

The nature of fluctuating lakes in the southern Amu-dar'ya delta



J. Dodson^{a,1}, A.V.G. Betts^{b,*}, S.S. Amirov^c, V.N. Yagodin^c

^a Institute of Earth Environments, Chinese Academy of Science, Xi'an, Shaanxi, China

^b Department of Archaeology, University of Sydney, NSW 2006, Australia

^c Department of Archaeology, Research Institute of the Humanities of Karakalpak branch of Academy of Sciences of Uzbekistan, Uzbekistan

ARTICLE INFO

Article history:

Received 24 February 2015

Received in revised form 4 June 2015

Accepted 19 June 2015

Available online 26 June 2015

Keywords:

Amu-dar'ya delta

Paleo-lakes

Environmental change

ABSTRACT

The delta region of the Amu-dar'ya has a complex history of shifting river channels that has impacted extensively on the Aral Sea and on the areas of the delta that saw human settlement from prehistoric times onwards. This paper explores evidence drawn from archeological, historical and environmental data relating to lakes that formed in the south of the delta on the east bank of the river and their impact on settlement patterns in this area, in particular the potential impact of variable flooding on the major fortified site of Akchakhan-kala. Testing of the area around the sites showed that the site had not been flooded but was founded on riverine or lacustrine clays. Shortly after the initial abandonment of the site, the immediate environment was covered by dune fields.

© 2015 Elsevier B.V. All rights reserved.

1. Introduction

The Amu-dar'ya is one of the greatest rivers in Central Asia. Rising in the Pamirs and the Hindu Kush, it runs through northern Afghanistan into Uzbekistan where it crosses the desert to debouch into the Aral Sea (Tolstov and Kes', 1960) (Fig. 1). The delta region and the oasis it has created are geomorphologically complex, reflecting the ever-changing path of the river. The Amu-dar'ya also gave life to the land known over two thousand years ago as Chorasmia, today the Khorezm oasis, the Khorezm region of Uzbekistan and Dashoghuz region of Turkmenistan. The lower reaches of the Amu-dar'ya, surrounded by deserts, experience a harsh dry continental climate with a mean annual rainfall of only c. 80 mm, strong winds, hot summers and deeply cold winters (Andrianov, 1969, 96). The efforts of humans to settle this area have been heavily impacted by the shifting nature of the rivers. The main courses of the Amu-dar'ya, and the more northerly S'ir-dar'ya, changed through time, and some of the major ancient river courses have been identified (Fig. 2). The Akcha-dar'ya ran from the area of modern Urgench/Turtkul' north-east and then north into the Aral Sea, while the Inkar-Dar'ya departed the S'ir-dar'ya at Kz'il-Orda and ran south-west and then north to the Aral Sea, joining the Akcha-dar'ya (Zhan'i-dar'ya) delta. The Dar'yalik and Daudan beds of the Prisar'ikam'ish delta have been traced north-west from the area of Dashoghuz and west to the Sar'ikam'ish depression from which the Uzboy can be traced south and then west to the Caspian Sea.

Explorations in these areas have resulted in reconstructions of ancient water courses matched broadly to the various recognized pre-historical and historical periods (Tolstov, 1962; Tolstov and Kes', 1960; Boroffka, 2010).

The delta region was extensively explored in the mid-20th century by a major Soviet era research team, the Khorezmian Archaeological Expedition, led by S.P. Tolstov.² This multi-disciplinary group mapped sites, ancient canals and river beds, providing an invaluable background to more recent scientific research. Since 1995 excavations in the Tash-k'irman oasis on the east bank of the Amu-dar'ya have been conducted under the auspices of the University of Sydney Central Asian Programme (USCAP)³ and the Karakalpak Branch of the Uzbek Academy of Sciences as the Karakalpak-Australian Expedition (KAE)⁴ with a particular focus on the major site of Akchakhan-kala (Kazakly-yatkan)⁵ (Figs. 3, 4).

This study was initiated to explore the potential impact of ancient lake fluctuations on the site of Akchakhan-kala. Akchakhan-kala is perhaps the largest, and has proved to be certainly among the richest, of the sites known in ancient Khorezm. It was a royal seat of a previously unknown dynasty comprising a massive fortified complex set in a dune field on the east bank of the Amu-dar'ya in the southern part of the modern delta region. The dune field is surrounded today by irrigated

² See especially Tolstov (1948a,b, 1962).

³ USCAP is directed by A. V. G. Betts (University of Sydney).

⁴ The Karakalpak-Australian Archaeological Expedition is jointly directed by Professor Vadim N. Yagodin (Research Institute of the Humanities of Karakalpak branch of Academy of Sciences of Uzbekistan) and Professor Alison V.G. Betts (University of Sydney).

⁵ Akchakhan-kala was published in early works as Kazakly-yatkan/Kazakli'yatkan but the name has been changed in recent publications to reflect its formal listing in the national register of archaeological sites of Uzbekistan (Yagodin et al., 2010; Kidd and Betts, 2010; Betts et al., 2009; Kidd et al., 2008; Betts et al., 2005; Helms et al., 2002; Helms and Yagodin, 1997).

* Corresponding author. Tel.: +61 293512090, +61 427475374.

E-mail addresses: jdd@ansto.gov.au (J. Dodson), alison.betts@sydney.edu.au (A.V.G. Betts), amirov2009@gmail.com (S.S. Amirov), vadim.n.yagodin@gmail.com (V.N. Yagodin).

¹ Previously Institute for Environmental Research, ANSTO, Sydney, Australia.

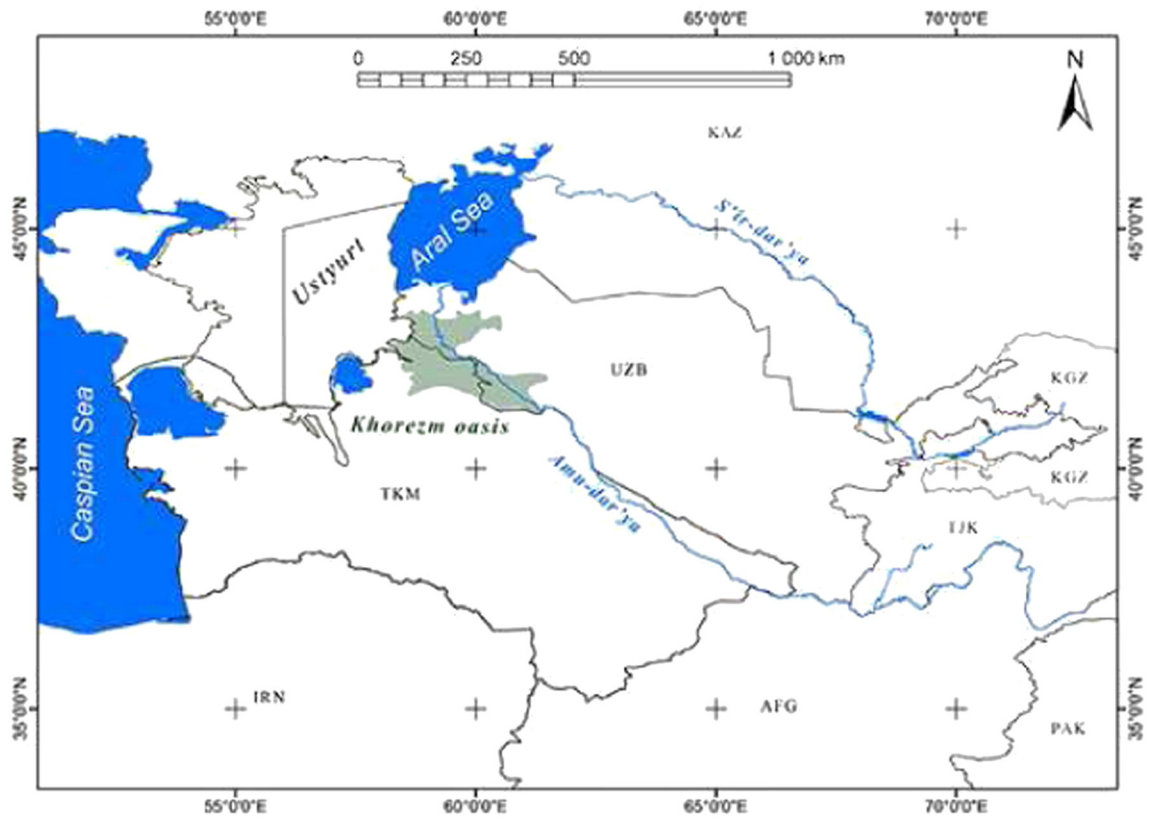


Fig. 1. Map of Central Asia showing the location of the Khorezm oasis.

lands. To the north lies the range of hills known as Sultan-uiz-dagh, a volcanic ridge rich in a variety of minerals. The land is flat and there are several small lakes in the general vicinity of the site. Based on present evidence, Akchakhan-kala was founded around the end of the

3rd century or early 2nd century BCE and was abandoned around the 2nd century CE (Betts et al., 2009). The site saw a partial re-occupation some two centuries later when a *donjon* was built among the standing ruins of the earlier site dated, based on the ceramics, to

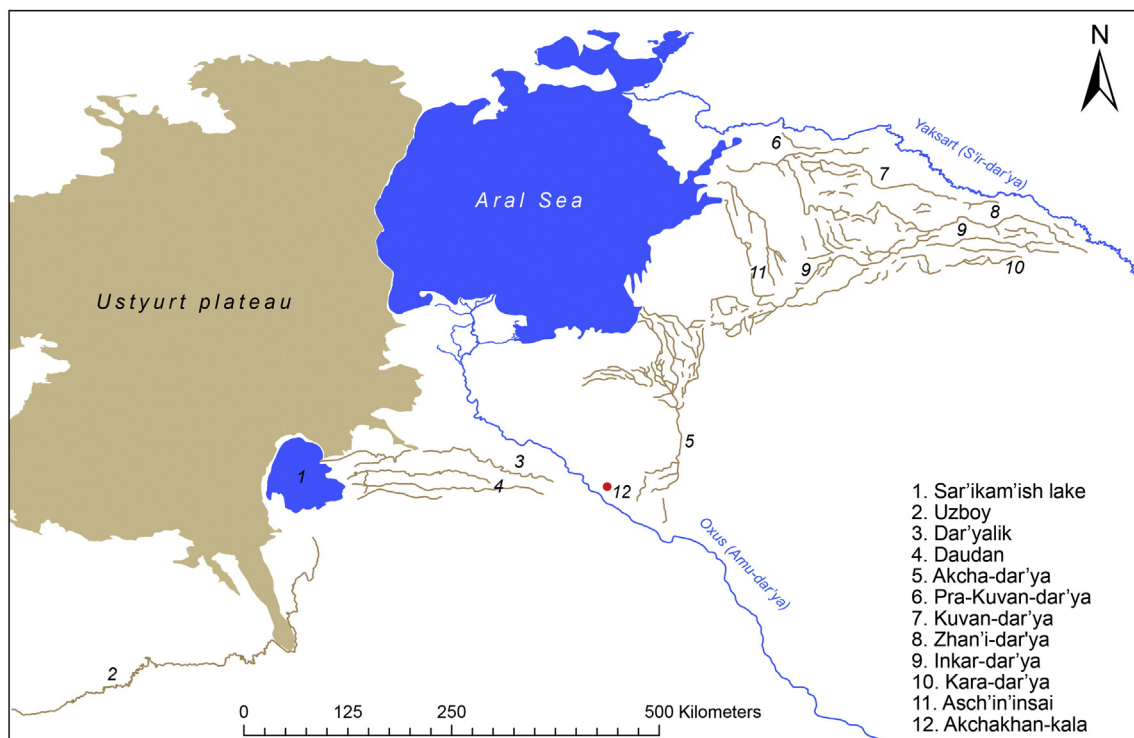


Fig. 2. Map of Amu-dar'ya delta with ancient branches of the river.

Download English Version:

<https://daneshyari.com/en/article/6349671>

Download Persian Version:

<https://daneshyari.com/article/6349671>

[Daneshyari.com](https://daneshyari.com)