



*Indian Ocean World Centre*

## **East Africa and Early Trans-Indian Ocean World Interchange**

International Workshop  
21-22 November 2013  
IOWC, McGill  
Montreal

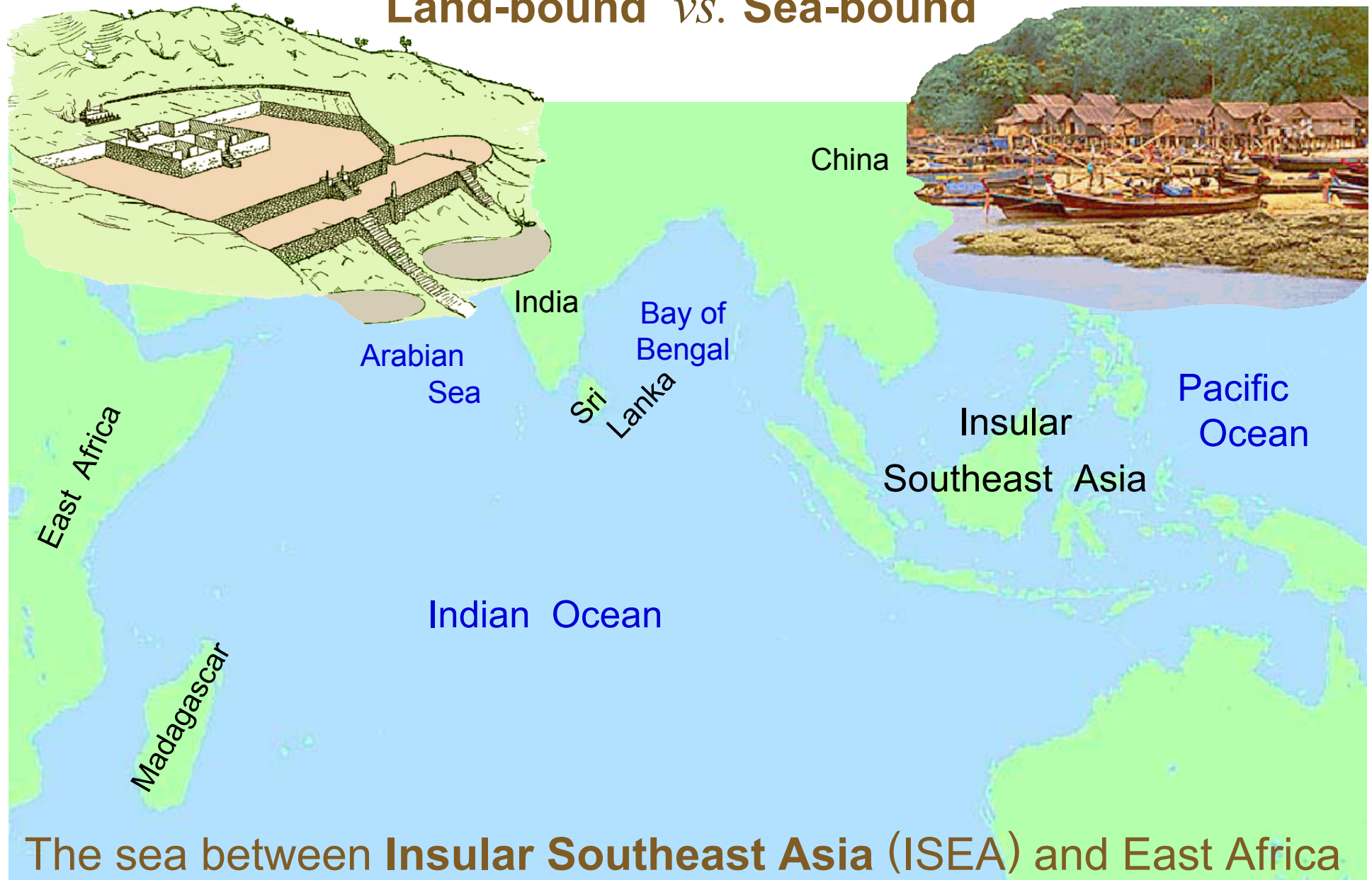
## **Origins of Southeast Asian Shipping and Maritime Communication across the Indian Ocean**

Waruno Mahdi

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Fritz Haber Institute, Berlin

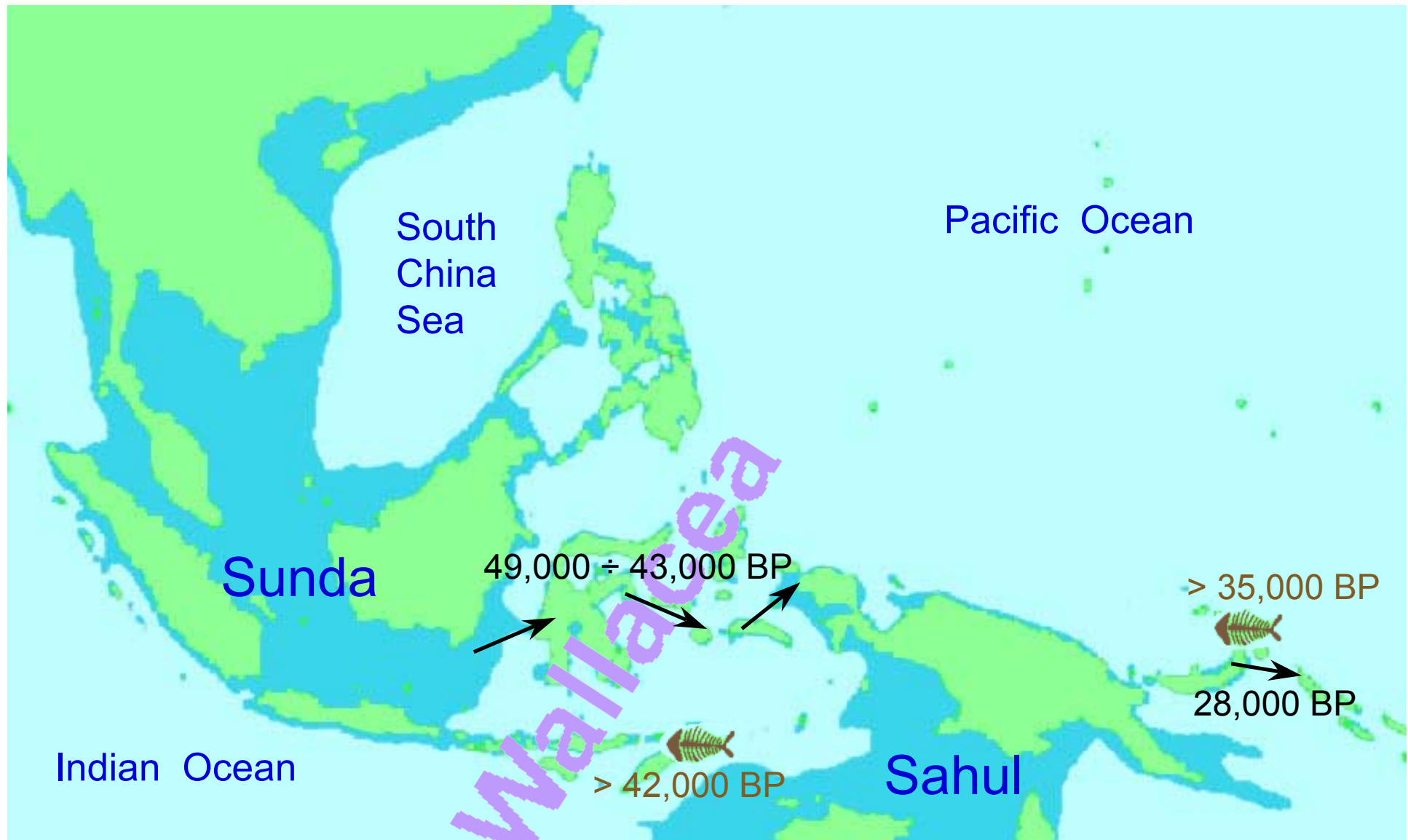
## Land-bound vs. Sea-bound



## Early sailing routes attributed to Malay shipping

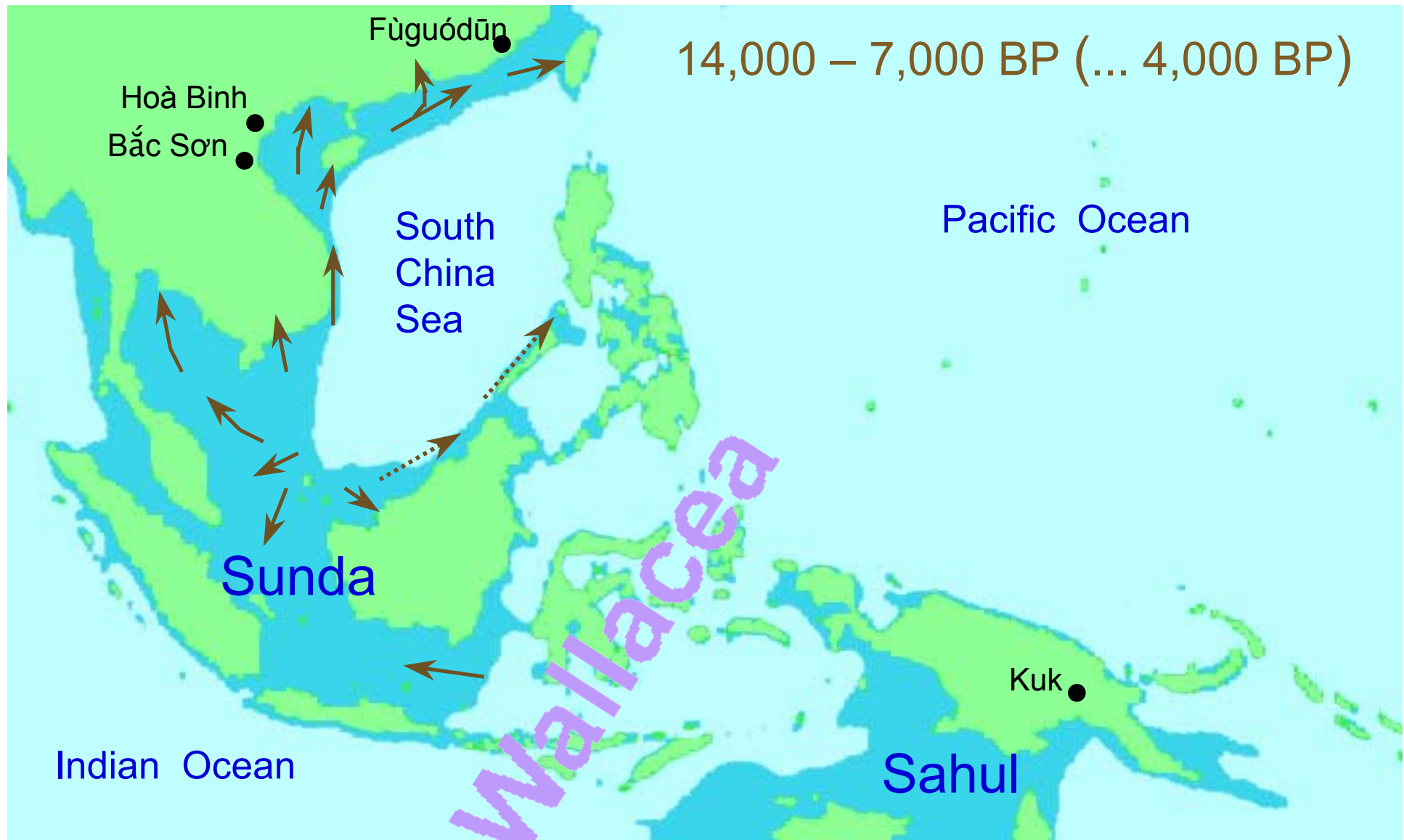


## Sea crossings to and beyond Sahul, and high-sea fishing



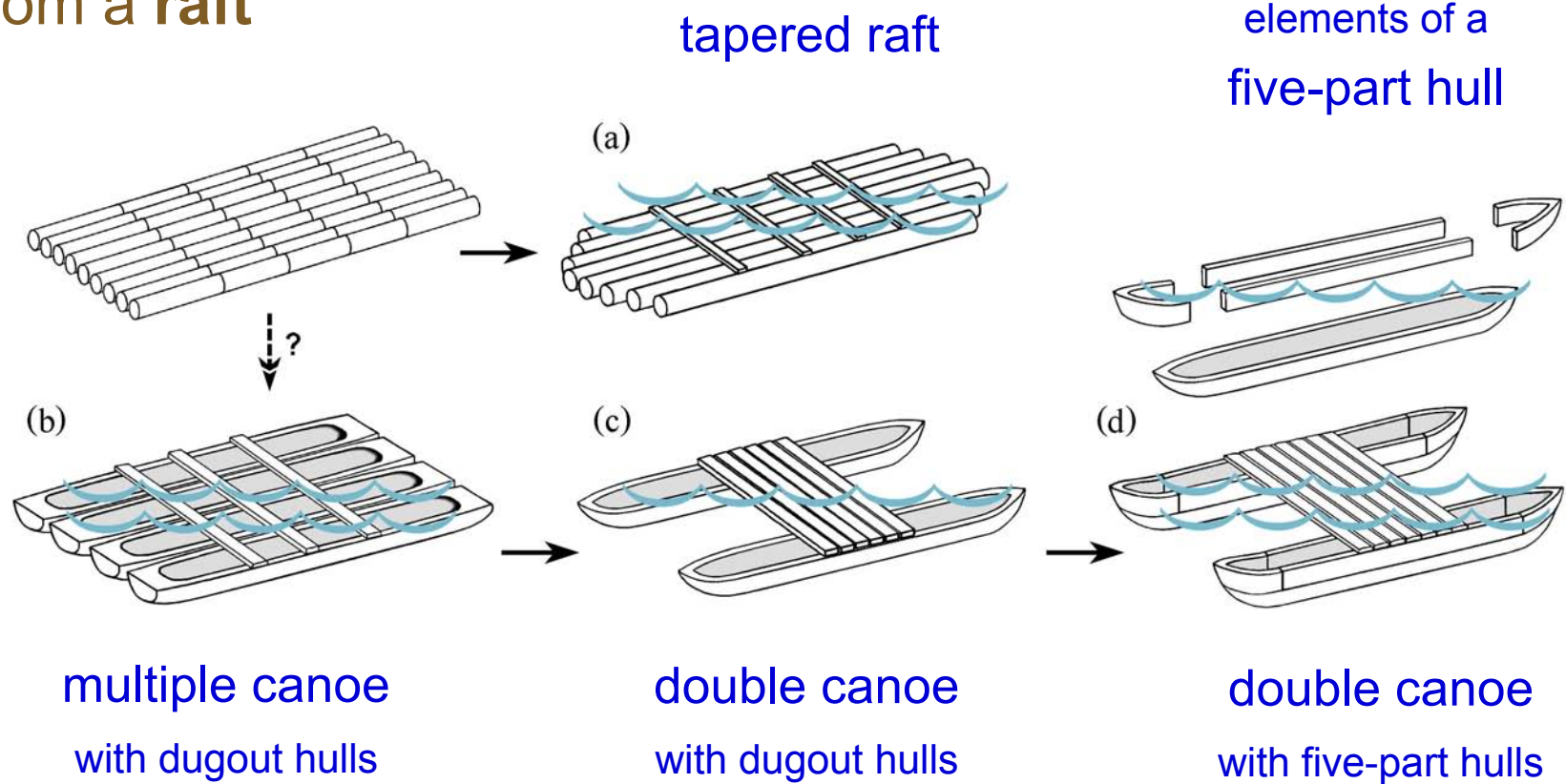


# The **rising sea** and **inundation** of Sunda-Sahul from Late Pleistocene through Middle Holocene



# Primeval developments of **watercraft construction** in ISEA and around the South China Sea

from a **raft**



## Protoforms of words for ‘**person**’ in Austronesian languages

\**qata* > (2) Ata-Manobo *?ata*, (4) Karo-Batak *hata* ~ *ata*, Enggano *ek-aka*,  
(5) Manggarai *ata*, Lio *ata*, (8) Belau *gad*, North Kanak *kac* ‘**person**’;

(2) Samal *ata*, (3) Tombulu *ata*, Muna *gata*, (5) Sumba *ata*, Wetar *ada*,  
(6) Rumakai *ata* ‘**slave**’

\**qaRta* > (2) Casiguran-Agta *agta*, Pangasinan *?ayta*, Isneg, Tagalog *?agta*, West  
Bukidnon-Manobo *agta* ‘**Negrity person**’

\**Cau* > (1) Pazez *saw*, Puyuma *tau*, (2) Tagalog *táo*, (3) Bugis *tau*, (7) Nakanai *tau*,  
Motu *tau*, (8) Fiji *tau*, Futuna *tau* ‘**person**’

\**Cau ma-qata* > (3) Sangir *taumata*, Ratahan *tomata*, (6) Paulohi *tamata*, Yamdena  
*tomwate*, (7) Sobei *temto*, Mussau *taumata*, (8) Fiji *tamata*, Samoa *tanata*  
‘**person**’

(1) Taiwan; (2) the Philippines; (3) Sulawesi & surroundings; (4) west of Sulawesi;  
(5) Nusa Tenggara; (6) Maluku; (7) West Papua & Papua-New Guinea; (8) Further Oceania

# Development of the Chinese **junk** from a **double canoe**

Early forms of the Chinese-script radical 舟 *zhōu* 'boat'

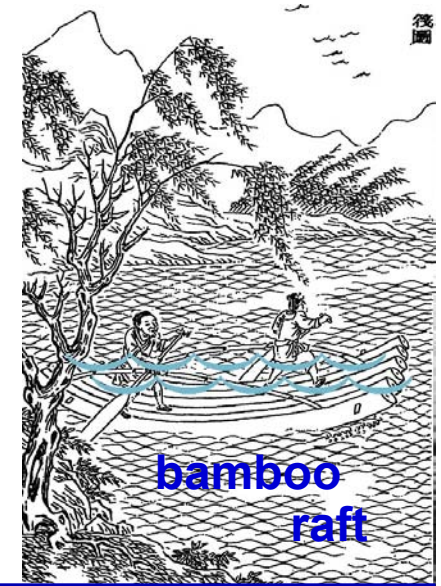


Late Shang (Yin) bone,  
1300 – 1046 BCE

Eastern Zhou bronze,  
770 – 250 BCE

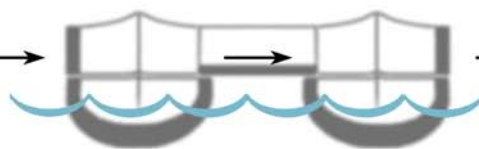
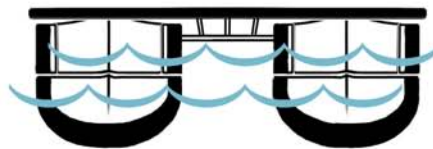
c. 100 –  
– 1000 CE

more  
recent



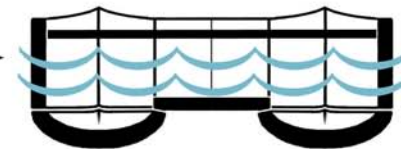
double canoe  
with 5-part hulls

(a)

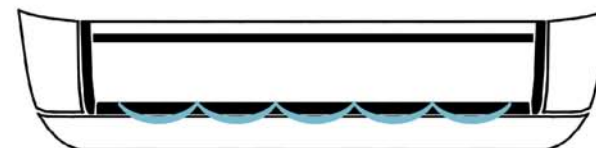


prototypical **junk** without  
longitudinal bulkheads

(b)



(c)





## Words for ‘two boats lashed together’ in Chinese

*fǎng* (舫) ‘two boats lashed together, a large boat, a galley’ (Giles 1912),  
‘*deux barques attachées l'une à l'autre par les côtés, bateau carré*’ (Couvreur 1904) < **EMC** \**puan*<sup>h</sup> < **OC** \**paŋ*;

*háng* (航) ‘two boats lashed together, a large vessel’ (Giles 1912),  
‘*deux barques attachées l'une à l'autre par les côtés, bateau*’  
(Couvreur 1904) < **EMC** \**ɣaŋ*;

*bàng* (傍) ‘two boats fastened side by side’ (Giles 1912);

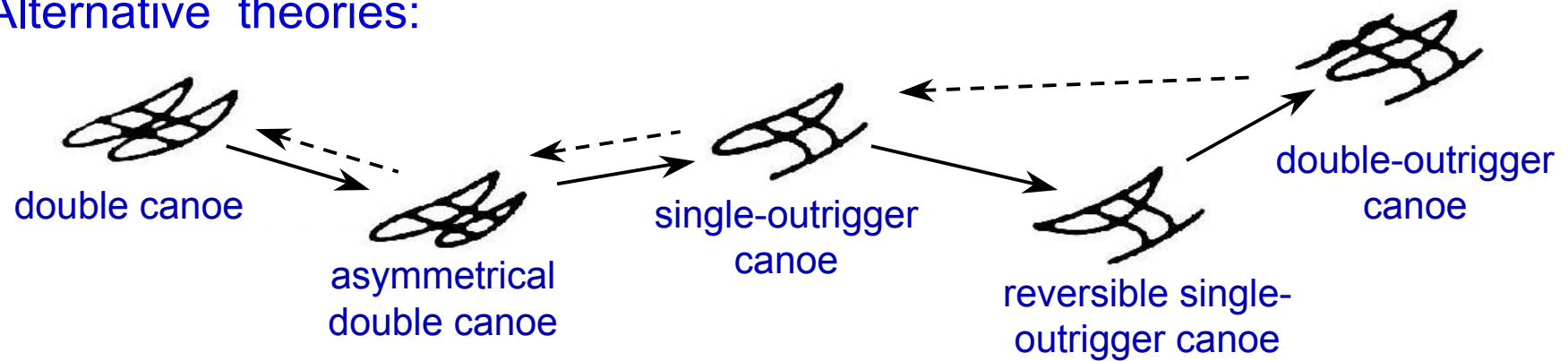
*páng* (𦨭) ‘two boats lashed together, known as 𦨭舡 [*pángxiāng*] or 𦨭艘 [*pángshuāng*],’ (Giles 1912);

*huáng* (𦨭) ‘a fast sailing boat, a ferry boat’ (Giles 1912) ‘*bateau, bac formé de deux barques attachées entre elles par les côtés*’ (Couvreur 1904).

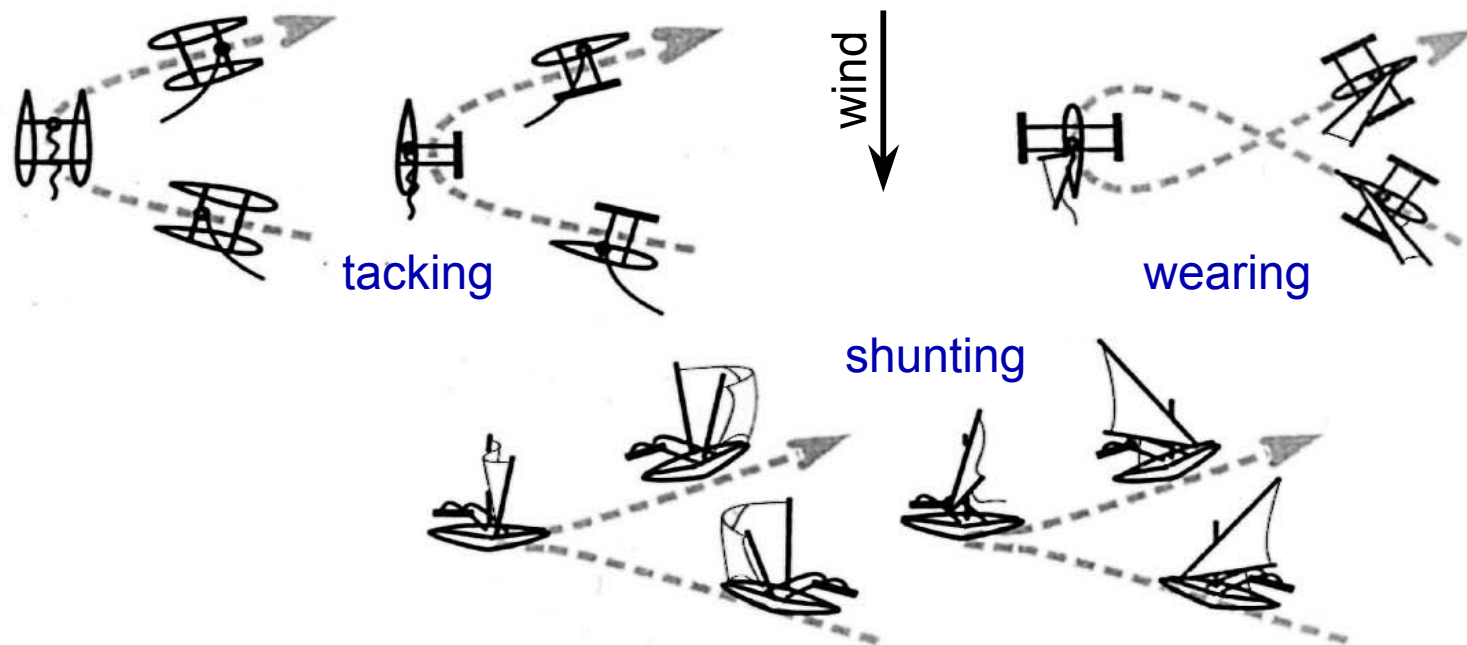
**EMC** = Early Middle Chinese (c. 590–680 CE); **OC** = Old Chinese (c. 770–250 BCE)

# Succession of Malayo-Polynesian watercraft constructions

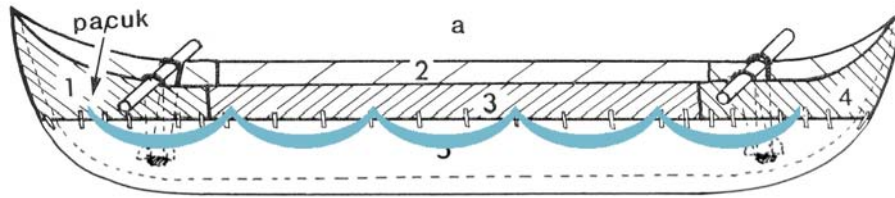
Alternative theories:



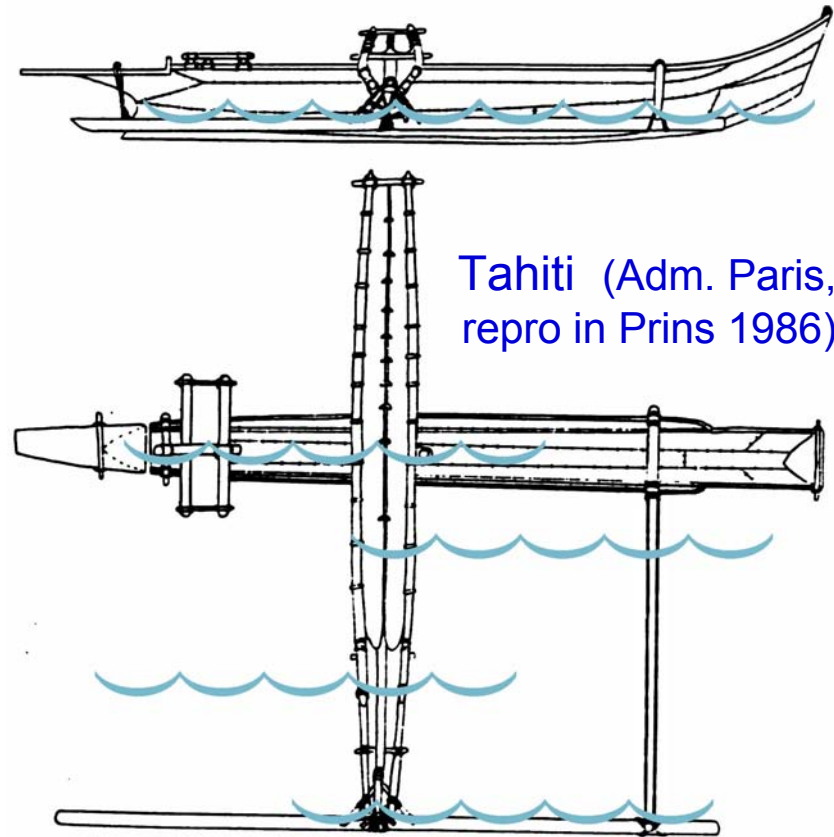
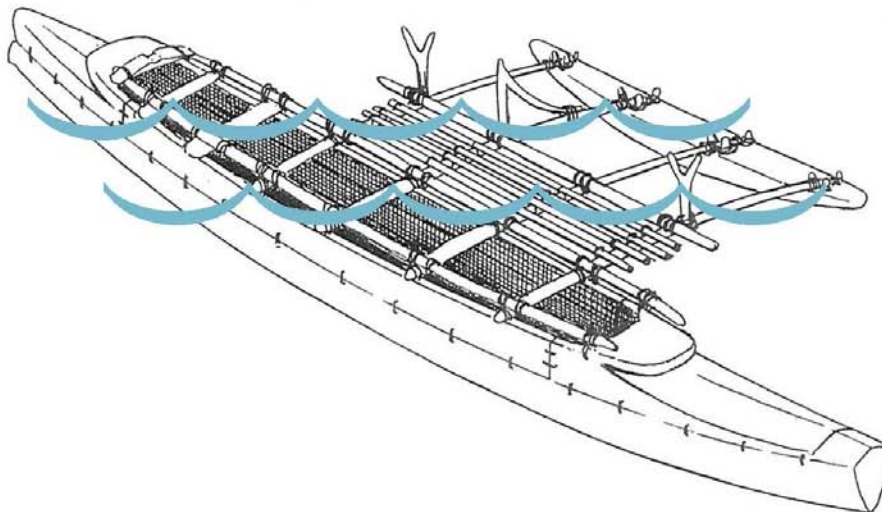
Advancing against the wind:



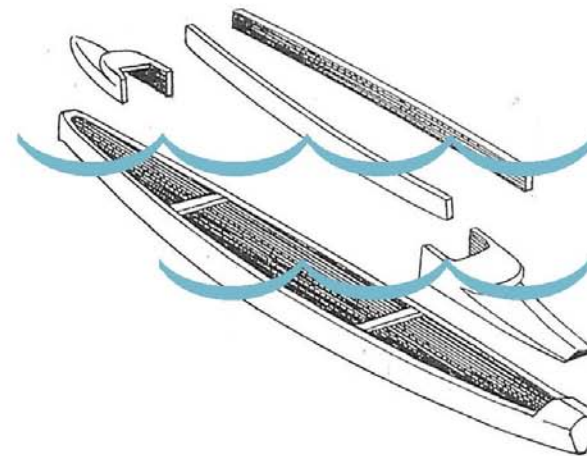
# Examples of **five-part hulls** and more in Malayo-Polynesia



Bali (Horridge 1987)



Tahiti (Adm. Paris,  
repro in Prins 1986)



Tuvalu (Koch 1984)

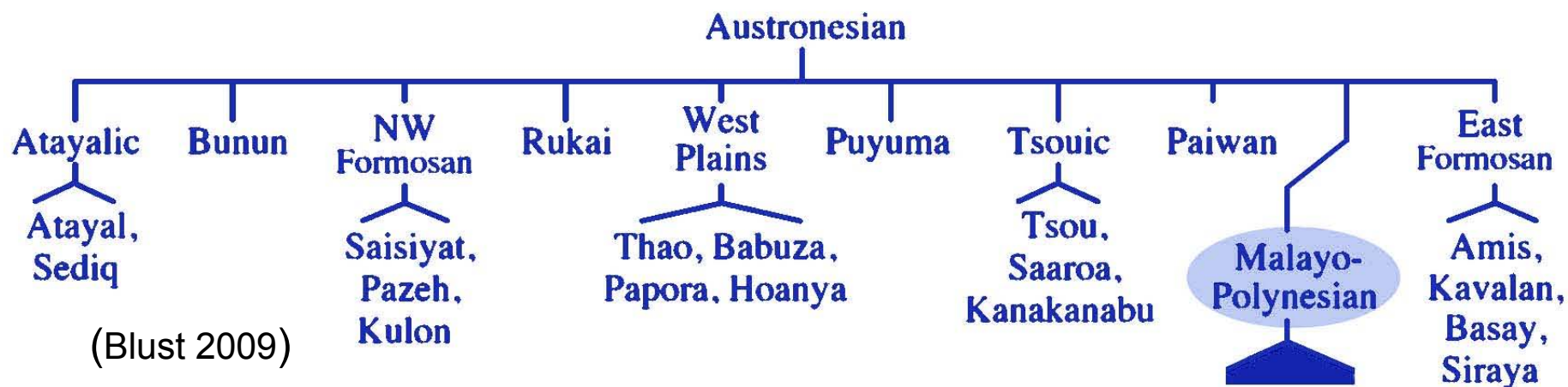
## Protoforms of words for 'boat' in Austronesian languages

*\*qaCu* > (1) Squliq-Atayal *qasu?*, Pazeh *?asu?*, Bunun *hato?*;

*\*qaban* > (1) Kanakanabu *abanu*, Oponohu-Rukai *havanu*, Siraya *avang*,  
(2) Gaddang *?aban*, Tiruray *?awan*, Ilanun *awan*, (4) Mentawai *abak*,  
Moken *kaban*;

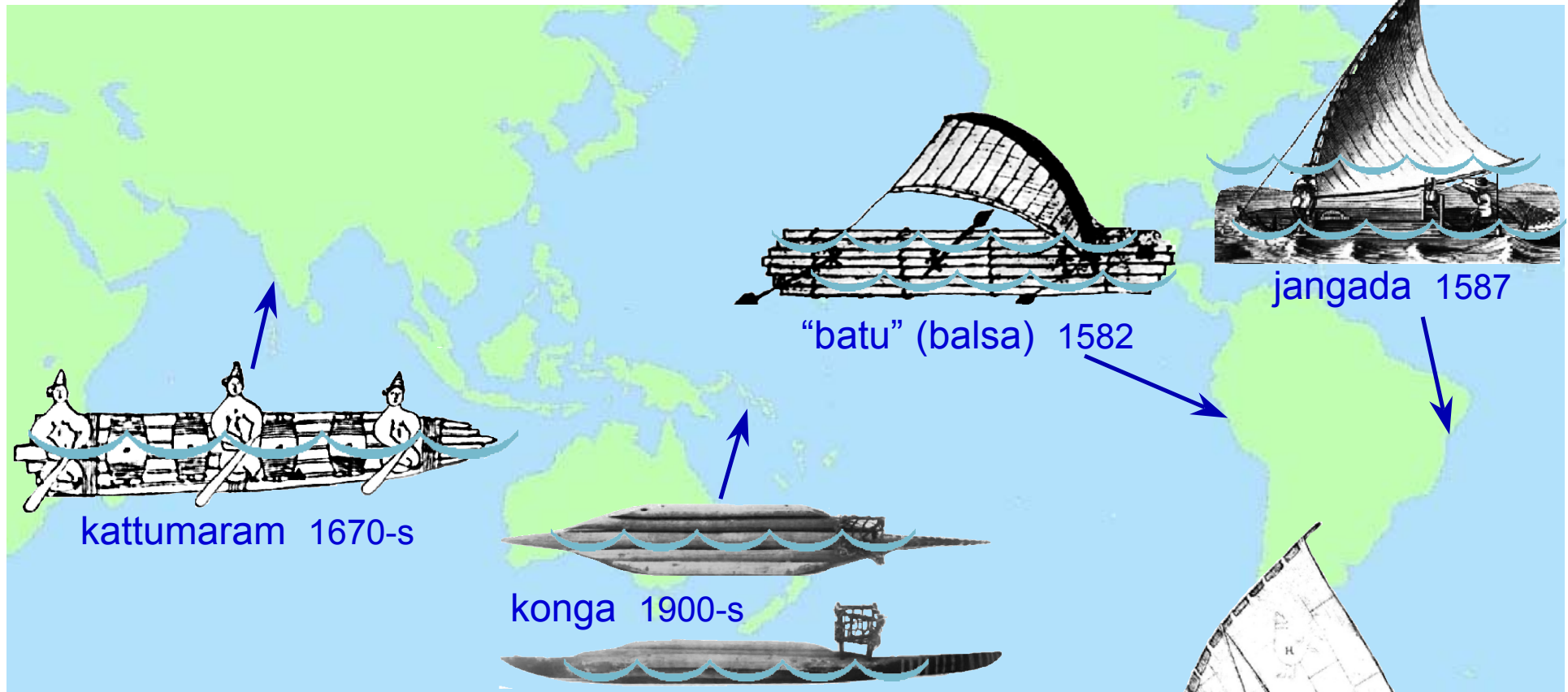
*\*banka?* > (1) Kavalan *banka*, (2) Tagalog *banká?*, Tausug *banka?*,  
(3) Mori, Muna *banka*, (5) Sumbawa *banka* 'boat';

*\*wan̄ka* > (5) Manggarai, Rembong *wan̄ka*, (6) Tifu *waga*, (7) Yautefa *wăgě*,  
Yabem *wan̄*, Suau *waga*, (8) Fiji *wan̄ga*, Tonga *vaka*.

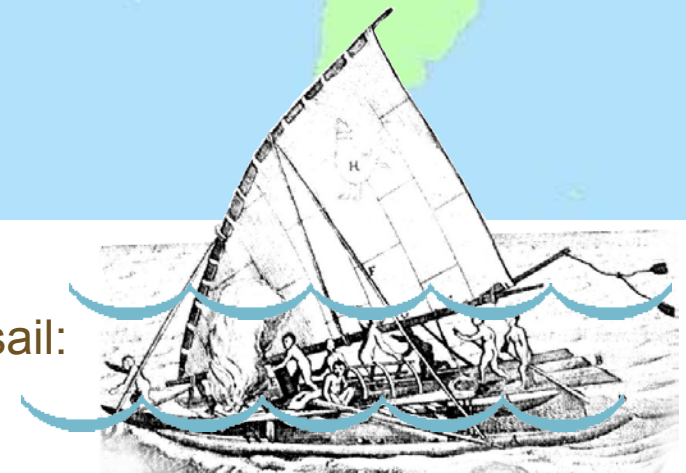




# Tapered rafts

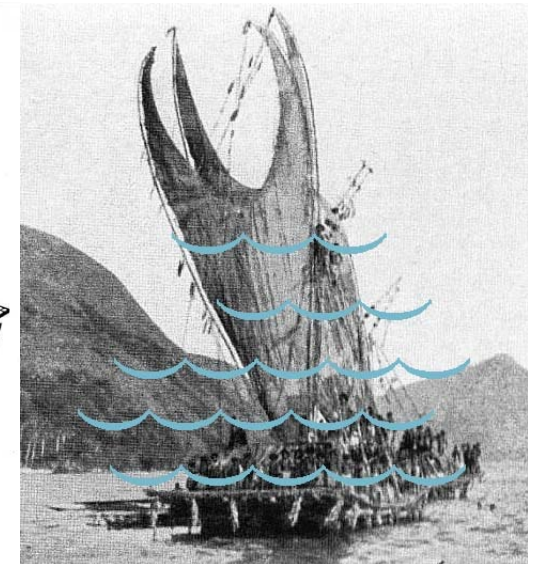
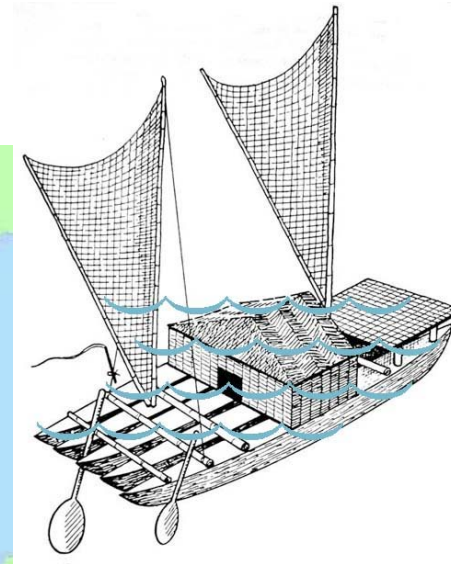
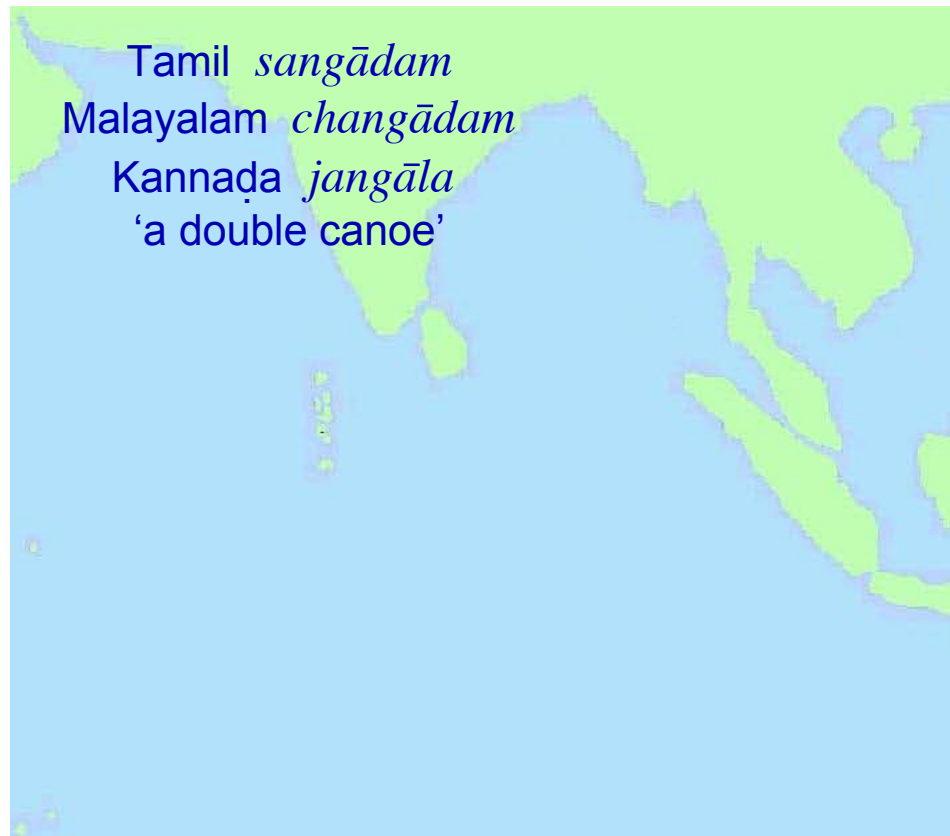


example of Oceanic sprit sail:



tongiaki 1616

## Multiple dugouts



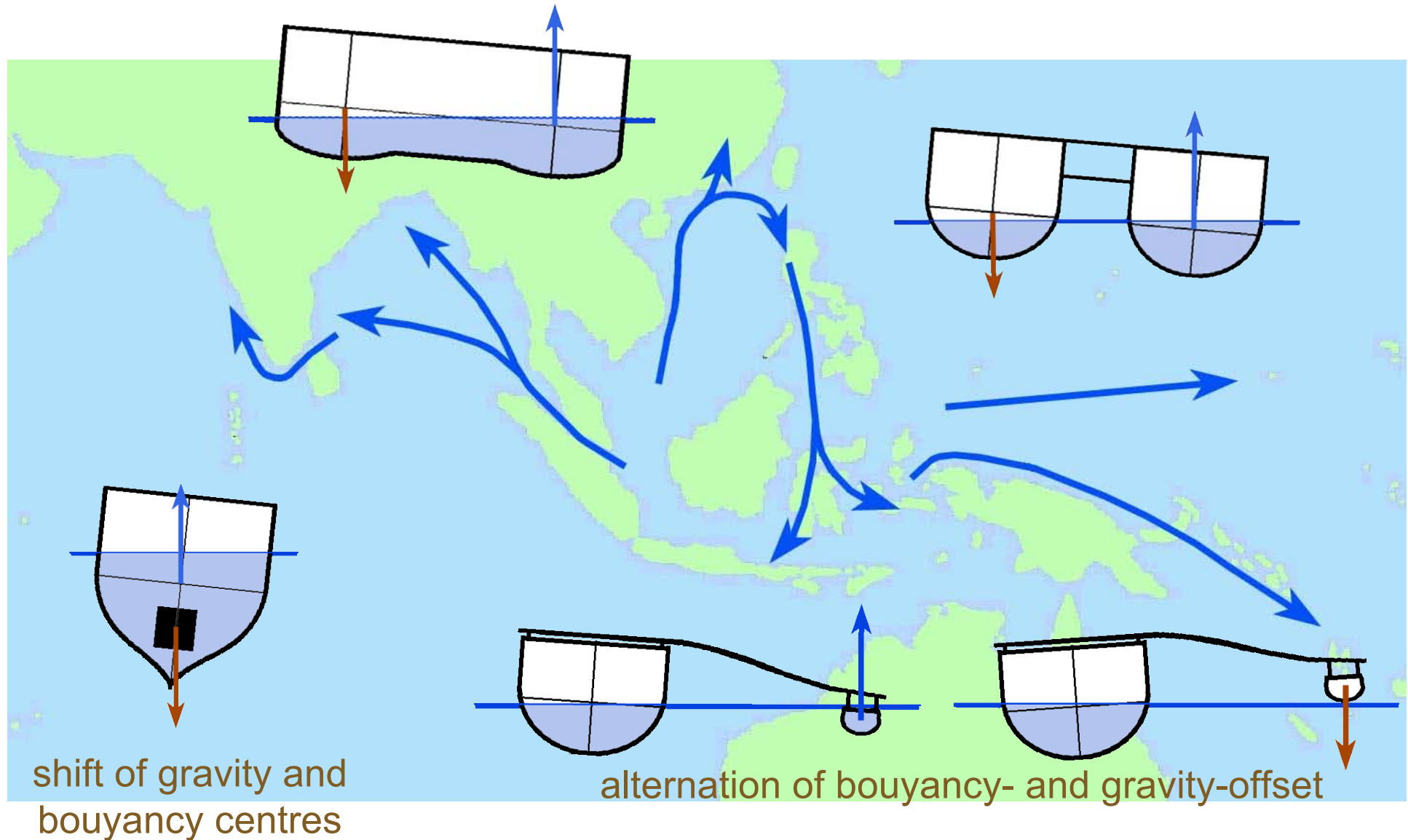
Lakatoi (Lewis)

“... are local ships that sail along the coast up to Limyrikē, also others which are very large ships of single logs bound together, called *sángara* ...”

...τοπικὰ μὲν ἔστιν πλοῖα μέχρι Λιμυρικῆς παραλεγόμενα τὴν γῆν, ἕτερα δ’ ἐκ μονοξύλων πλοίων μεγίστων ἀφαῖς ἐζευγμένα, λεγόμενα σάνγαρα ...

(Periplus of the Erythraean Sea §60)

## Resistance against tilting by alternation of bouyancy centres: a common feature of ISEA-originated watercraft design







**Thank you – Merci bien**