

# How did such an advanced culture remain lost?

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that their people had a written language. And the characters were in the same script as the ones we see today.

"It's not ancient Iranian, not ancient Mesopotamian. I even look it to be any Chinese character," he said. "It was not Chinese."

The next step was an attempt to identify the script. He tried to locate it in the 19th-century desert areas of Afghanistan, where the word "script" came from.

But their findings revealed that the script was not from the area. It was from the area of the Tigris and Euphrates rivers, where the ancient Sumerians lived.

It was a Sumerian script, and it was used by the Sumerians in the area of the Tigris and Euphrates rivers, where the ancient Sumerians lived.

By the mid-'90s, the Soviet archaeological team had discovered a script in the area known as the Tigris and Euphrates rivers.



A student excavates the site in Merv, near the Tigris river. The site is the location of the new desert ruins, dated to 6000 B.C.

He decided to specialize in ancient writing, and he went to the University of Pennsylvania to study for a Ph.D. in the field of ancient writing.

He was asked to do an excavation for an archaeological team in the area of the Tigris and Euphrates rivers, where the ancient Sumerians lived.

It was a great find, exactly what he needed. He had discovered a script in the area of the Tigris and Euphrates rivers, where the ancient Sumerians lived.

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A scroll, possibly containing a written message.

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There is a final clue: a stamp seal, a carved marble seal, which carries the name of the ancient ruler.

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Archaeologist Fred Hiebert at Paris, with a few of the artifacts he has found in the lost cities in what is now Turkmenistan.

By the third millennium A.D., we'd be discovering a new ancient civilization," said Fred Hiebert, an archaeologist at the University of Pennsylvania Museum of Anthropology and Archaeology, who has excavated in the region nearly every year since 1998, shortly before the Soviet Union fell.

Some researchers consider writing a criterion for any true civilization, and now Hiebert thinks he may have evidence for that, too—a tiny stamp seal carrying four letter-like symbols in an unidentified language. He has dated it to 2300 B.C.

On May 12, Hiebert will present his findings at an international meeting on language and archaeology at Harvard and also more informally at a meeting Friday at Penn.

"The implication of the seal is incredible," he said, because there's no existing evidence See CITY on C3



## Missing civilization?

An aerial view of the fortress-like ruins at Margiana, an excavation deep in the Kara Kum Desert.

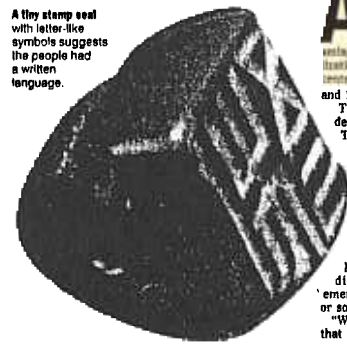
An ancient people thrived in desert areas of what used to be the Soviet Union. A Penn archaeologist is among those wondering how such an advanced culture could have been overlooked.



## CIVILIZATION!

An aerial view of the fortress-like ruins at Margiana, an excavation deep in the Kara Kum Desert.

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A tiny stamp seal with letter-like symbols suggests the people had a written language.

"All the News That's Fit to Print"

# The New York Times

New England Final  
Forecast: Sunny and windy, occasionally cooler, high 65. Tonight, mostly clear, breezy, low 45. Tomorrow, mostly sunny, breezes dying down, high 64. Weather map appears in Page 12.

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## In Ruin, Symbols on a Stone Hint at a Lost Asian Culture

By JOHN NOBLE WILFORD

In an unexpected benefit of the cold-war's end, Russian and American archaeologists say they have discovered an ancient civilization that thrived in Central Asia more than 4,000 years ago, before being lost in the sweep of history.

The people of that area, the archaeologists say, built oasis-settlements with imposing mud-brick buildings and fortifications. They herded sheep and goats and grew wheat and barley in irrigated fields. They had bronze axes, fine ceramics, slab-stone and bone carvings and jewelry of gold and semiprecious stones. They left luxury goods in the graves of an elite class.

The accomplishments of those unknown people in what are now the republics of Turkmenistan and Uzbekistan began to emerge over several decades of excavations by archaeologists of the Soviet Union, who worked diligently but in academic silence behind closed borders. The surprising scope of society suggested

a stage of social and economic development generally regarded as civilization. All that seemed lacking was evidence of number or writing systems.

With the end of the cold war, American archaeologists have joined the Russians in exploring the region, and now they are reporting that they have found inscriptions showing that these people may have indeed had writing, or at least were experimenting with a form of proto-writing around 2300 B.C.

"We are rewriting all the history books about the ancient world because of the new political order in our own time," Dr. Fredrik T. Hiebert, a University of Pennsylvania archaeologist involved in the excavation, said in an interview last week.

In the most recent and provocative discovery, Dr. Hiebert uncovered a small stone object engraved with four or five red-colored symbols or

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## In Ruin, Symbols on Stone Hint at a Lost Culture

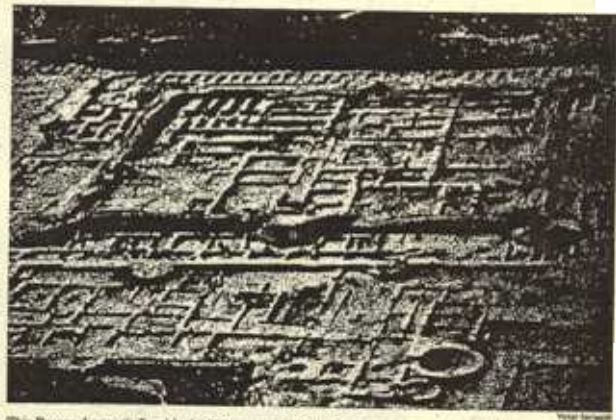
Continued From Page 1

letters that apparently bear no resemblance to any other writing system of the time. Other scholars agreed that the symbols seemed to be unlike contemporary scripts in Mesopotamia, Iran or the Indus River valley.

Dr. Hiebert made the discovery last summer in ruins at Anau, a site near the border with Iran and only eight miles from the Turkmenistan capital, Ashgabat. He described the findings a week ago at a symposium at Penn and yesterday at a conference on language and archaeology at Harvard.

"You can say we have discovered a new ancient civilization," Dr. Hiebert said. At the same time, the pyramids of Egypt had been standing for three centuries, power in the Tigris and Euphrates valley was shifting from Sumer to Babylon and the Chinese had yet to develop writing.

Dr. Victor H. Mair, a specialist in ancient Asian languages and cultures at Penn, who was not on the research team, said of the inscription, "I definitely think that's writing."



This Bronze Age oasis flourished 4,000 years ago. Now, Russian experts are inviting Western collaboration.

Dr. Mair added that the discovery of ruins of an advanced culture is a riddle "where there was thought to be just space and emptiness like an enormous page" in terms of trade and cultural exchanges across Asia in antiquity. It suggested that people in Asia more than 4,000 years ago were not as isolated as once supposed, he said, but probably had crosswide connections.

The dozens of settlement ruins of the new-found civilization stretch west from Anau across the Karakum desert into Uzbekistan and perhaps the southern part of Afghanistan. It is an area 200 to 400 miles long and 50 miles wide. Since no one knew who the people were or what they called themselves, archaeologists have given the culture the prosaic name of the Bactria Margiana Archaeological Complex, or BMAC (pronounced BEE-mack), after the ancient Greek names of two regions it encompasses.

Long after the ruins were buried in sand, the area was traversed by the legendary Silk Road, the caravan route linking China and the Mediterranean lands from the second century B.C. to the 16th century A.D. The route that served as way stations for rest and resupply on the Silk Road also supported the BMAC civilization, which presumably was trading far and wide over some kind of central Bronze Age Silk Road.

Dr. Carl Lamberg-Karlovsky, a Harvard archaeologist, questioned whether the symbols on the artifact represented true writing. But he said that Dr. Hiebert's discovery "fits into place with other research showing that this culture was working out some sort of communication system, though it never reached the level of complexity in writing as its neighbors did."

Until the waning days of the Soviet Union, foreign scholars knew almost nothing of the nature and extent of the BMAC culture. Reports of findings were confined to Soviet journals.

In the post-cold-war optimism, Russian archaeologists are eagerly sharing their knowledge and inviting collaboration with Westerners. Dr. Hiebert plans to return to Anau, possibly next month, for further ex-



A stone seal, about an inch wide, seems to be a commercial stamp.



At Anau, on the old Silk Road, findings point to a buried culture.

excavations to be financed in part by the National Geographic Society.

Dr. Victor H. Mair of the Institute of Archaeology in Moscow found a distinctive architectural pattern in many of the ruins. The buildings at each site appeared to be erected in one burst of construction according to the design of a single architect. The largest buildings were like huge apartment complexes, each bigger than a football field and divided into dozens and dozens of rooms. They were surrounded by multiple mud-brick walls, some as much as 10 feet thick. Beyond lay traces of agricultural fields.

In the 1980's, Dr. Hiebert began digging slowly to deeper, and there were earlier levels of occupation. He was rewarded last June while excavating beneath a room in what appeared to be an administrative building at Anau. That was where he found the carved symbols on a piece of stony black jet stone, a type of coal, less than one inch in a side.

Archaeologists believe that it was a stamp seal, commonly used in ancient commerce to mark containers by their contents and ownership. The site also contained many lumps of clay that were used to seal vessels or parcels.

Scientists analyzing charcoal found with the artifacts dated the material at 2300 B.C., before the larger settlements were built. American radiocarbon dates have established that the BMAC culture was present in Central Asia from 2300 B.C. to 1800 or 1700 B.C. Russian research generally underestimated the culture's longevity by about 500 years.

Back at Penn, Dr. Hiebert showed the symbols to colleagues, and they were stumped. They said the symbols were unlike the Mesopotamian cuneiform script, generally regarded as the earliest writing system, or the proto-Elamite writing on the Iranian plateau.

Dr. Gregory L. Fung, a specialist in Indian archaeology at Penn, said the artifact's shape was wrong for an Indian stamp seal and only one sign could possibly be construed as related to Indian script.

"It looks as if it is some kind of writing," Dr. Fung said last week. "It is unique, as far as I can tell."

Dr. Mair assured Dr. Hiebert that the symbols were not Chinese, if the artifact is as early as has been dated. Chinese writing is thought not to have begun until hundreds of years later.

Whatever its origin, Dr. Mair said, the type of symbols and the small number of strokes used to create each one "makes me think the writing system is already fairly abstract, not pictographic."

Dr. Hiebert is not so sure. He cautioned that there was insufficient evi-

dence to determine if this was an evolved writing system, or if these people had become aware of the existence of writing elsewhere and were experimenting on a system of their own. He speculated that the engraved stamp included a prefix symbol, a marker to designate the category of the word to follow, that preceded four symbols for the word or words. These could stand for the same of a commodity and its owner.

The only other example of possible writing by the BMAC people was reported two years ago by Dr. U.S. Kochikov of the Institute of Archaeology in St. Petersburg. He found a jet shard in the ruins at Gumsu, which appeared to be four letters of what is an unknown script and language. Other Russian research has turned up evidence that people of the BMAC culture made statuettes in pottery and clay.

Scholars have made questions about the new ancient civilization, mainly about where the people came from, what influence they had in their times and what happened to them.

Dr. Hiebert thinks that the culture emerged near Anau, in the foothills along the Iran-Turkmenistan frontier, where there is evidence of earlier villages. Dr. Baranish contends that the culture's roots lie in Turkey. Other scholars point to evidence showing that they might have migrated from the north.

The BMAC culture's decline is equally mysterious. "Why that happens remains unclear," said Dr. Lamberg-Karlovsky of Harvard. "The architectural signatures, their fortified buildings, disappear after a few hundred years. Most of the luxury materials disappear. There is a distribution of complexity. Perhaps people revert to smaller settlements, or they leave and are absorbed in other cultures."

But for a while, in a land and a time unmonitored by archaeologists until recently, a civilization flourished and then vanished, leaving crumbling walls of mud brick and some cryptic symbols on a tiny piece of stone.

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# First word from Asia's lost civilisation

By Richard Beeston and Emily Davies

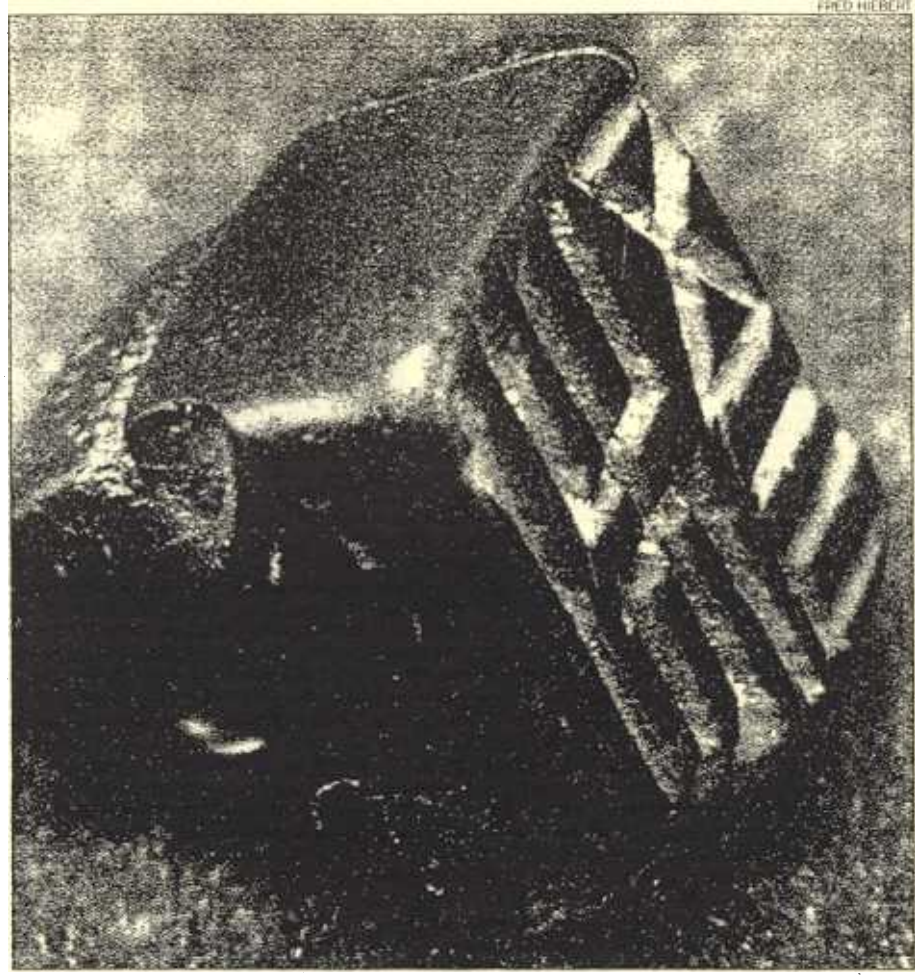
A LOST civilisation may have developed a previously unknown written language more than 4,000 years ago, a leading archaeologist said yesterday.

A small engraved stone could hold the key to uncovering a literate society that flourished and disappeared in what are today the deserts of Central Asia.

The discovery, which could lead to a reappraisal of the ancient world, was made last year at a ruined site near Ashgabat, the capital of Turkmenistan, where scholars have been excavating for years. They have been trying to determine who inhabited the thriving oasis settlements stretching from present-day Turkmenistan east through the Karakum desert into Uzbekistan.

The ancient community is known to historians as the Bactria Margiana Archaeology Complex after the Greek names for two lands in the area. The inhabitants had buildings made of mud bricks and protected by fortifications. They kept livestock, irrigated their crops and manufactured ceramics, bronze tools and gold jewellery. Fredrik Hiebert, an archaeologist at the University of Pennsylvania in Philadelphia, summed up the customary assessment of them: "They were urbanised, sophisticated; they had every aspect of civilisation except writing."

That assessment changed when Dr Hiebert and a fellow archaeologist from Turkmenistan were digging beneath the main site at Annau, near the country's border with Iran, once a sensitive Soviet border



Engravings on a 4,000-year-old stone seal have not been matched to any language

area. They found a large room and among the remains a small, black stone object engraved with four or five coloured symbols, which appeared to be some sort of seal.

Stamp seals were commonly used in the ancient world to mark the contents and ownership of goods being transport-

ed or stored. Initially, it was thought that the symbols had been imported from another civilisation from the period, possibly that of Iran, Mesopotamia or the Indus.

But the engravings, thought to be made from local material carbon-dated to 2300 BC, have not matched any known lan-

guage. The only script to which they bear resemblance is Chinese, although the written form of that language evolved centuries later.

"We concluded that this was a unique script engraved on a local material," Dr Hiebert said. "It is a very exciting discovery for ancient historians.



It could be the first evidence of a literate society in Central Asia. It could change the way we view the ancient world."

Dr Hiebert has been given a grant from the National Geographic Society for further excavations of the site. He believes that the excavation area of up to 12 acres could be part of a much larger complex.

He predicted that archaeologists would make further significant discoveries not only in Annau but across the region, which for much of the past century was closed to foreign scholars by Soviet authorities.

Chris Gosden, an archaeology lecturer at Oxford and a curator of the Pitt Rivers Museum, who has a special interest in Turkmenistan, said that he believed the script was almost certainly writing.

"It is definitely a form of complex symbolism which is indicative of a sophisticated accounting system of some kind, although it is impossible to know exactly what it was used for," he said.

"A script like this is the first real evidence of this civilisation and provides a significant piece of a much larger puzzle. This discovery confirms the status of this civilisation between Mesopotamia on the one hand and the Indus civilisation on the other."

# 中亚发现高度发达古代文明

本报讯 中亚文明近日再次引起学界瞩目,据悉,4000年前的中亚腹地已经产生了高度发达的文明。

据了解,这一位于现今土库曼斯坦和乌兹别克斯坦境内的不为人知的古老文明在前苏联时期就已经被考古学家发掘了多年。但惊人成果的获得还是在去年夏天,美国宾西法尼亚大学考古学者赫伯特(Fredrik T. Hiebert)从发掘出的一块石头上找到了4、5处红色刻划符号,相信这很可能是文字的证明。

日前赫伯特在接受采访时表示:“相关情形表明这与文明的标准相当吻合”。他谈到大型建筑及纪念性墓碑等均具有城市文明的水准,惟一缺乏的就是确切的文字证据。

由于迄今为止尚没有人清楚此处文明原住民的情况,考古工作者从古希腊时期对该地点的称谓,暂称此处文化为 Bactria Margiana 考古综合体。

赫伯特自去年六月开始对位于土库曼斯坦的安瑙(Annau)遗址进行发掘,不久前在宾大和哈佛举行的学术研讨会上,赫伯特详细描述了她的惊人发现。他说,他找到的这件人工制品可能是一种以无烟煤精为材料制作的印章,“它上面刻划的图案是我们在中亚地区发

现的最早的文字资料”。他指出其他考古专家认为这枚印章上的标志与古代美索不达米亚、伊朗和印度河谷的印章文字截然不同。在古代这些印章很可能是商务交往中商品所有者的标志。学者指出,从东面的安瑙向西的卡拉库姆沙漠直至乌兹别克斯坦及阿富汗北部这一大片长300-400英里、宽50英里的范围内,遍布着大批古文明遗迹。

这些人人工制品来自公元前2300年,那时埃及金字塔已在历史的风雨中矗立了3个多世纪,底格里斯河和幼发拉底河文明正从苏美尔王朝过渡到巴比伦帝国的麾下,而中华大地也正在发展着自己特有的文字系统。

赫伯特介绍说,宾大亚洲语言与文化学者梅尔(Victor H. Meir)告诉他这些刻划符号在许多地方同其后百余年间成熟起来的中文很相像。但关于这些仅仅只是类似文字的刻划符号,到底是不是真正的文字,目前在学者们中间争论还十分激烈。“我也不十分确定”赫伯特说,“只有这些还远远不足以说明问题,更深入地发掘还将进行下去,肯定会有更惊人的发现。” (田远新)

# 现代东亚人来自非洲有新证据

本报讯 2001年5月11日,一个国际性的研究小组在美国《科学》杂志上公布了他们的研究成果:据来自东亚163个群体、12127个男性个体的Y染色体DNA检测结果,东亚智人的祖先来自非洲,而且迁移之后直立人和智人之间几乎没有发生杂交。换言之,起源于非洲的现代人在东亚彻底取代了更早的来自非洲的群体。

此次研究最具说服力的是它的材料:采样的163个群体来自中亚、中西伯利亚、鄂毕次克海/阿穆尔河、堪察加半岛、东北亚、中国北方汉族、中国南方汉族、台湾土著、东南亚、印尼/马来西亚、密克罗尼西亚群岛和东北印度等等,涵盖了非常广的地域范围。

该研究项目旨在检验“人类共同的起源地在非洲”这个假设,同时也想找到直立人和智人在古代发生融合的证据是否存在。他们认为用Y染色体进行检验是因为Y染色体由父亲遗传给儿子的时候,可以保留其同一性。大量进化方面的信息比线粒体

DNA所提供的更具有可用价值。

研究者首先从中国、印尼、英国和美国采集样本,他们发现Y染色体在三个位置发生突变,并且12127个样本中每一个Y染色体都携带这三种多态性之一(如果任何一位男性个体并没有携带,即意味着“彻底取代”这个假设不成立)。

虽然遗传漂变也会偶然导致这个研究结果。但因样本的群体数目提供了强有力的统计学证据,因此可认为消除了这种偶然性——所有163个群体不可能在相同的方向上发生漂变。

因此,研究者确信,他们的研究方法是可靠的。但有一个问题尚未解决:那就是Y染色体的适用性。如果杂交确实未发生过,那么所有从直立人继承下来的Y染色体都将被种群淘汰,样本中就发现不了这类被淘汰了的Y染色体。如果仅仅发生了直立人女性与智人男性的结合,而没有发生智人女性与直立人男性的结合,同样不会有Y染色体的混合证据。” (小孙)



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Zhongguo Wenhui Bao  
(China Cultural Relics News)