metal weapons and bronze working technology into China from the north and west. Once accepted into the complex regional polities emerging on the Central Plains, China quickly adapted these imported technologies in a spectacular, highly distinctive fashion. This review cannot consider every article contained in this important and substantive volume, but will proceed selectively focusing on those articles that advance current understanding and raise important, often still unresolved questions on the nature of basic subsistence practices and economies across the Eurasian steppes in late prehistoric times.

The reader of 'Prehistoric Steppe Adaptation and the Horse' will quickly realize that specialists remain sharply divided on when horses were first domesticated and ridden and theoretically on whether one can intensively herd horses without riding them. Part of the problem relates to the difficulty in distinguishing skeletally wild from domestic horses. Given this problem, conclusions as to whether the horse bones from a site come from domesticated or wild animals typically are based on indirect evidence or even theoretical considerations. Thus, in their article "Horse Exploitation in the Kazakh Steppes during the Eneolithic and Bronze Age" N. Benecke and A. von den Driesch review the equid remains from mid-4<sup>th</sup> millennium Botai culture sites in western Kazakhstan as evidence for the intensive year-round hunting of wild horses. Their non-selective kill pattern, their age composition and subsequent replacement with domesticated sheep, goat and cattle remains from comparative assemblages in central and northern Kazakhstan, and their lack of size reduction and of variability – all suggest to them that the horses at Botai culture sites were wild, the products of intensive and specialized hunting.

S. Olsen, on the other hand, reviews this same evidence, emphasizing the presence of entire skeletons (which would have to have been hauled back from some distance to the site if hunted), their discovery in ritual contexts and in association with dog remains, and the presence of numerous worked horse mandibles that are interpreted as thong smoothers or tools meant ultimately to facilitate the control horses. For her, the evidence for early horse domestication on these Botai culture sites is simply "compelling" (p. 101). She admits that most of the horse bones from these sites were products of the hunt, but uses this fact to explain away the lack of diagnostic changes recorded by Benecke and von den Driesch; most of the horses were hunted – but by riders on horseback. D. Anthony and D. Brown have recorded significant beveling on the second lower premolars of horse teeth from Chalcolithic sites across the Eurasian steppes and view this evidence as proof that horses were bitted at this time, even probably initially controlled with organic bits and bridles that have not preserved in the archaeological record. Other specialists view such beveling as a pathological condition that occurs naturally on horses with bad occlusion. For Anthony and Brown their reasoning is tendentious. They (pp. 64–65) ironically observe that the presence of such beveling on Middle and Late Bronze horse teeth found with cheek-pieces is considered as evidence for biting, while the beveling on Chalcolithic horse remains found without such cheek-pieces is categorically dismissed as too early.

Levine's recommendation to study systematically pathological damage to the thoracic vertebrae of horses in order to document early riding may ultimately help resolve these issues, though currently such work must be considered at a very preliminary stage, still lacking definitive results. More problematic will be the limited number of available and relatively complete horse vertebral columns for such examination. Perhaps a more practical approach would be to initiate a research project that would examine the femora from human skeletons in Chalcolithic to Iron Age burials for bowing and other distortions and stress associated with habitual riding. One potential problem with both such future studies will be the interpretation of negative evidence: does the lack of vertebrate pathologies in horses or femoral bowing in humans conclusively demonstrate that horses were not habitually ridden? It is too early to know, but, regardless, such studies should be conducted and may help ultimately resolve these contentious issues.

There is another way to view this issue: to separate the question of origins from that of use and significance. Horses, like donkeys and camels, can be used as pack animals; they can be

hitched to wagons, ploughs, or other devices to utilize effectively their remarkable speed and power; and they can be ridden. Perhaps, horses were initially “domesticated” on the Ukrainian steppes in the 5<sup>th</sup> millennium or in western Kazakhstan by the mid-4<sup>th</sup> millennium B.C., but, if so, the effects of such horse domestication were not felt throughout the greater ancient Near East and Europe until much later, probably not initially until the late 3<sup>rd</sup> millennium B.C. The use of horses probably did not constitute a decisive factor in transportation, mobility, and did not transform draft and military activities until later in the 2<sup>nd</sup> millennium, if not during Early Iron Age times.

There is no question that some of the Chalcolithic inhabitants of the Eurasian steppes from eastern Ukraine to western Kazakhstan intensively hunted horses from at least the 5<sup>th</sup> millennium, an established fact that is also documented for even earlier periods by G. Matyushin in his review of faunal remains from the southern Urals from Mesolithic through Bronze Age times. Unconvincingly, however, he considers the horses found in Neolithic and later contexts as domesticated (p.382) since they are found together with cattle, sheep and goat remains, all of which had to have been introduced into the southern Urals. Rather, the evidence from Botai-related sites, which is unequivocally dated to the mid-fourth millennium, strongly suggests that horses were intensively hunted east of the Urals, though it remains unclear whether it is necessary to tame or “domesticate” some horses and ride them in order to hunt wild horses efficiently. Evidence for such early taming and riding is ambiguous, but what is clear is that there were no immediate major social consequences from such practices; no mounted Chalcolithic warriors wreaking havoc on their sedentary neighbours as they pressed westwards and southwards to destroy Old Europe, the thesis propounded repeatedly by M. Gimbutas and accepted initially by many Russian archaeologists, or eastwards and southwards to carry their “Aryan” heritage ultimately into northern India and up to the western border of China.

Cattle were domesticated and oxen probably harnessed to sledges and then solid wheeled wagons long before horses were so utilized, and, on the basis of the Egyptian and western Asian evidence, so were donkeys and the donkey / onager hybrid or *kunga*; in fact, the first Ur III or end 3<sup>rd</sup> millennium cuneiform reference to horses refers to them as “asses of the mountains” (p.117). J. Oates conveniently reviews the evidence from western Asia for the early use of the horse and shows quite unequivocally how limited this evidence is until the 2<sup>nd</sup> half of the 3<sup>rd</sup> millennium or well after the claimed Chalcolithic evidence for horse domestication on the western Eurasian steppes. It is hard – if not impossible – to account for such a chronological disjunction, if horses were ridden so early on the steppes. In other words, there is something “out of sync” with an early Chalcolithic domestication of the horse on the Eurasian steppes. If this had happened as early as Anthony and others have argued, its effects should have been more visible throughout the increasingly interconnected late prehistoric / early historic greater Eurasian world, and this demonstrably is not the case.

The pictorial representations from greater Mesopotamia, which depict equids – donkeys, the donkey-onager hybrid, and possible mules and horses -harnessed to wheeled vehicles, only become relatively abundant from the middle of the 3<sup>rd</sup> millennium B.C. on, and the occasional depictions of horses actually being ridden begin to appear subsequently in Akkadian and post-Akkadian times. They show riders precariously perched on the backs of the equids trying to control the animals with reins attached to nose rings, devices more appropriately suited to harnessing cattle (pp.116–119). Equids and the Bactrian camel are similar in that they have

long necks and cannot have the yoke set immediately above the shoulders in the same fashion as oxen so that it is possible, if not likely, that the harnessing of equids and camels was a technologically inter-related development. While horses as draft animals are considerably superior to cattle or oxen, particularly in the area they can cover/unit time, unequivocal evidence for their use as such occurs later and postdates the harnessing of oxen, donkeys, donkey/onager hybrids and even possibly mules and Bactrian camels.

In his imaginative overview “The Horse and the Wheel...,” A. Sherratt hypothesizes that horses were initially domesticated to produce mules to drive wagons laden with metals and other trade goods and that their domestication was intimately linked to V.G. Childe’s second Urban Revolution and may have first occurred off the steppes proper in the Caucasus or on the greater Near Eastern periphery. While his “interactionist” model remains speculative and considers nearly every innovation, including the appearance of oxen-driven ploughs, as developing initially on the surplus temple estate economies in the Mesopotamian heartland, he does nicely show how the harnessing of oxen to wheeled transport precedes evidence for the practical utilization of horse power and sees the latter as linked to the harnessing of donkeys and other equid hybrids as part of the same inter-related process.

U. Dietz’s article demonstrates that none of the claimed Chalcolithic cheekpieces are likely to have functioned as bridle elements. Bitless bridles with rigid nosebands are likely to have preceded the complicated bitted bridles which were later introduced probably during the late Early and Middle Bronze Age and which became standardized only during Late Bronze times. Since harnessing preceded riding, it is likely that horses were initially used for draft purposes and for pulling wagons and were only later regularly ridden: “Moving slowly, the horse working as a beast of burden or hitched to a heavy vehicle was easy to lead. *Knowledge and equipment used for driving or guidance developed from the tradition of hitching cattle*” (p. 197, italics added). In other words, there is a logical connection or technological relationship between the harnessing initially of cattle and then later of equids and the Bactrian camel.

In her article N. Shishlina reviews archaeological and distributional evidence from Kalmykia to develop a model of the gradual, progressive utilization of the “open steppe” during the Bronze Age. In Pit Grave times the movement of the herders was largely confined to the river valleys and immediately surrounding grasslands; the real “open steppe” away from the river valleys was only occupied during subsequent Catacomb grave times out of necessity (increased aridity and overexploitation of the neighboring grasslands) and due to their increased mobility and mastery of the horse and use of the composite bow. Horses not only led to increased mobility, but also played the key role of breaking up the deep snow that covered the Kalmykian steppes during winter so that the other essential herded animals (cattle, sheep/goats) could survive.

The exhaustive “critical assessment” of Bronze Age archaeozoological data from the eastern European steppe by A. Morales-Muñiz and E. Antipina is most significant since it unequivocally demonstrates that the classic historically and ethnographically attested form of mounted, multi-animal nomadism that later symbolized life on the steppes was not in place during the Bronze Age. The Bronze Age herders of the steppes may have raised nearly all the animals kept by later Eurasian mounted nomads, save perhaps Bactrian camels (itself – an important exception), but it is the relative frequency of the different species, particularly the

striking dominance of cattle and the markedly secondary presence of ovicaprines and horses that is distinctive and suggestive of a fundamentally different way of life from the nomadism practiced from Iron Age times onwards. The multi-animal nomadism of later times was a tightly integrated system, highly adapted to coping with the rigorous conditions of life on the steppes, particularly the long cold winters.

It essentially took the two plus millennia of the Bronze Age to come up with the right combination of animals and the development of technologies for maximizing their control and utilization. Since Bronze Age steppe pastoralism was not the same as historic Eurasian mounted pastoral nomadism, it is misleading to envision anachronistically hordes of marauding nomads sweeping down off the steppes with their chariots and advanced bronze weaponry to invade and subjugate established agricultural societies to the south. Rather, more mobile semi-nomadic economies utilizing oxen-driven carts and wagons, and herding principally cattle spread across the western Eurasian steppes during the 2<sup>nd</sup> half of the 4<sup>th</sup> through the 1<sup>st</sup> half of the 2<sup>nd</sup> millennium. At some point – probably fairly late in this process – they began to ride horses and develop lighter vehicles and new techniques for harnessing horses to them.

One of the most vexing questions addressed, but not solved, by the articles collected in this volume concerns the role of agriculture on the steppes during the Bronze Age. Several authors explicitly state the basic assumption that the cultivation of cereals must have complemented the pastoralism practiced by these Bronze Age herders: “No-one can really be suggesting that steppe peoples had no vegetal or carbohydrate part to their diet (Bower, p.36)”. Or, “Despite the importance of pastoralism, steppe populations also needed agricultural products.... Subsidiary agriculture, therefore, must also have existed, providing a minimum amount of grain (Bunyatyan, p.270)”. Such is the common assumption, but the actual archaeological documentation for the cultivation of cereals on the steppes prior to the end of the Late Bronze Age is insignificant, if not practically non-existent.

This paucity of supporting documentation is seen in G. Pashkevich’s careful review of cereal impressions found on ceramic fragments. Remarkably few impressions were recovered, leading her to conclude, “Agriculture was poorly developed in the territory to the east of the Dnepr as far as the Urals” (p.295), an assessment that essentially agrees with that of E. Y. Lebedeva who over the last sixteen years has collected flotation samples from a series of archaeological sites across the vast region stretching from the mouth of the Danube beyond the Urals (cf. the early summary of these results in: E. N. ČERNYCH/E. E. ANTIPINA/E. J. LEBEDEVA, Produktionsformen der Urgesellschaft in den Steppen Osteuropas (Ackerbau, Viehzucht, Erzwinnung und- verhüttung. In: B. Hänsel/J. Machnik (Hrsg.), Das Karpatenbecken und die Osteuropäische Steppe: Nomadenbewegungen und Kulturaustausch in den vorchristlichen Metallzeiten (4000–500 v. Chr.). 233–252). The vegetal / carbohydrate component to the diet of the Bronze Age steppe pastoralists remains unclear. Part of the problem relates to the interpretation of largely negative evidence. More and better data is needed, and such new information, undoubtedly, will add to our understanding of the degree and extent of cereal cultivation or intensive collecting of wild plants on the steppes during the Bronze Age. Paradoxically, one conclusion seems warranted: real significant agriculture only was practiced on the Eurasian steppes when true mounted pastoral nomadism also appeared; i. e., at the very end of the Bronze and beginning of the Iron Age.

To conclude, 'Prehistoric Steppe Adaptation and the Horse' constitutes a most valuable collection of articles addressing major issues in the later prehistory of Eurasia. Two minor criticisms. It would have been useful to present a chronological periodization based on calibrated radiocarbon determinations and apply it to all the articles. As it is, the chronologies utilized by different authors vary widely and confuse anyone not immersed in these materials. Similarly, there are some unfortunate translation problems from the Russian to English; e.g., the use of "small cattle" or "small horned cattle" (in Russian '*melkyi rogayi skot*') for ovicaprines or sheep/goats. If unrecognized, this translation mistake can result in serious misinterpretations of the faunal record. On the positive side, it is refreshing to have a volume so exhaustively review current archaeological evidence for the early use of the horse with so few references to Indo-Europeans, Aryans, or other linguistic constructs, which are so often uncritically associated with early horse domestication. The archaeological data correctly speaks for itself. The editors of this important volume should be proud of their work.

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IAN ARMIT/EILEEN MURPHY/EIMÉAR NELIS/DEREK SIMPSON (Eds), **Neolithic Settlement in Ireland and Western Britain**. The Prehistoric Society, Oxbow Books, Queen's University Belfast (Oxford 2003). £ 35,—. ISBN 1-84217-091-0. 222 Seiten mit zahlreichen Abbildungen.

Viele Einzelstudien aber auch wissenschaftliche Tagungen haben sich in den letzten Jahren erneut Fragen nach den Anfängen von Bodenbau und Viehzucht in Europa gewidmet. Der hier behandelte Band ist aus einer solchen an der Queen's University in Belfast abgehaltenen Konferenz zur neolithischen Besiedlung im nordwestlichen Europa entstanden.

Die insgesamt 26 Beiträge behandeln damit ein Thema, das in der kontinental- oder gar mitteleuropäischen Diskussion kaum beachtet wird, obgleich die kulturgeschichtlichen Verbindungen angesichts der globalen Konsequenzen der Neolithisierung natürlich auf der Hand liegen und auch in den ersten Aufsätzen im Band gleich betrachtet werden. Sie stellen die Frage aus französischer wie auch nordbritischer Sicht dar; sofort wird deutlich, daß sich diese Perspektiven sehr von denen der im südlichen Großbritannien forschenden Kollegen unterscheiden. Der Leser ahnt, daß sich in England eine auf dem Kontinent weitgehend unbeachtet gebliebene Diskussion zwischen zwei Schulen entwickelt hat, von denen wir lediglich eine, da sie in vielen theoretischen Abhandlungen weit über die britischen Inseln hinaus verbreitet wird, wahrnehmen. Dies ist die heute noch von Julian Thomas, Christopher Tilley und früher auch von Alasdair Whittle und anderen getragene Schule der Indigenisten. Ihre Glaubensvertreter (der bewußt gewählte Begriff mag Rez. gestattet sein) sehen das Neolithikum als zunächst fast schemenhafte Erscheinung, die sich einer tief im nacheiszeitlichen Britannien verwurzelten, einheimischen wildbeuterischen Bevölkerung bemächtigte. Es sei nicht zu einem rapiden wirtschaftlichen Umbruch gekommen, sondern zu einer langsamen Hinwendung zum Bauerntum