Historical Geographic Information Systems (GIS): Perspectives of the Conceptualization of Silk Roads and the Modern China Economic Initiative of Belt Road

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Belt and Road Forum

Pallas Athene Innovation and Geopolitical Foundation (PAIGEO)

Central Bank of Hungary (MNB), Budapest

15th May 2018

Panel

Infrastructure of the Belt and Road Initiative

Moderator:

Tamás Baranyi (Antall József Knowledge Center)

13:30–15:00

The challenge is to break new ground, developing new knowledge using digital tools to produce results that could not be achieved through traditional research in any single discipline.

It is leveraging data from disparate databases to create integrated systems and customize visualizations.

Often we wonder why the legacies of economies originating from great civilizations are either forgotten or ignored.

Perhaps many aspects of our cultural inheritance was not remembered or learned.

Our motivation is to piece together local stories into the larger fabric of history.

We attempt to achieve a heightened degree of synergy among diverse research interests.
In digital and spatial humanities
we share a commonality of tools based on mutual research strategies and methodologies
in terms of documenting cultural
and environmental attributes.

These shared commonalities are enlarged through workshops on fieldwork, data processing, related sub-projects, and overall data analysis.

With the Getty Museum's archival system of Arches we gather materials and demonstrate maps, timelines, and networks.

Our research is to bring studies together that illustrate different historical approaches to regional economies, bridging distinctions between the humanities and social science using digital solutions.

Crosswalks for information from multiple sources and in multiple formats of

spatial humanities –

a sub-discipline of the digital humanities based on geographic information systems (GIS) and timelines –

These are used to create visual indexes for diverse cultural data and provide an effective integrating and contextualizing function for spatiotemporal attributes.

Silk Roads

These projects include Silk Roads conceptualizations.

The ‘Silk Road’ was a term created by Ferdinand von Richthofen in 1877 to describe a vast network of Eurasia trade from the Mediterranean to the Far East.

Tamara Chin. 2013. The invention of the Silk Road, 1877. *Critical Inquiry*, 40(1): 194-219.

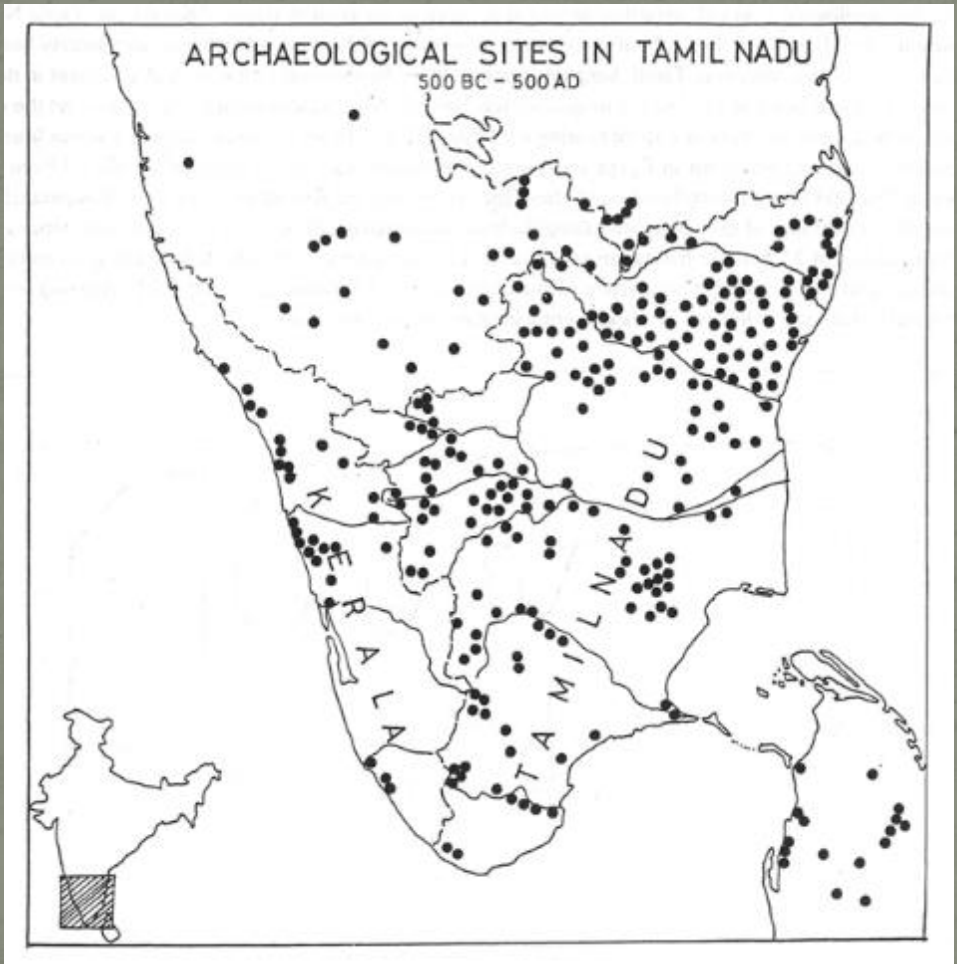
Map of Asia - political overview c. 1890. Meyers Kleines Konversationslexikon. Fünfte, umgearbeitete und vermehrte Auflage. Bd. 1. Bibliographisches Institut, Leipzig und Wien 1892.

From our perspective it originated as a segmented network during the first millennia BCE as a continuum from prehistory as a Neolithic network marking important points with Megalithic dolmans and other large erected stones across the Eurasia-Pacific.

Megaliths

Standing Post, Hand Mudra, Java

Megaliths become Buddhist sites



Meru

The region of Eastern Europe continues to play an important role in dynamic global environments of multicultural diversities ranging across very different geographies.

Learning from Past for Our Present

Our learning is about the past through to the present in the Eurasia-Pacific region in terms of trading through contested vast areas of geo-resource space inhabited by numerous cultures and languages.

The outcomes of research projects shed new light on trade routes, and industrialized hubs segmented across the region and how their stories support modern trade relationships and expansion of influence within this vast region –

- as well as to collect and codify historical data for inclusion in the wider-ranging projects developed at UC Berkeley, and currently administered in-part at the Asia-Pacific SpatioTemporal Institute (ApSTi) at National Chengchi University, and the GIS Centre of Academia Sinica, Taipei.

By using the methodologies developed with our partners, projects address the issues of geographic and temporal representation that often makes use of maps in history challenging.

Best practices are being developed collaboratively our global community of scholars to document data sources and types of uncertainty and ambiguity to enable and encourage re-use of the data by future scholars.

Collaborating allows for open source Web archives supports sustainability and open access for project results.

Our methods are used to analyze data tracing ancient trade routes - such as Indian Ocean maritime exchanges -

Asia-Pacific Sea Routes

We are looking at a heritage spanning across a range of cultures and languages, and employing GIS tools to produce databases of trade-route sites creating dynamic time maps.

We are evaluating seemingly unrelated heritage factors into interconnected forces and relationships across the Eurasia-Pacific finding that there is a prehistoric and early historical symbolic continuum from ancient times.

We are looking at commonality of symbols and motifs in the Eurasia-Pacific unconscious heritage of cultures tracing original source data from prehistoric linkages into the realm of early connections traced through nomadic legends to sea nomads.

Case studies are based on theory and practical applications supporting holistic approaches to understand popular beliefs as phenomena contributing to cultural stability across vast regions of cultural diversity.

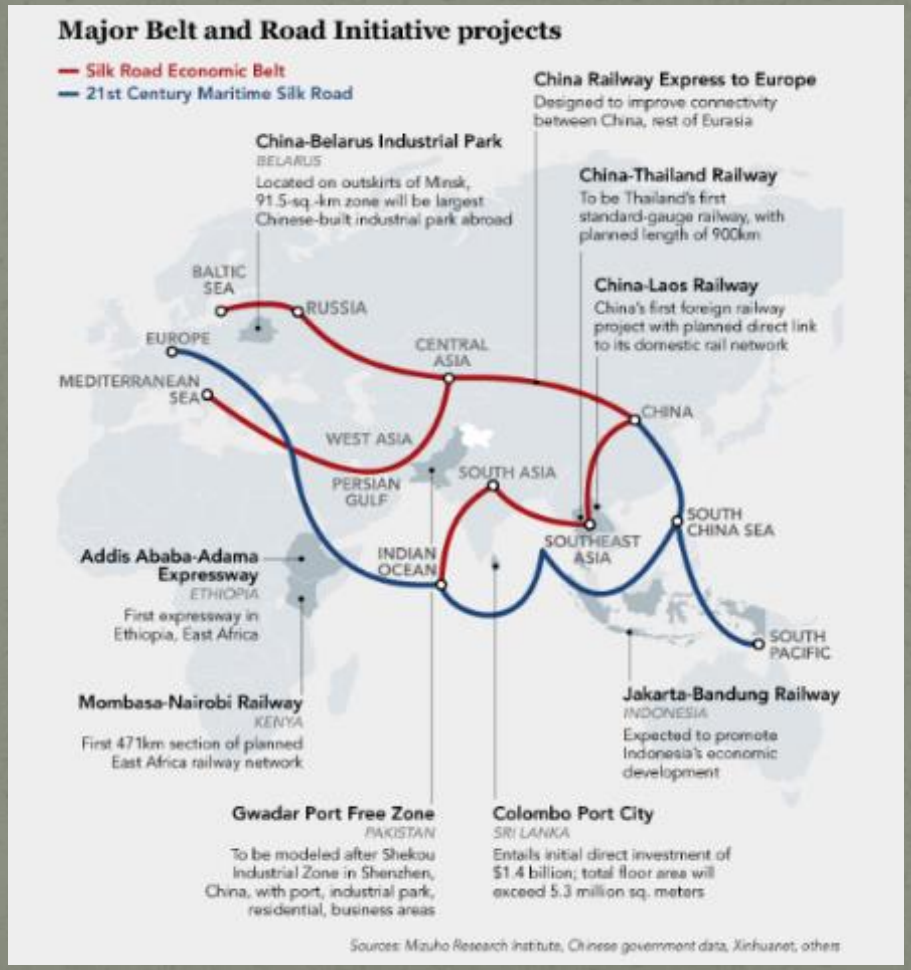
Again this a pertinent and timely thesis in our modern times, when the Chinese state has recently picked up part of this sphere with the initiative ‘Belt Road’ based on the paradigm of the historical land and maritime routes of economies, cultures, and religions.

Why is it important today?

These cultures are traced to prehistory before the concept of Europe and China in a continuum of prehistoric networks to the present.

Da Hsuan Feng. 2017. Cultural communications challenge, opportunity of the 'B & R'. *Chinese Social Science Today*. April 13: 4.

Belt Road Research Area



BALTIC SEA
RUSSIA
EUROPE
MEDITERRANEAN SEA
CENTRAL ASIA
China-Laos Railway
China's first foreign railway project with planned direct link to its domestic rail network
CHINA
WEST ASIA
PERSIAN GULF
SOUTH ASIA
SOUTH CHINA SEA
SOUTHEAST ASIA
INDIAN OCEAN
Addis Ababa-Adama Expressway
ETHIOPIA
First expressway in Ethiopia, East Africa
SOUTH PACIFIC
Mombasa-Nairobi Railway
KENYA
Jakarta-Bandung Railway
INDONESIA

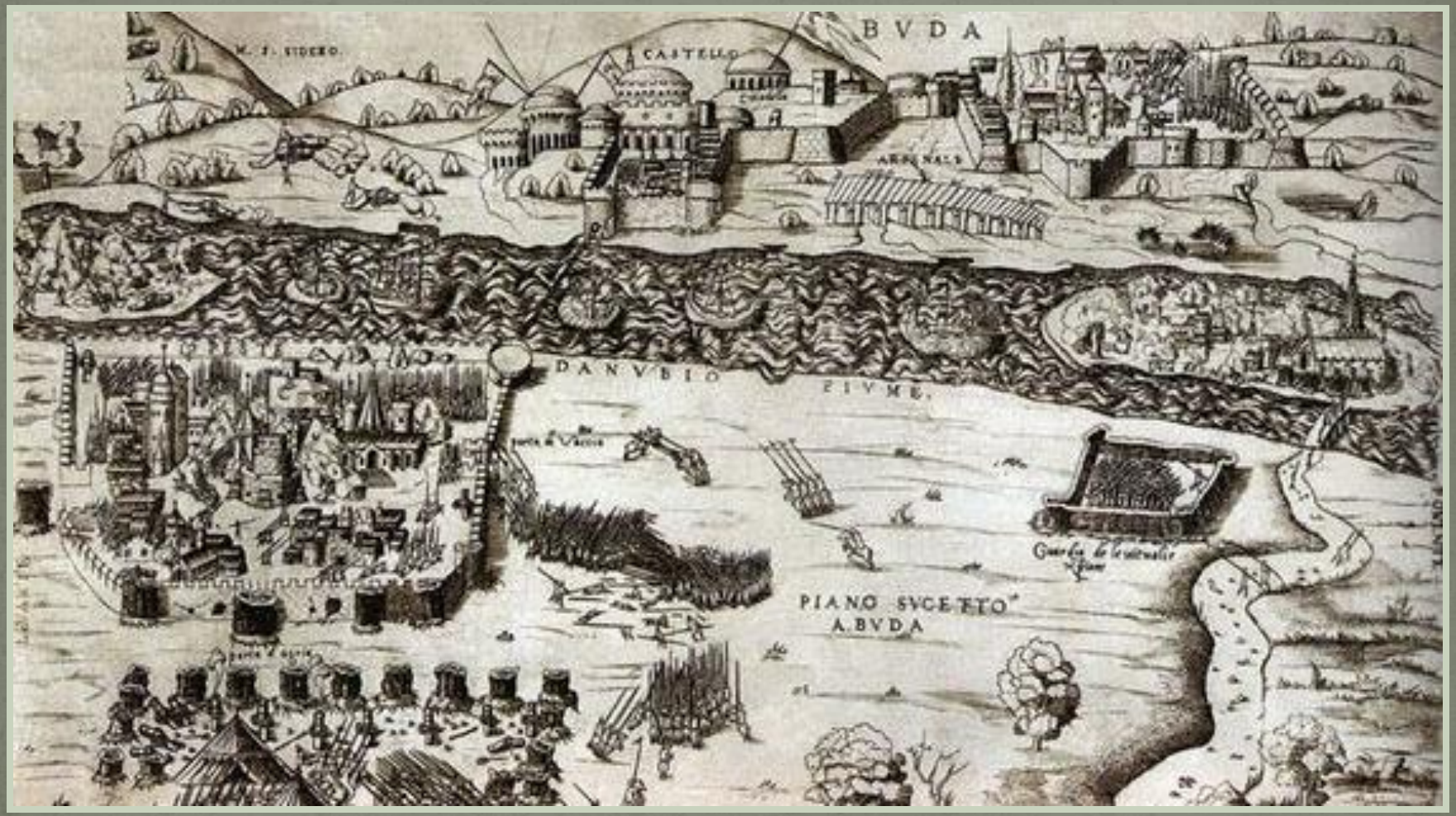
As nations contest history in the present for its interpretation of the past,

we have shared heritages acting as tools in a process across space and time for making sense in daily life.

Our emphasis here is to revisit the uniqueness of the ancient cultures, yet having a sense of interacting with common denominators based on motifs, beliefs, and symbols.

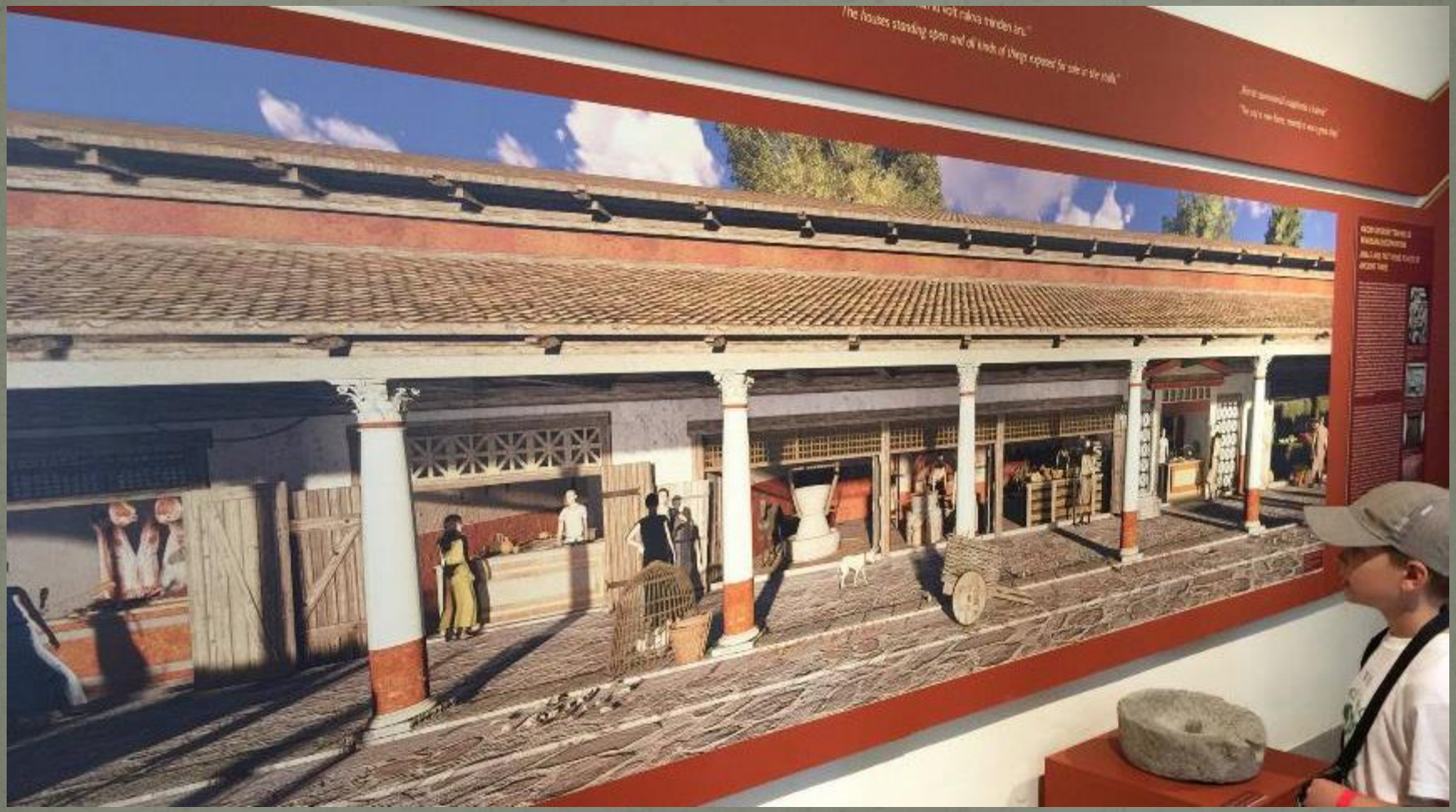
These created rich a tapestry of identifiable unique, yet connected, peoples.

Budapest



Aquincum

From the first to fifth centuries, western Hungary was part of the Roman Empire. Aquincum, the ancestor of Budapest, played an early important role connecting Europe with Asia.



Tradesmen were also craftsmen, transporting their unique wears to marketplace. Precious stones and artwork such as Scythian-style animal forms of the steppes were traded along with woven textiles and fired porcelains dating back more than 2000 years ago.

Eurasia-Pacific

We envision multi-cultural models, as people of one culture acknowledges another culture moving in circulation moving ideas, knowledge, and goods.

The Hungarian plains to the Ukraine and continuing to East Asian ports in Korea, river systems across China and Southeast Asia, and navigating to Pacific island systems, and returning.

This phenomena exemplifies the importance of the myriad of separate cultures interacting and creating synergies of linkages in their time.

It is about Model Making

Our model requires spatiotemporal GIS mapping of data over a long range of expansion: trans-regional, cultural and linguistic interactive, economically traded, technological innovation, and spreading networks before modern

nation-state building.

Our Asia-Pacific SpatioTemporal Institute (ApSTi) helps with new methods of integrating primary source materials into crosswalks of interactive visualizations.

Forest Environment

APSTI

facilitating capacity building and innovative ways of sharing information by digital methods for visualizing spatiotemporal aspects of human experience

Our Aim

ApSTi is interdisciplinary to produce narratives from historical records and locations for recounting cultural transmissions, aesthetics, and trade partnerships.

Projects

Mutually integrated elements of data seemingly unrelated, yet connected contribute to a holistic digital spatiotemporal cultural atlas.

Through mapping, we can visualize cultural and religious networks.

Finding Linkages with –

Ships & Navigation Routes –

Routes & Timelines –

Seasonal Trade Winds –

River Estuary Ports –

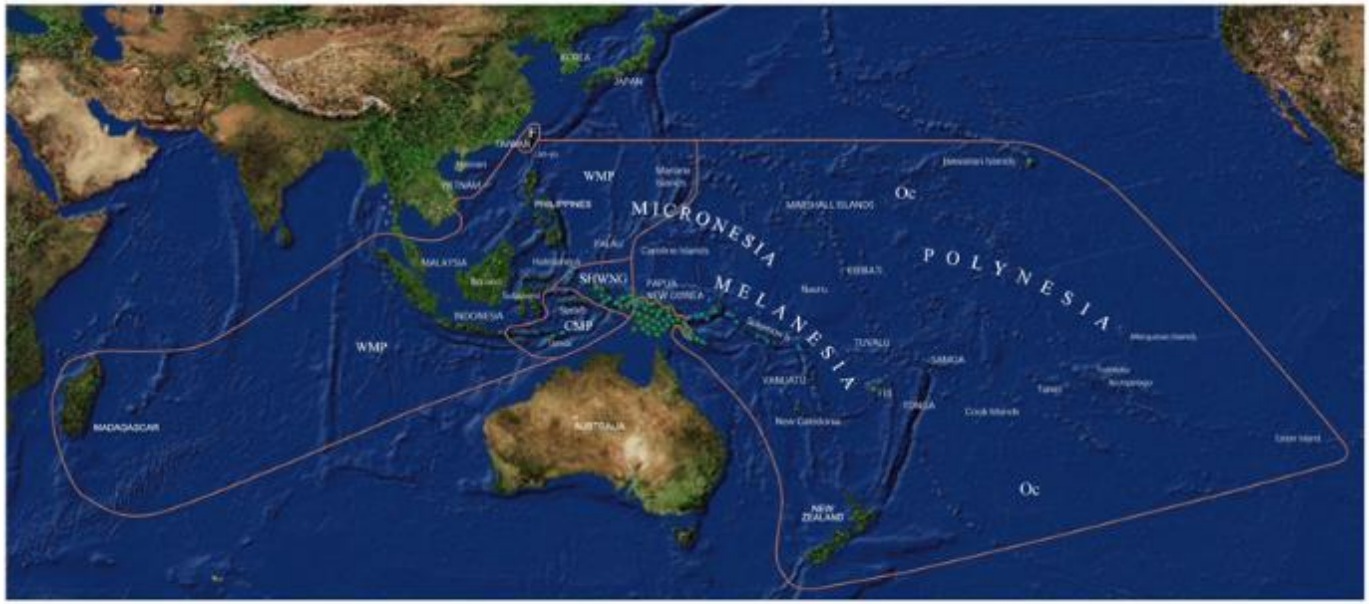
Voyaging Merchants & Monks –

Early Historical Stories –

Archaeological Sites –

Austronesian Navigation

Network of Resources



Key to the Austronesian Language Map

F	Formosan Languages
WMP	Western Malayo-Polynesian Languages
CMP	Central Malayo-Polynesian Languages
SHWNG	South Halmahera West New Guinea
Oc	Oceanic Languages
	Papuan Languages

Structure of the Austronesian Language Family

AN	Austronesian Language Family
F	Formosan Languages
MP	Malayo-Polynesian Languages
WMP	Western Malayo-Polynesian Languages
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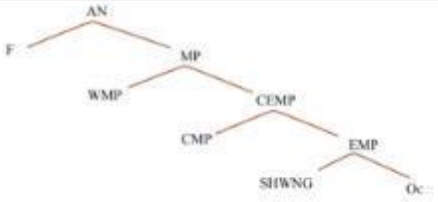


Figure 1
Distribution of the Austronesian Language Family and Major Subgroupings. Adapted from the Research School of Pacific and Asian Studies, National Australian University. Structure of the Austronesian Language Family from Blust.

Examples in Digital & Spatial Humanities

1. Use of Google Earth

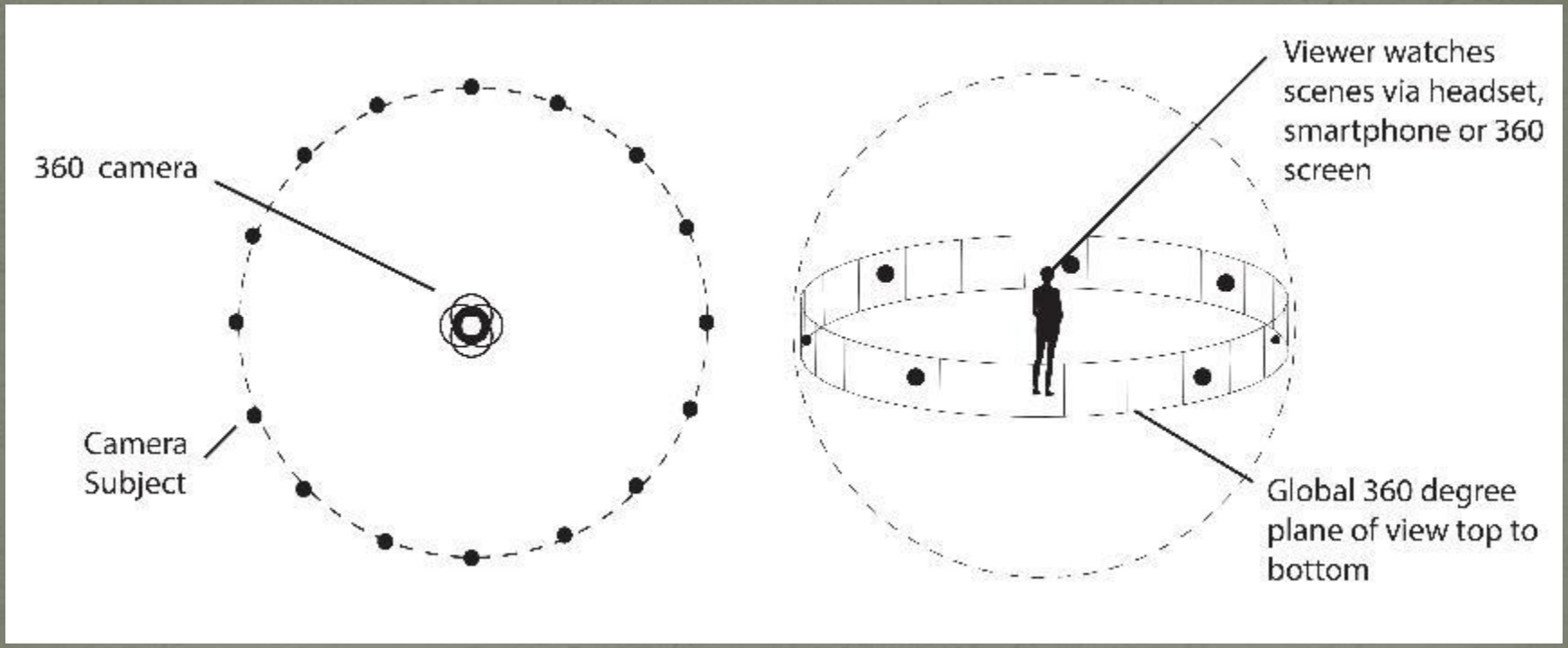
2. Maritime Sites

3. Observing with Virtual Reality

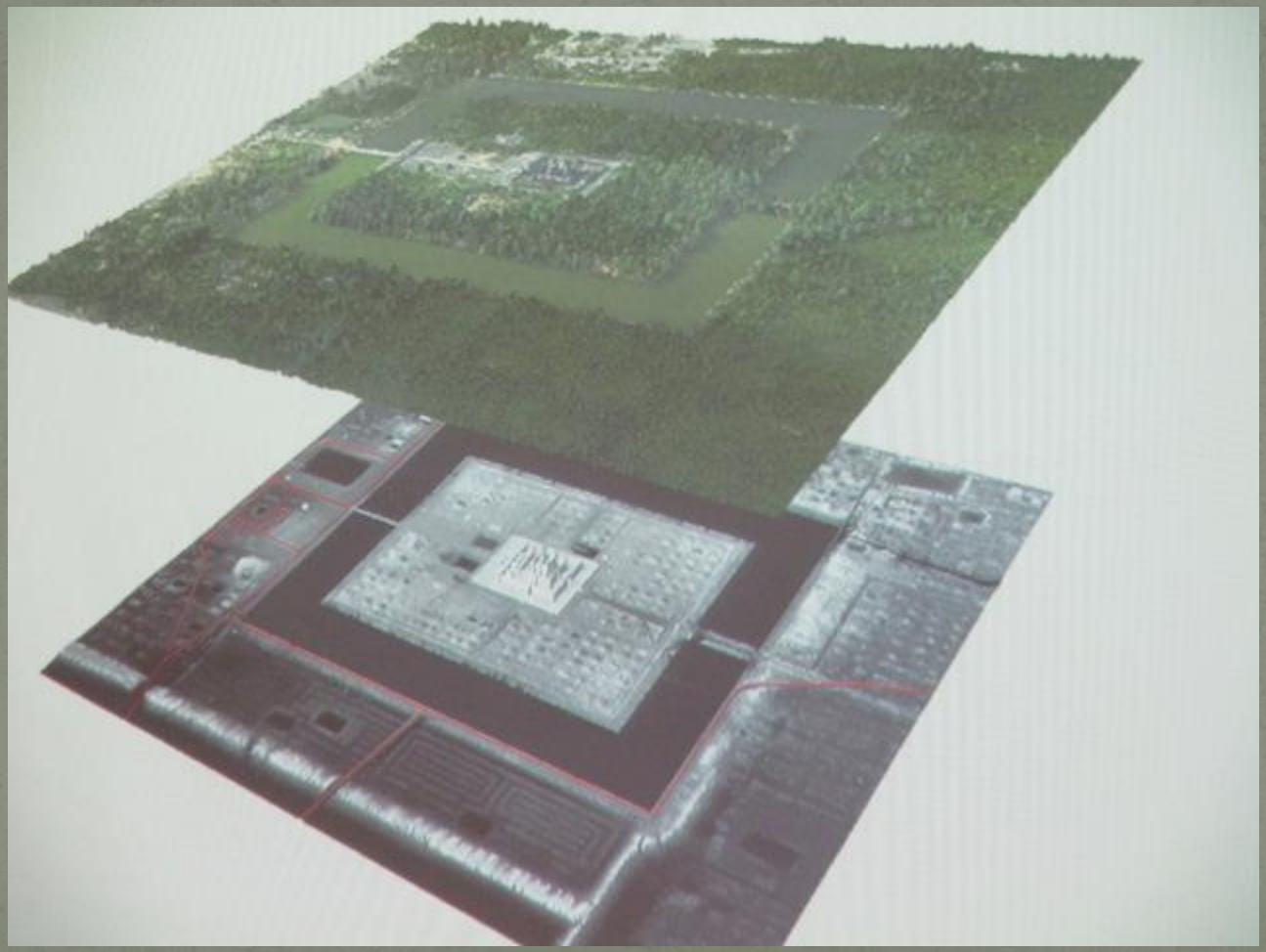
4. 360 Surround Immersive

360 degree view Sanhsia Tsu Shi Taoist Temple in New Taipei City, Taiwan

Visitors are placed around the 360-degree camera in circular compositions thus giving the viewer a privileged perspective within the action of each scene.



5. Survey by Remote Sensing

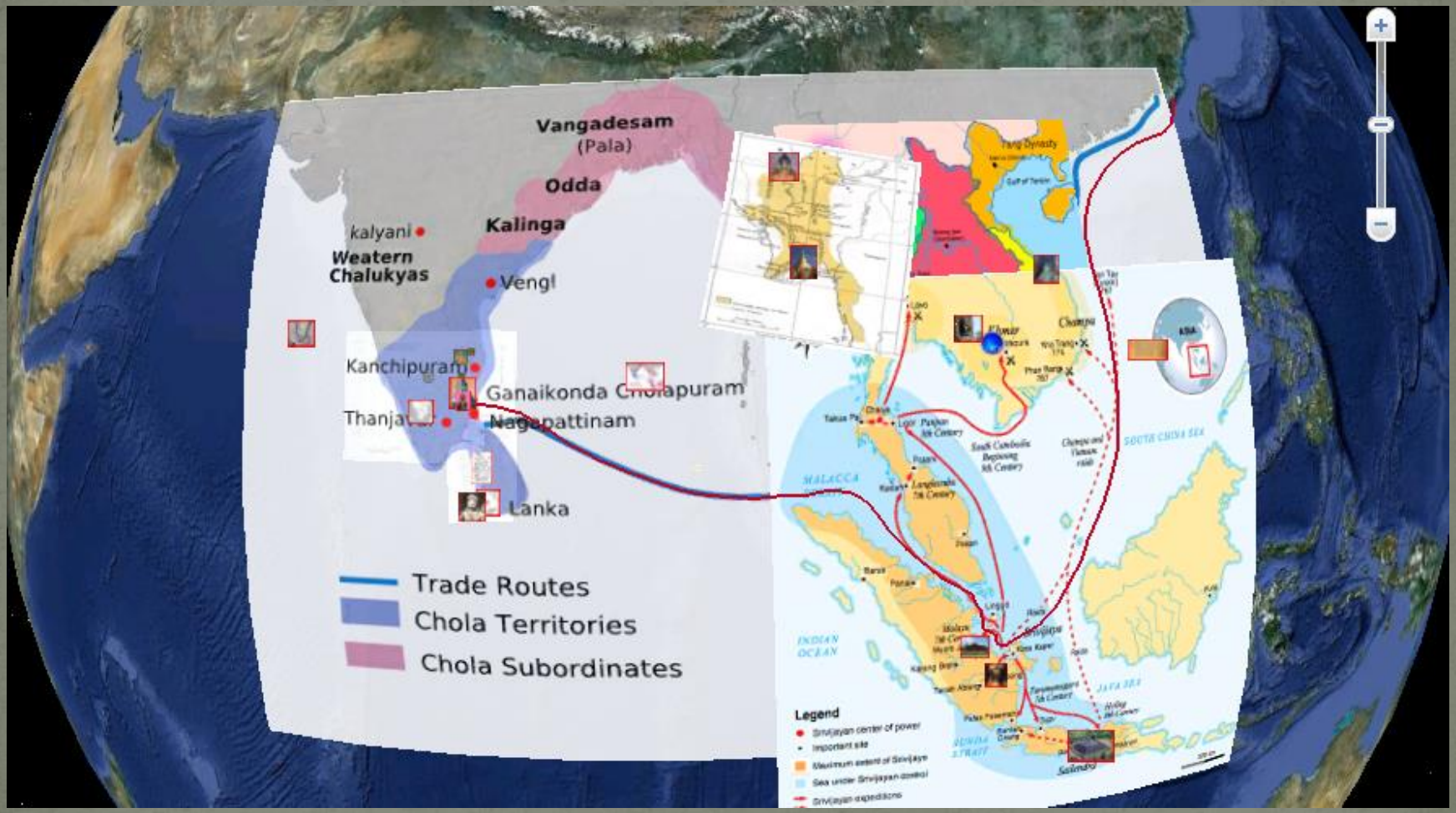


6. Time-enabled Map Displays

This enables display of multiple language area boundaries including contemporary languages areas.

It uses dynamic map display techniques capable of visually showing change.

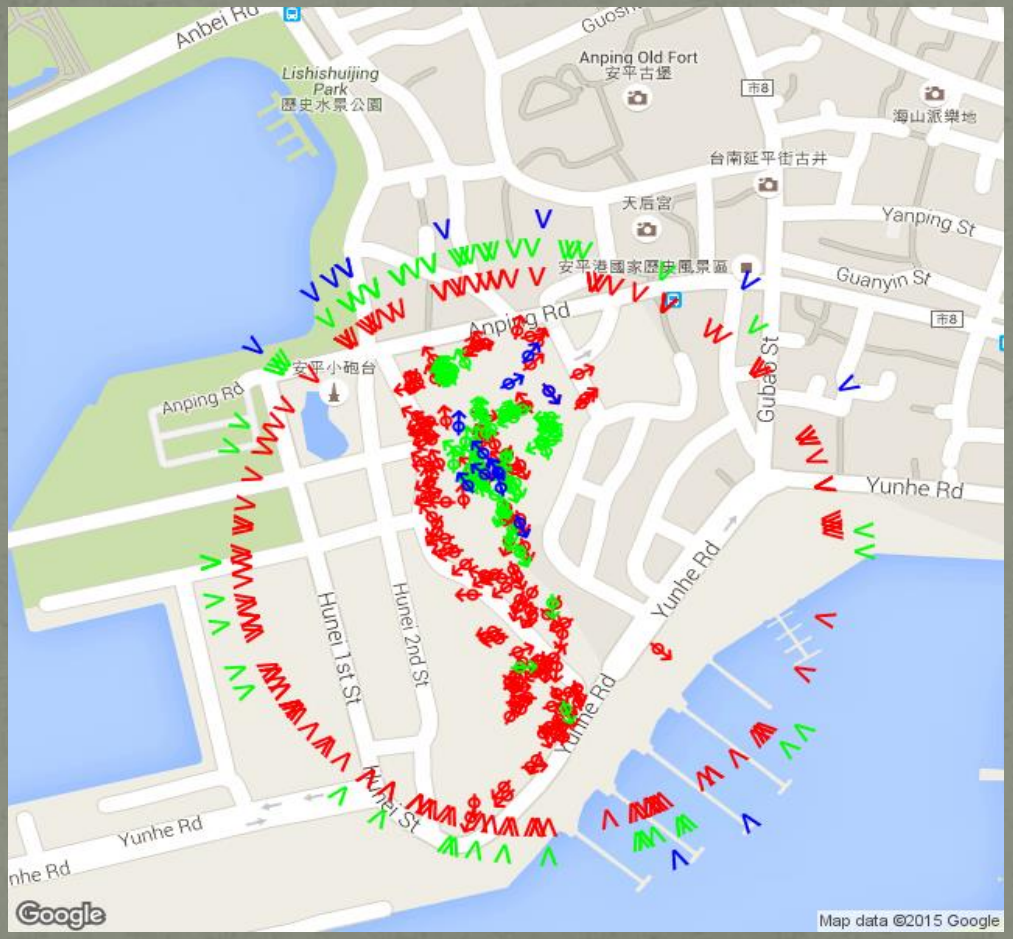
7. Map Overlays



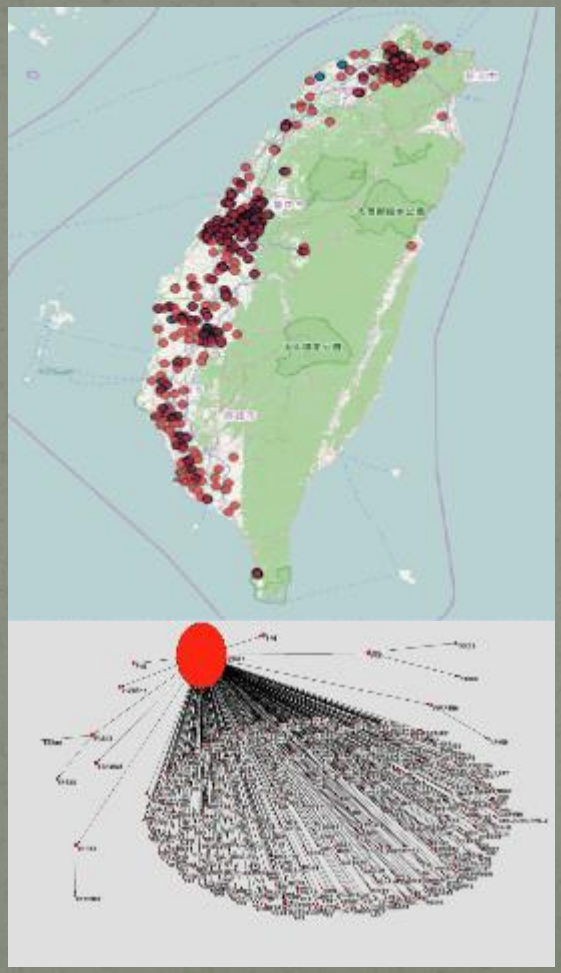
8. Early Maps

What We Research

Tombs


Anbei Rd
Lishishuijing Park
歷史水景公園
Anping Old Fort
安平古堡
市8
海山派樂地
台南延平街古井
天后宮
Yanping St
安平港國家歷史風景區
Guanyin St
Anping Rd
安平小砲台
Anping Rd
Gubei St
Yunhe Rd
Hunei 1st St
Hunei 2nd St
Yunhe Rd
Yunhe Rd
Google
Map data ©2015 Google

Religious Networks

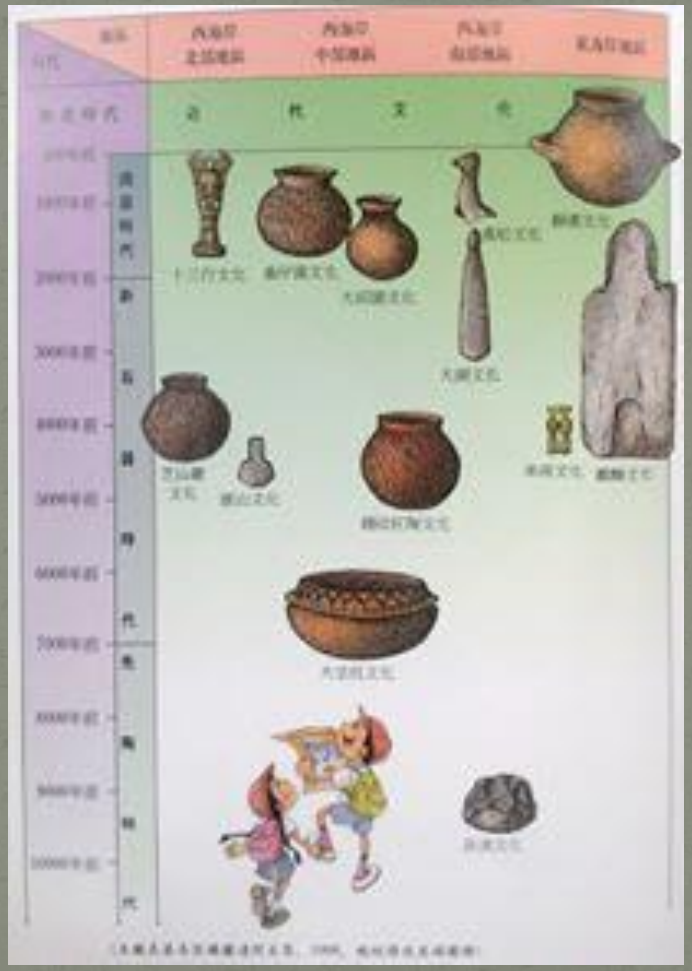


Diversities of Peoples & Cultures

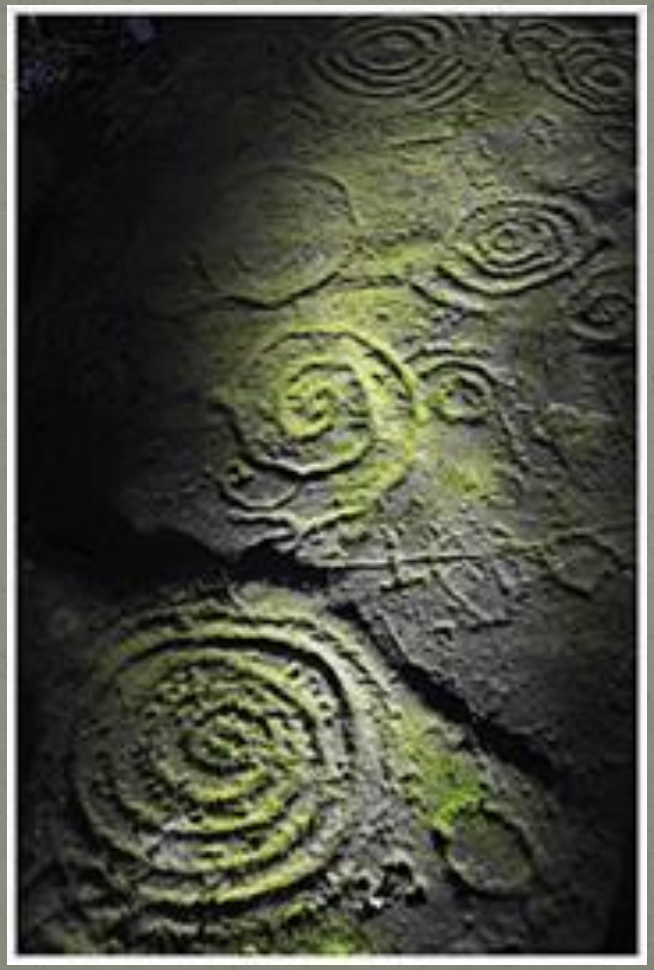
Early Trade

Crafts

Archaeological Cultures



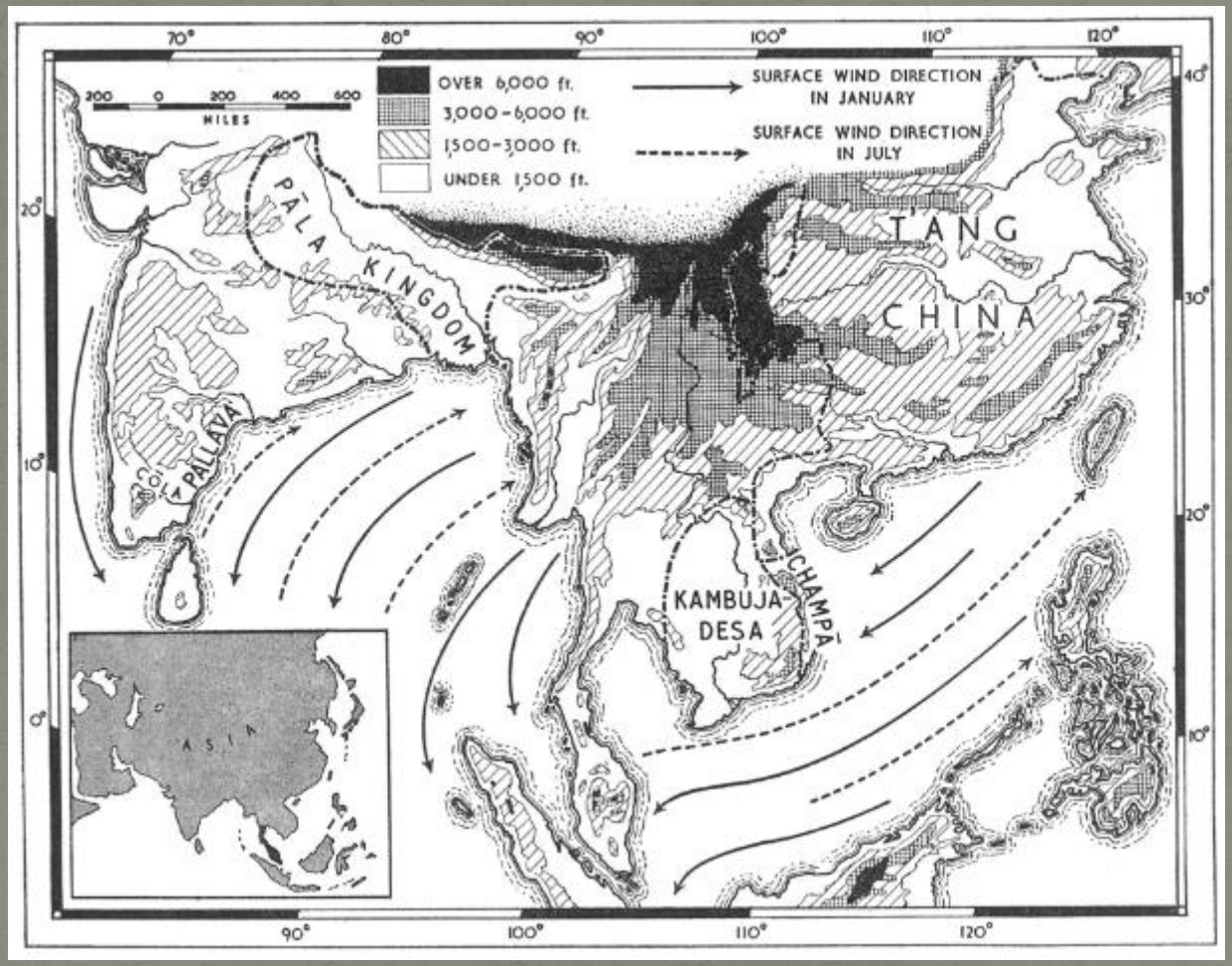
Symbols



Totems

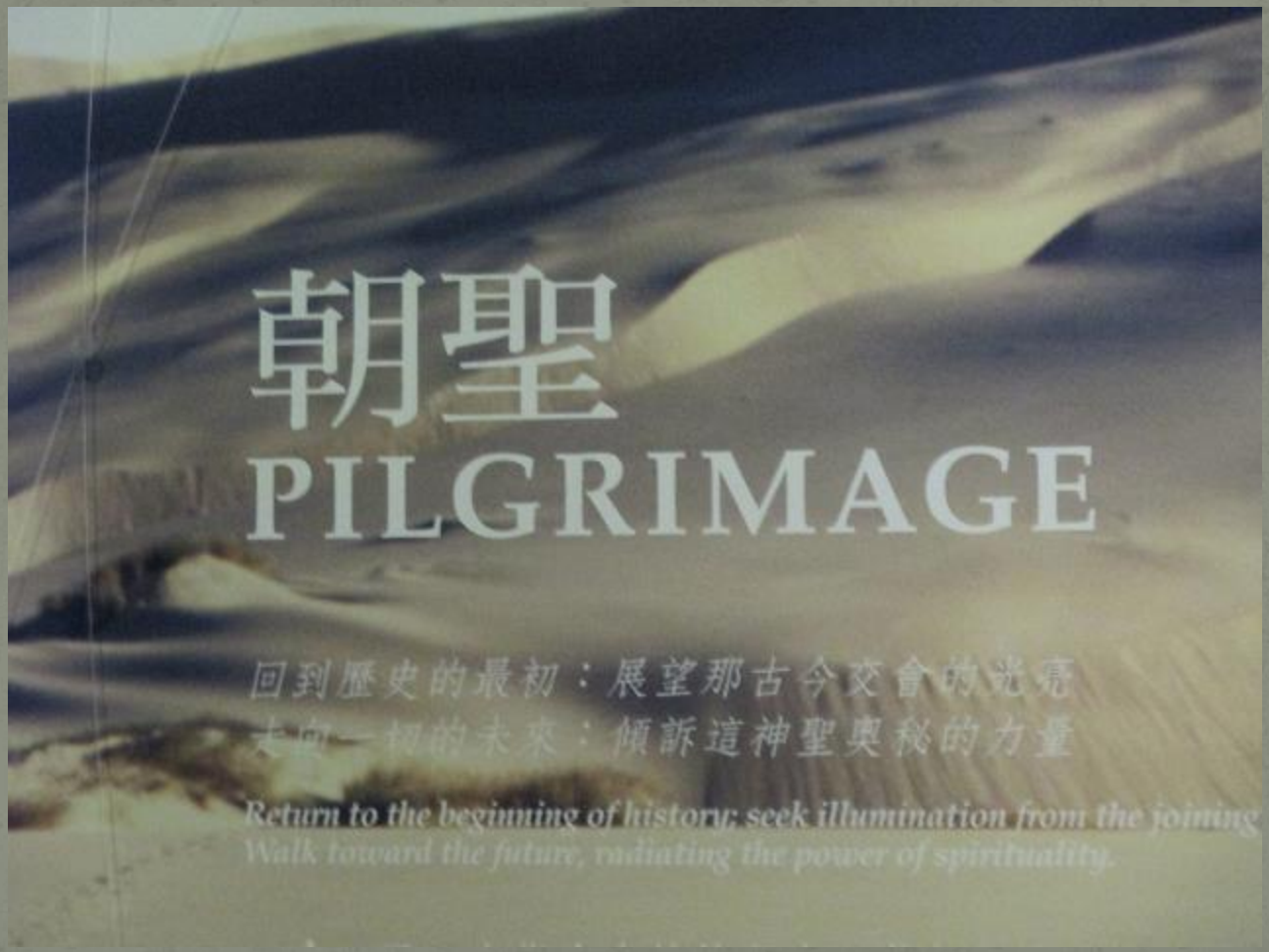
Seat (Authority), Tree, Sun or Star

Winds Patterns



Navigation

Beliefs Circulated by Ships


朝聖
PILGRIMAGE
回到歷史的最初：展望那古今交會的光亮
Return to the beginning of history; seek illumination from the joining

Respect for Literacy

ATLAS OF

Maritime Buddhism

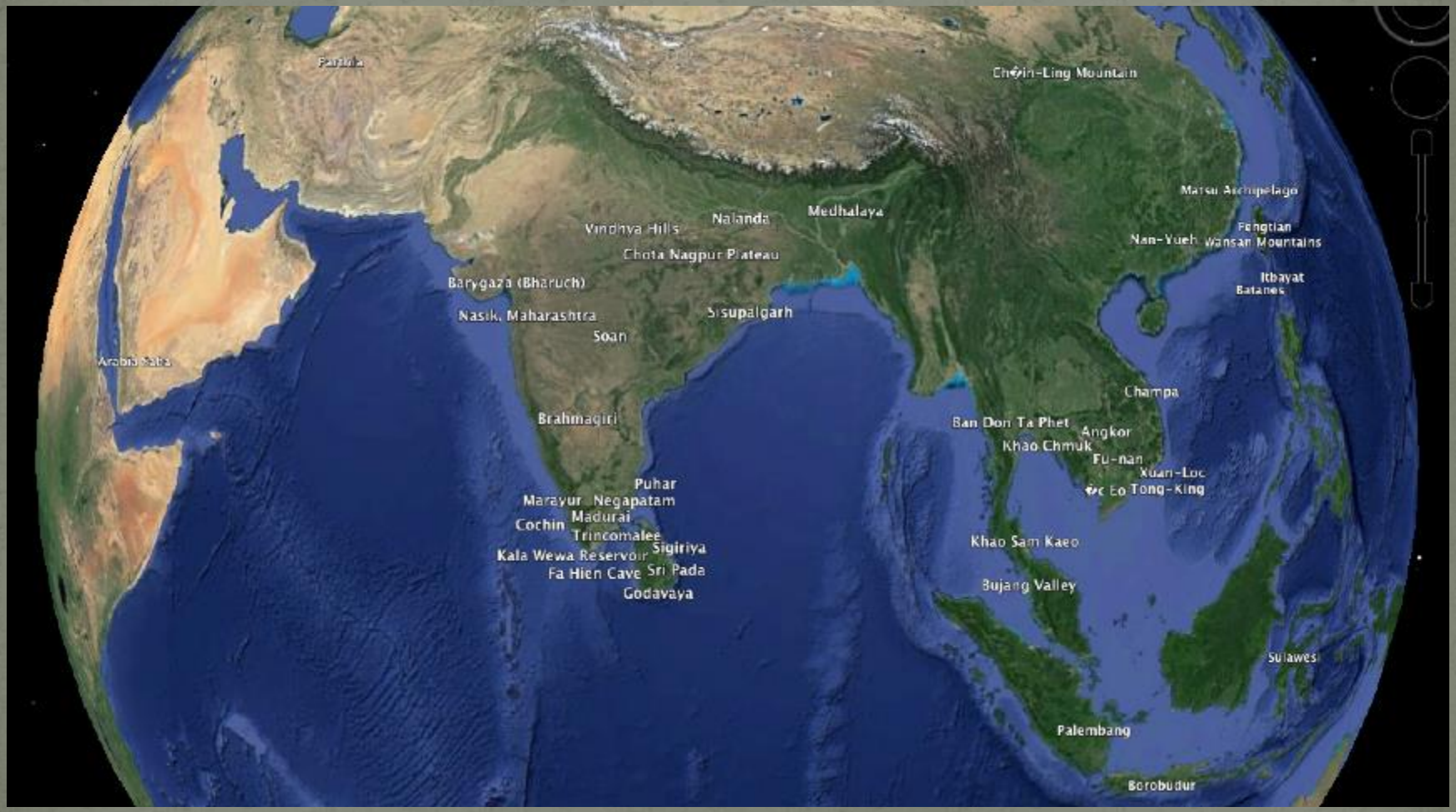
ELECTRONIC CULTURAL ATLAS INITIATIVE

Electronic Cultural Atlas Initiative (ECAI) Austronesia Team

Interactive Mapping of Austronesia from Cultural Resources to Integrated Systems

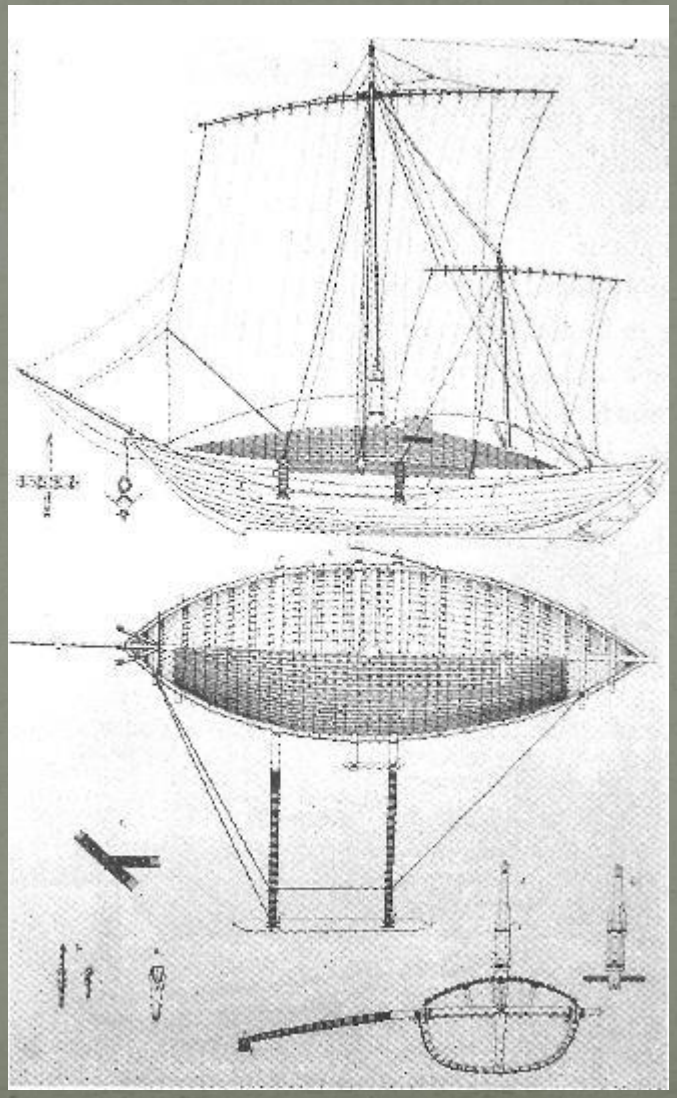
Lewis Lancaster

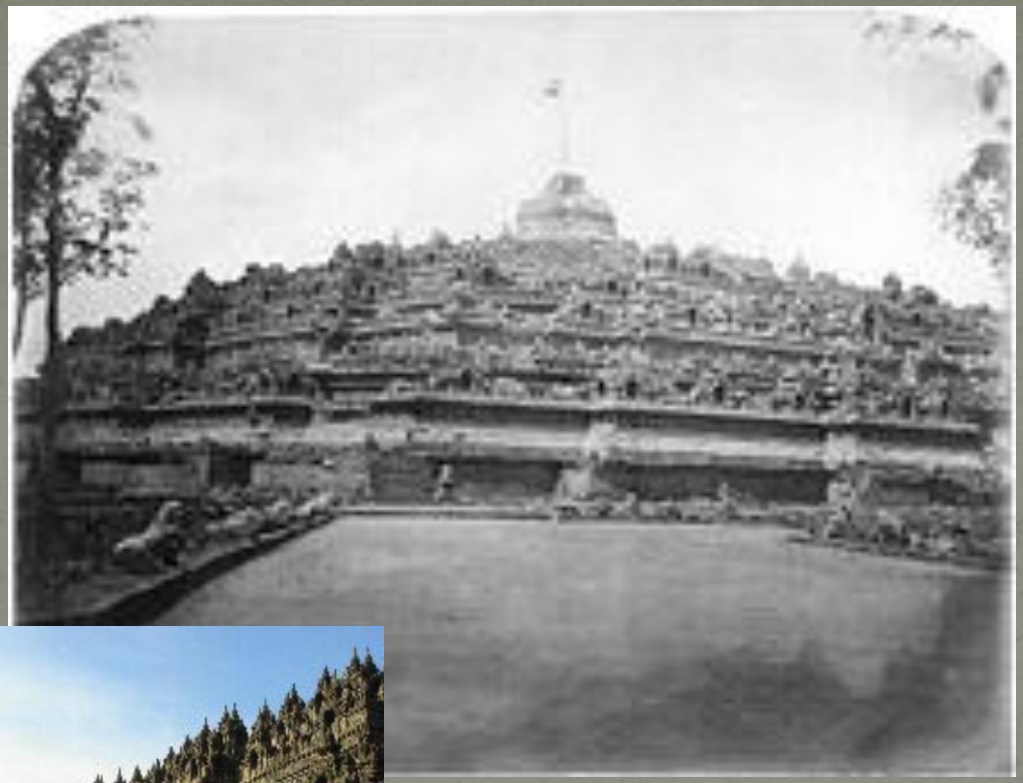
ECAI Research Sites of Religious Networks & Navigation



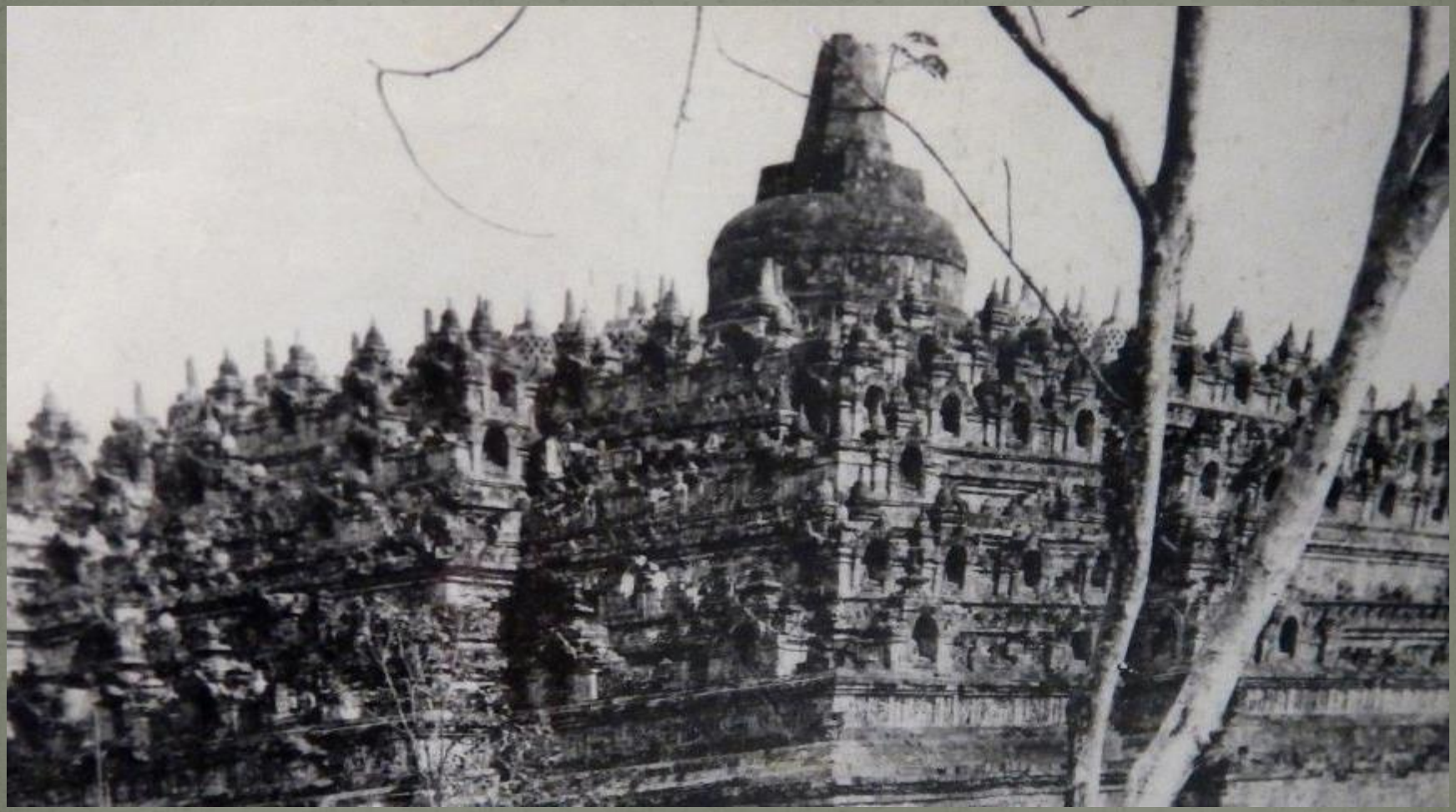
Candi Temple Sites in Island Southeast Asia (Hindu, black. Buddhist, red)

Oru





Borobudur, is a 9th century Buddhist monument, Java



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Sulawesi

Enrekang

Sulawesi, Buddhist Points

In Sulawesi, Color-coded Sites

So, we have 5 Buddhist locations identified on the map color-coded.

- Blue – Sempaga, bronze statue
- Green – Wotu, candi
- Red – Bonebone, candi
- Orange – Boku, Marek, candi
- Purple – Benteng, Selayar, bronze statue

Bronzes in Sulawesi

Goals

Far-reaching goals of the work is to further standards and strategies through the utility of digital content and format giving new possibilities for local and international collaborators.

3D mapping could provide new guidance for developing best practice standards applied to databases giving interactive multimedia utility aspects.

This allows uniting the context of environmental landscapes with cultural data for making new enhanced possibilities in spatial humanities with scholarly results.

What is the Worth and Value of Heritage Connections?

We find peoples, have separate, yet related, traditions that include palm leaf and rattan weaving, pottery, metalwork, jewelry, batik, constructing ships, wood and stone carving, and other innumerable crafts for domestic utility and for trade.

Our focus is on heritage, as a cultural resource that defines a people's ethos and facilitates consciousness of a spatiotemporal area to communicate with others.

Thus defining a "sense of place."