火山翻译·第五届全国机器翻译译后编辑大赛汉/英互译项目初赛（北部赛区）参考译文		
序号	**原文**	**参考译文**
1	When Did Humans Domesticate the Horse?	马是何时被人类驯化的？
2	Only recently have scientists discovered exactly when and where the animal went from wild to tame	直到最近科学家才成功确定家马的驯化时间和地点
3	Amber Dance, Knowable Magazine	艾波·丹斯，《可知杂志》
4	They say dogs are man's best friend, but horses could also claim that	人们都知道狗是人类最好的朋友，但马也是人类忠实的朋友。
5	Horses gave us a way to transport people and goods — literal horsepower.	马为人员往来和货物运输提供了一种新的方式——字面上讲的马力。
6	They changed warfare: drawing chariots, carrying the cavalry.	它们改变了战争形式：马可以拉战车，可以运送骑兵。
7	They've inspired artists from Stone Age cave painters to the makers of "My Little Pony."	它们为艺术家的创作提供了灵感，既包括石器时代洞穴画家，也包括《小马宝莉》的制作人。
8	Their role in industry may have waned in favor of machines, but they still maintain a place in sport, in leisure and in our collective hearts.	随着机器的出现和使用，马在生产中的作用就越来越小了，但它们在运动、休闲和我们心中仍然占有一席之地。
9	Horses have been intertwined with human culture since at least 2000 B.C.E. and were associated with certain human groups even earlier.	至少从公元前2000年开始，马就与人类文化交织在一起，它们与某些人类群体的联系可能更早。
10	"Horses are the animal that has changed history," says Ludovic Orlando, a molecular archaeologist at the University of Toulouse III-Paul Sabatier in France.	法国图卢兹第三大学的分子考古学家卢多维克·奥兰多说："马改变了人类的历史。"
11	Today, horse breeds number in the hundreds, from the high-stepping Lipizzan horses of Austria to the Clydesdale draft horses of Budweiser commercials to the thoroughbreds of the Kentucky Derby.	目前，世界上的马有数百种之多，从奥地利的高脚利比扎马到百威啤酒广告中的克莱兹代尔挽马，再到肯塔基赛马会的纯种马。
12	Despite their differences, these animals are all Equus caballus, joined in the modern equid family by donkeys, zebras and the wild Przewalski's horses of Central Asia (though some taxonomists prefer the name Equus ferus for wild horses, and classification of Przewalski's horses can vary).	它们虽有不同，但都是马 (Equus caballus)，现代马科动物还包括驴、斑马和中亚的普氏野马（尽管一些分类学家更喜欢用Equus ferus称呼野马，普氏野马的分类可能会有所不同）。
13	The evolutionary path leading up to Equus is a classic model of evolution — a thoroughly documented history that graces textbooks and museum exhibits.	马的进化之路遵循着经典的进化模式——有着完整的历史记录，为教科书和博物馆陈列增色不少。
14	But until lately, the route to domestication by people has been a black	但是直到最近，马的驯化仍是一个未解之谜。
15	The bones of E. caballus all look pretty much the same, whether wild or domestic, so they couldn't answer a longstanding question: Where and when did humans first domesticate horses, linking the two species on a road that would lead to horse-drawn carriages, horse-racing and so much more?	无论是野马还是家马，它们的骨头看起来没什么区别，所以也就无法回答一个长期存在的问题：人类在何时何地首次驯化马匹？驯化将人类和马联系在一起，催生了马车、赛马等与马相关的物品和活动，使人类走上了新的发展道路。
16	Today, a revolution in the study of DNA, from both ancient and modern creatures, is providing answers.	目前，对古马和现代家马DNA研究的革命正在破解这个难题。
17	Applying the same approach used in a landmark 2010 study of Neanderthal DNA, scientists have learned much about the history of Equus caballus.	运用2010年对尼安德特人DNA的里程碑式研究中使用的同一方法，科学家对马的历史有了很多了解。
18	They have tracked how ancient wild horses shared genes across the Bering Strait between Asia and North America, and revealed the surprising history of Przewalski's horse.	他们追踪到古代野马是如何跨越亚洲和北美洲之间的白令海峡共享基因的，并揭示了普氏野马的前世今生。
19	And working with more modern samples, they have observed how recent management by people has undone much of the diversity in horse genomes, while adding a host of breed-specific features.	通过对更多现代样本的研究，他们发现人类驯养马匹增加了不同品种的特性，但也破坏了马基因组的大部分遗传多样性。
20	But there has never been quite enough ancient DNA to answer the question of domestication — until late 2021, when scientists reported their analysis of more than 250 ancient horse genomes.	但是在2021年底之前，一直没有足够的古马DNA用于解答马匹驯化之谜。这年年底，科学家报告了他们对250多个古马基因组的研究结果。
21	"It's great to have this big piece filled in, in the puzzle of where horses actually came from," says Jessica Petersen, an animal geneticist at the University of Nebraska-Lincoln who wasn't involved with that particular mystery.	内布拉斯加大学林肯分校的动物遗传学家杰西卡·彼得森说："在马的起源这个未解之谜中，这么大的一块空白被填补真是了不起。"她本人并没有参与这项研究。
22	But, she adds, the domestication process was a complex series of events, and more intricate details will be difficult to uncover.	但是，她补充道，驯化过程涉及一系列复杂的事件，很难揭示更为复杂的细节。
23	Evolution of the horse	马的进化
24	Sifting through fossil bones and teeth, paleontologists have traced the ancestry of horses back roughly 50 million years to a dog-sized, hoofed animal called Hyracotherium — aka eohippus, the "dawn horse."	通过对马的骨骼和牙齿化石的筛选研究，古生物学家发现马的祖先可以追溯到大约5000万年前，是一种大小如狗、有蹄的动物，名叫"始祖马"，又名"黎明马"。
25	The genus Equus, as we know it, probably emerged between 4 million and 4.5 million years ago in the continent that would become North	我们了解的马属动物可能出现在距今400万到450万年前的北美大陆上。
26	(That's well before the Homo lineage, which wouldn't hit the scene for at least another million years.)	（远在猿人谱系出现之前，因为至少在一百万年后，猿人谱系才会出现）。
27	Fast forward to the late Pleistocene, 11,700 to 129,000 years ago, and horses were trotting back and forth between Asia and the Americas on the Bering Land Bridge.	快进到更新世晚期，距今1.17万年到12.9万年前。那时，马通过白令陆桥来回穿梭于亚洲和美洲之间。
28	The line leading to modern-day domestic horses and wild Przewalski's horses split sometime in the middle of that epoch, between 35,000 and 50,000 years ago.	大约在3.5万年到5万年前，现代家马和普氏野马在更新世中期的某个时候进化方向发生了分化。
29	But about 11,000 years ago, around the time the Bering Land Bridge submerged for the last time, the North American horses went extinct, along with many other large species such as mammoths and giant	然而，大约在1.1万年前，也就是白令陆桥最后一次被海水淹没的时候，北美马灭绝了，同时灭绝的还有猛犸象和巨型海狸等许多其他大型物种。
30	While it's hard to pinpoint a reason, climate, hunting or a combination of the two might have been a factor, says Alisa Vershinina, a geneticist at LifeMine Therapeutics in Cambridge, Massachusetts, who investigated the Bering crossings while working as a researcher at the University of California, Santa Cruz.	马萨诸塞州剑桥市生物制药公司LifeMine Therapetuics的遗传学家阿利莎·韦尔西尼娜说，虽然很难确定北美马灭绝的具体原因，但气候、狩猎或两者的结合可能是其中一个因素。她在加州大学圣克鲁兹分校担任研究员期间曾经调查过白令陆桥通道。

31	Early humans would have seen horses around, and they were clearly interested in the majestic animals: Horses are the top animal depicted in Stone Age, Western European cave art.	早期的人类会在定居点周围看到马，显然他们对这些高大雄壮的动物很感兴趣：马是石器时代西欧洞穴艺术中描绘的最重要的动物。
32	But there's a big difference between observing the animals for artistic inspiration and harnessing them for horsepower, transport and sport.	但是，观察马匹以获得艺术灵感和驾驭它们以获得马力、便利交通和进行运动之间有很大的区别。
33	When, and where, did the relationship between human and beast undergo a dramatic change?	人类与马之间的关系是在何时何地发生了根本性的变化？
34	Horses were a late addition to the barnyard.	马是后来才被驯化的。
35	Dogs were domesticated 15,000 years ago; sheep, pigs and cattle, about 8,000 to 11,000 years ago.	狗在1.5万年前被驯化；羊、猪和牛大约在8000至11000年前被驯化。
36	But clear evidence of horse domestication doesn't appear in the archaeological record until about 5,500 years ago.	但是考古资料中有明确证据显示马的驯化始于距今约5500年前。
37	Horse remains from across Eurasia gave scientists several candidates for the first domestication event.	欧亚大陆各地发现的马的遗骸为科学家们了解马匹首次驯化提供了几个候选遗址。
38	For example: In 2018, scientists found a frozen, mummified horse in modern-day Siberia.	例如， 2018年，科学家在西伯利亚发现了一匹冰冻木乃伊马，
39	It was dated to about 4,600 years ago.	其历史可以追溯到大约4600年前。
40	Might it have been one of the first workhorses?	它有可能是最早的驮马吗？
41	Iberia, the peninsula containing modern-day Spain and Portugal, seemed promising because horses have continuously inhabited the region for the past 50,000 years, and would have been available for potential domestication.	伊比利亚半岛，包括今天的西班牙和葡萄牙，似乎很有希望，因为在过去的5万年里该地区一直有马在活动，所以存在驯化的可能。
42	And in the part of Eastern Europe around the Caspian Sea, archaeologists noticed horse remains appearing alongside those of other domestic animals.	在里海周围的东欧部分地区，考古学家发现马的遗骸与其他家畜的遗骸一起出现。
43	Human burials about 6,000 years ago began to contain maces decorated with horse heads, perhaps indicating some change in human-horse relations.	大约6000年前，人类墓葬中开始出现马头形权杖，这显示人与马的关系可能发生了一些变化。
44	This area also got attention because of long-term horse presence in the area.	该地区也因为马在附近长期活动而备受关注。
45	But the archaeological site that captivated many horse-domestication researchers was the 3500 B.C.E. settlement at Botai, about 1,000 miles northwest of the Caspian, in modern-day Kazakhstan.	然而，吸引了众多马匹驯化研究人员的考古遗址是公元前3500年的波泰人定居点。波泰遗址位于里海西北约1000英里，在今天的哈萨克斯坦境内。
46	The diet of the people in Botai seems to have been "entirely focused on horses," says Alan Outram, a zooarchaeologist at the University of Exeter in England.	英国埃克塞特大学的动物考古学家艾伦·奥特拉姆说，波泰人的饮食似乎"完全以马中心"。
47	Aside from a few dog bones, those of horses make up the majority of non-human remains on the site.	在波泰遗址发现的非人类遗骸，除了几根狗骨之外，大部分都是马骨。
48	There's evidence of fenced yards that might have held herds.	有证据表明，栅栏围起来的场地可能是用来圈养马匹的。
49	Some skulls hint at slaughter by an axlike tool, and some horse teeth exhibit "bit wear," as if they'd been bridled.	一些头骨显示这些马是用斧状工具宰杀的，而一些马牙有"磨损"的痕迹，就像它们被勒过一样。
50	Pottery shards contain chemical traces of mare's milk, which Outram says might have been consumed as butter, yogurt or cheese.	陶器碎片上残留着马奶痕迹，奥特拉姆说这些马奶可能被用来制作黄油、酸奶或奶酪供人们食用。
51	Nonetheless, the site's importance has been hotly debated.	尽管如此，这个遗址的重要性还是引发了激烈的争论。
52	There's no way to confirm that Botai inhabitants fully domesticated horses.	目前尚无法证实波泰人成功地驯化了马。
53	Outram suspects that the Botai peoples treated the horses somewhat like how modern reindeer herders use their animals: They may have kept the horses near at hand for meat and milk, and maybe even have ridden a few of them to herd others.	奥特拉姆猜测波泰人对待马的方式可能有点像现代驯鹿牧民使用驯鹿那样：他们在定居点附近养马，用来吃肉和喝奶，甚至可能会骑几匹马去放牧其他家畜。
54	But they probably weren't managing breeding or using the animals extensively as pack or transport animals.	但他们可能没有繁育马匹，也没将其广泛用作驮畜或交通工具。
55	And without enough ancient DNA, there was no way to be sure these were the horses that spread around the world as human-managed	由于没有足够的古马基因，就无法确定这些马是否作为人类驯养的家畜传播到世界各地的。
56	Then Orlando, Outram and colleagues analyzed a broad set of horse genomes, from as far back as about 42,800 years ago all the way up to 18 modern breeds, publishing the findings in the journal Science in 2018.	后来，奥兰多、奥特拉姆和同事共同分析了马基因组，涵盖范围很广，从大约4.28万年前一直到18个现代马种，并于2018年在《科学》杂志上发表了研究成果。
57	The result: Today's ponies, draft horses and their ilk have little in common with the Botai horse bones.	研究发现现代矮马、役马及其同类与波泰马的骨头几乎没有相同之处。
58	"They're not the genetic origin for modern domestic horses," says	"这足以说明波泰马不是现代家马的祖先，"奥特拉姆说。
59	The Botai lineage does live on, though.	不过，波泰马的血统确实存在。
60	Unexpectedly, the researchers were able to draw a direct line between those 5,500-year-old bones and modern Przewalski's horses.	出乎意料的是，研究人员发现这些5500年前的马骨与普氏野马存在着关联。
61	These stocky animals with short, bristly manes live on the steppes of Mongolia, where they're called takhi, or "spirit," and considered a national symbol.	普氏野马体型健硕，鬃毛较短而直立，生活在蒙古大草原上，在那里人们称其为"天马"，并将其视为民族的象征。
62	In other words, Przewalski's horses, once considered the remnants of an eternally wild population, may not be completely wild after all.	换言之，普氏野马曾经一度被认为是永久野生种群的残留，但它们可能并不完全是野生的。
63	Rather, they seem to be the feral descendants of horses that people at Botai might have managed, to some extent, but later lost control of.	相反，它们似乎是曾经由波泰人驯养但后来又逃脱的马的后代。
64	They'd have that in common with other feral populations such as the mustangs of the American West and Australian brumbies.	在这方面，它们与其他野生种群，如美国西部野马和澳大利亚野马，并无不同。
65	Przewalski's horses aren't much good for riding, notes Arne Ludwig, an evolutionary geneticist at the Leibniz Institute for Zoo and Wildlife Research in Germany.	德国莱布尼茨动物园和野生动物研究所的进化遗传学家阿恩·路德维希指出，普氏野马不太适合骑乘。
66	Perhaps, he speculates, that's why they fell out of use.	在他看来，这也许是它们被淘汰的原因。
67	Whatever happened after Botai, Przewalski's horses had a rough go of it.	在波泰人之后，不管怎样，它们的生存都异常艰难。
68	They nearly went extinct, with the last wild animal disappearing in 1969.	它们几乎灭绝了，1969年最后一匹野外环境下的普氏野马死亡了。

69	Today's population, all descendants of a handful of animals that persisted in captivity, now number around 2,000 individuals in captivity or natural reserves.	今天的普氏野马种群，都是少数圈养的普氏野马的后代，目前有2000匹被圈养或生活在自然保护区，
70	There are also a few modern domestic horses in their family tree.	其谱系中也有一些现代家马。
71	Domestication rising	驯化提升
72	Despite these advances, when Orlando documented genomic studies of horse domestication for the Annual Review of Genetics in 2020, he was forced to conclude, "The geographic origin of modern domestic horses is presently unknown."	尽管相关研究取得了一些进展，当奥兰多2020年为学术期刊《遗传学研究进展年鉴》撰文对马匹驯化基因组研究进行综述时，他也不得不承认，"我们目前尚不清楚现代家马的地理起源。"
73	But the clues were building up.	但是证据在不断增加。
74	Scientists had already nixed the Iberia and Siberia candidates: When researchers looked at ancient DNA, they found that those horse populations withered away, contributing little to the modern domestic lineage.	科学家已经否决了家马起源于伊比利亚半岛和西伯利亚的说法：当研究人员观测古马DNA时，发现生活在上述两个地区的马的种群数量越来越少，对现代家马谱系贡献甚微。
75	Getting to the true domestication site was a numbers game, says lead author Orlando.	该研究的主要作者奥兰多说，确定真正的驯化地点是一个数字游戏。
76	"We built the answer by narrowing down the evidence, little by little."	"我们通过一点一点地缩小证据范围来找到答案。"
77	The more than 150 collaborating scientists, including Outram and Ludwig, kept adding more horse genomes, from across Eurasia and spanning about 50,000 to 200 B.C.E.	包括奥特拉姆和路德维希在内的150多名科学家携手合作不断添加更多的马基因组，这些基因组来自欧亚大陆，时间跨度很大，从5万年前左右到公元前200年。
78	With 264 ancient horse genomes in hand, the answer was undeniable: The homeland of modern domestic horses was the part of Western Eurasia between and north of the Black and Caspian seas, more specifically known as the lower Volga-Don region.	研究基于现有的264个古马基因组，因此结果是不容置疑的：现代家马起源于西欧亚大陆的某一地区，该地区位于黑海和里海之间及以北，具体来说是伏尔加河和顿河下游地区。
79	The team reported their results in Nature in October 2021.	研究团队于2021年10月在《自然》杂志上发表了他们的研究成果。
80	While the data point to a clear answer, there's still plenty of room for interpretation and speculation.	尽管数据指向了一个明确的答案，但仍然需要进行大量阐释与探讨。
81	Pinpointing that spot near the Caspian doesn't mean it was the only place — and time — that people bent horses to the bridle.	确定里海附近的那个地区并不意味着它是人们驯化马匹的唯一地点和时间。
82	The genomic and paleontological evidence from the other candidate regions suggests horses may have been domesticated multiple times, at Botai and elsewhere, without leading to widespread horsemanship.	来自其他候选地区的基因组和古生物学证据表明，马可能曾经在波泰和其他地方被驯化过多次，尽管没有使骑术传播开来。
83	"It shows how important horses were to people, that so many groups of people independently domesticated them," says Beth Shapiro, an evolutionary biologist at the University of California, Santa Cruz, and a coauthor of the Nature study.	加州大学圣克鲁兹分校的进化生物学家、《自然》研究的合作者贝丝·夏皮罗说："那么多群体独立进行马匹驯化，这足以表明马对人类有多重要。"
84	The 2021 analysis does suggest that the domestication in the Volga-Don was the only one that "took," the only one that spread like horse-drawn wildfire.	2021年的研究表明，伏尔加河和顿河地区的马匹驯化是唯一一次"传播开来"的驯化，唯一一次野火般蔓延开来的驯化。
85	Why were horses one of the last animals to be domesticated, and why these horses in particular?	为什么马是最后被驯化的家畜呢？为什么是这些马呢？
86	While it's impossible to be certain, ancient genomes suggest tantalizing hypotheses.	虽然无法确定最终原因，但古马基因组足以让我们提出诱人的假设。
87	The lineage leading to modern domestic horses included a change near a gene called GSDMC.	现代家马谱系包含一个名为GSDMC的基因，该基因周围发生了的变化。
88	In people, alterations to this gene are linked to back problems.	在人类身上，这种基因的改变与背部问题有关。
89	It's possible that the domestic horse version gave the animals stronger backs, suitable for long-distance riding.	家马的这种基因变化能够赋予其更加强壮的背部，使其适合长途骑行。
90	The domestic horse line also includes a change near a gene called ZFPM1	家马谱系还包含一个名为ZFPM1的基因，
91	This gene is important in mood regulation.	该基因对调节情绪非常重要。
92	Perhaps some domestic version of ZFPM1 made the animals in the region more docile, easier to tame.	也许是某个版本中ZFPM1的基因变化使马变得更温顺，更容易驯化。
93	These changes could have been the key to long-term horse domestication — but that's all speculation, says Shapiro.	夏皮罗说，这些变化可能是长期驯化马的关键——当然这也只是猜测。
94	As for who did the domesticating, it hasn't been possible to narrow it down to one culture, says Orlando.	奥兰多说，至于是谁驯养的，目前还无法将其归结到某一文化。
95	Diverse people from the region may have started experimenting with these horses about 4,200 years ago.	生活在该地区的各个民族大约从4200年前就已经开始驯化马了。
96	Domestic horses spread a bit from that point on, but things didn't really take off until about 2000 B.C.E.	从那时起，家马开始向外传播，但直到公元前2000年左右家马的传播才算真正开始。