

# Irrigation Systems in Egypt

## General Background and Frameworks

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# Time Line of Egyptian History

year	Event	Irrigation and Water Lifting
5200BC	Beginning of Agriculture and Animal Domestication Neolithic – Early Bronze Age	Cultivation in Alluvial Plain
3100BC	Pharaonic State Ancient Egypt	<i>Basin Irrigation</i> 1900BC: Reclamation in Fayum 1400BC: Introduction of <i>Shaduf</i> 300BC: Introduction of <i>Saqiya</i>
30BC	Under Roman and Byzantine Rule Roman – Coptic Period	
AD641	Muslim Conquest Islamic Age	
AD1805–	Mohamed Ali Pasha's Rule	Introduction of Perrenial Irrigation in Delta
AD1953	Egypt Republic	
AD1960~	Aswan High Dam	No Inundation

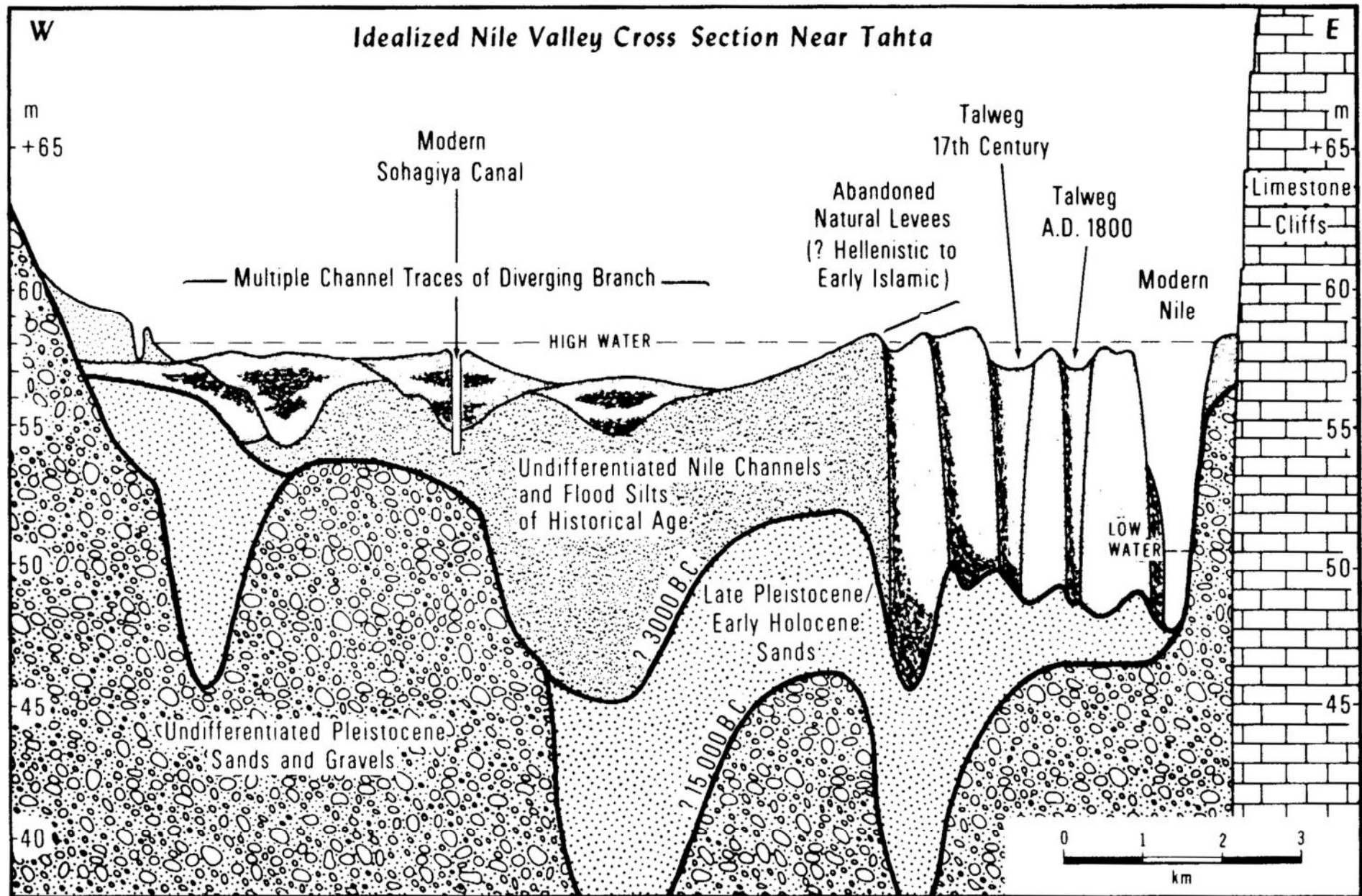
# Egypt



# View of The Nile Valley in Upper Egypt



# Idealized Nile Valley Cross Section (K. Butzer 1976: Fig.1)

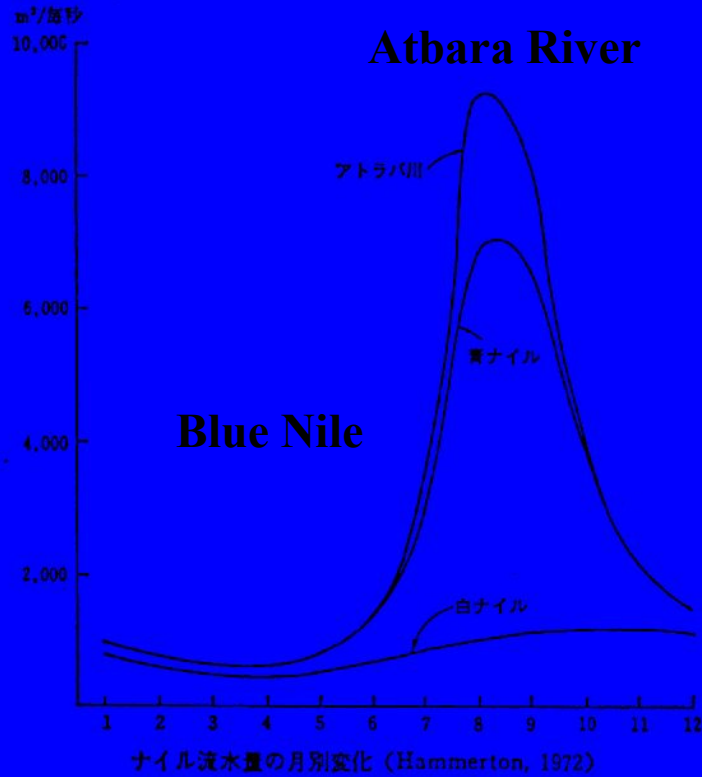


# Swamp with Papyrus Thicket



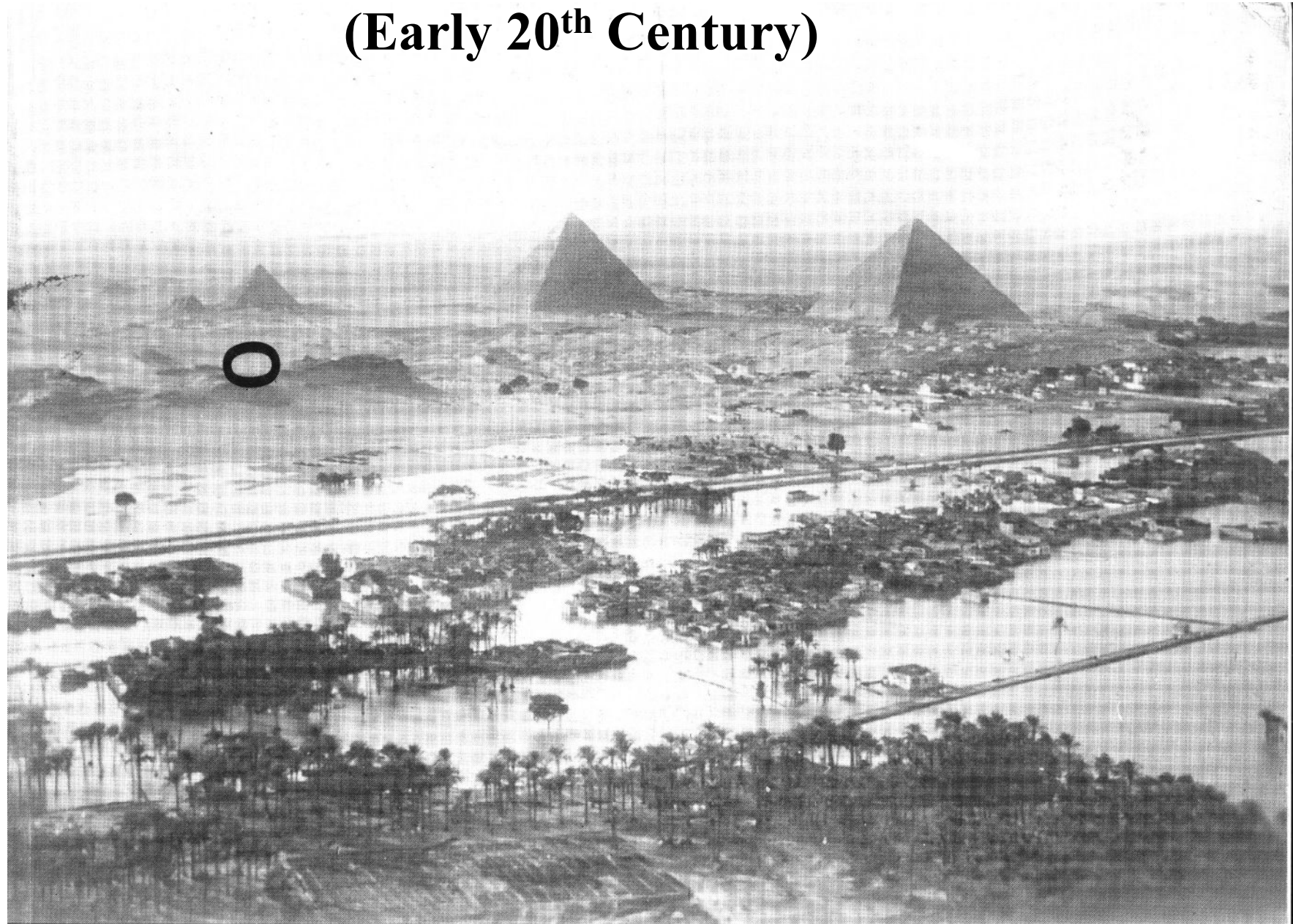
# Flood of the Nile

m<sup>3</sup>/ second  
10,000



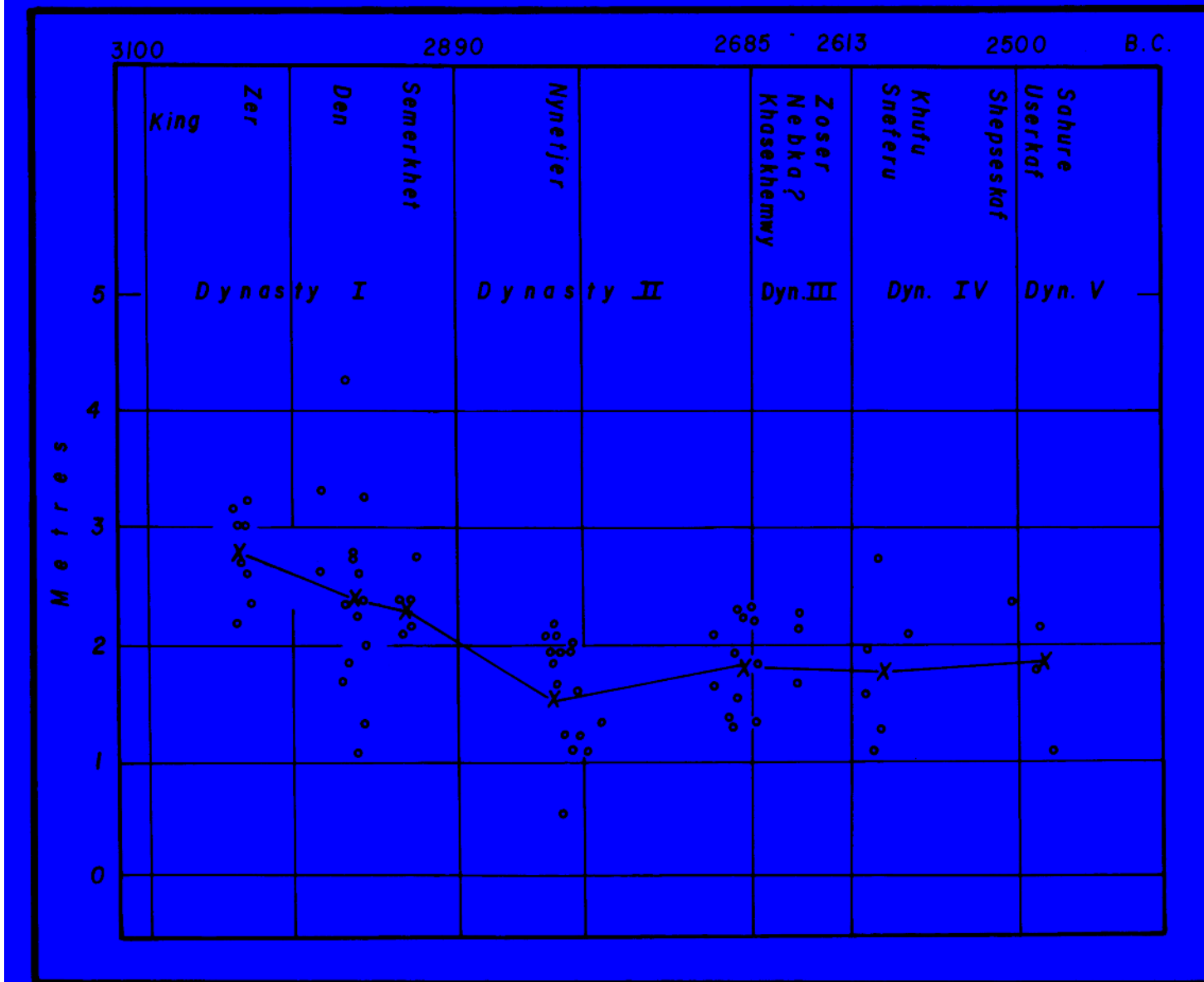
## Monthly Variation in Water Volume in the Nile

# Giza during the Inundation (Early 20<sup>th</sup> Century)



# Annual Fluctuation of the High Nile from Dynasty I to Dynasty V (3100-2400BC, Bell 1975)

Date  
Year BC



# **Field in the Alluvial Plain**

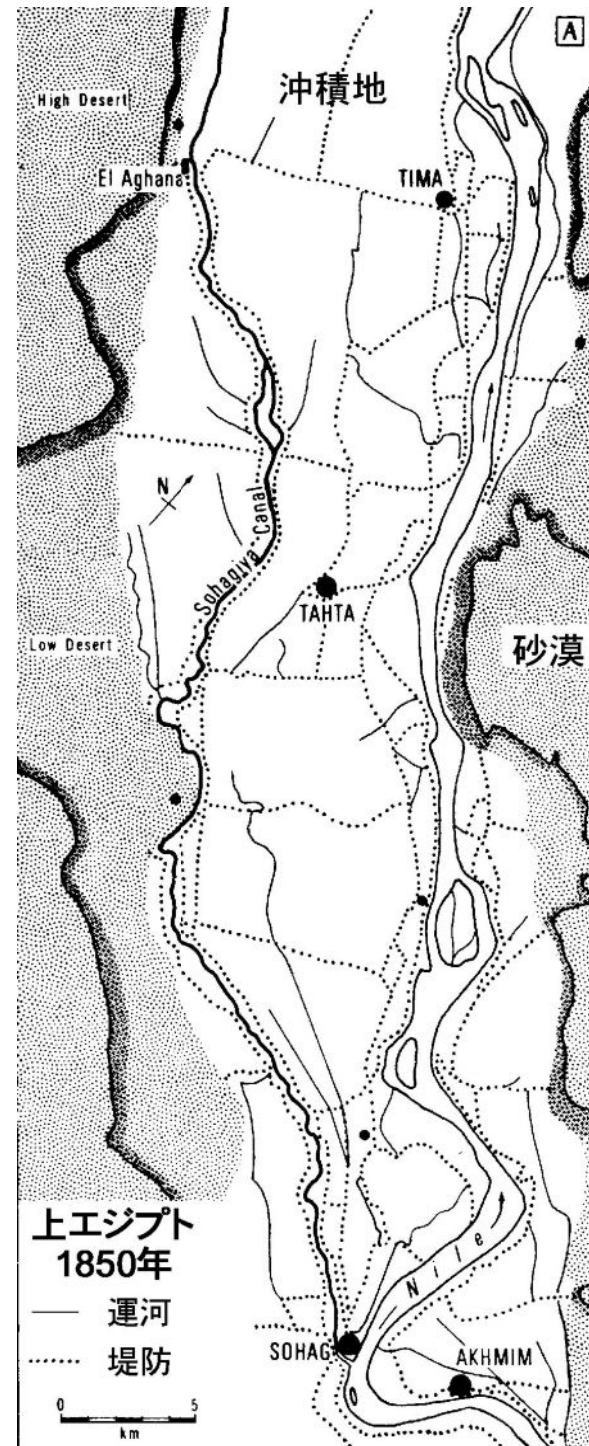
**Emmer Wheat**



# Basin Irrigation in Upper Egypt: 1850AD

Butzer 1976

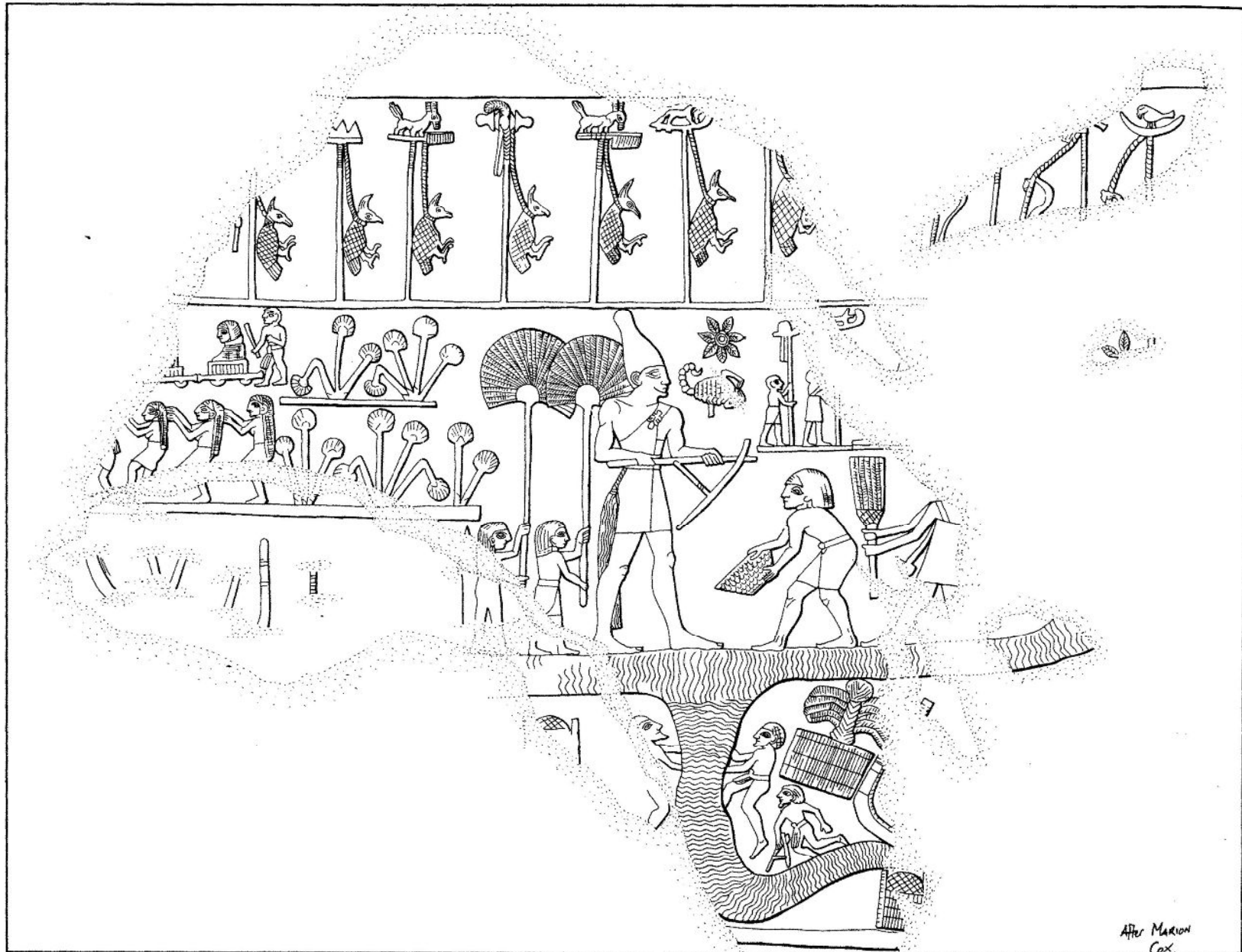
Canal  
Dyke



# Canals in Upper Egypt



# Mace Head of King Scorpion



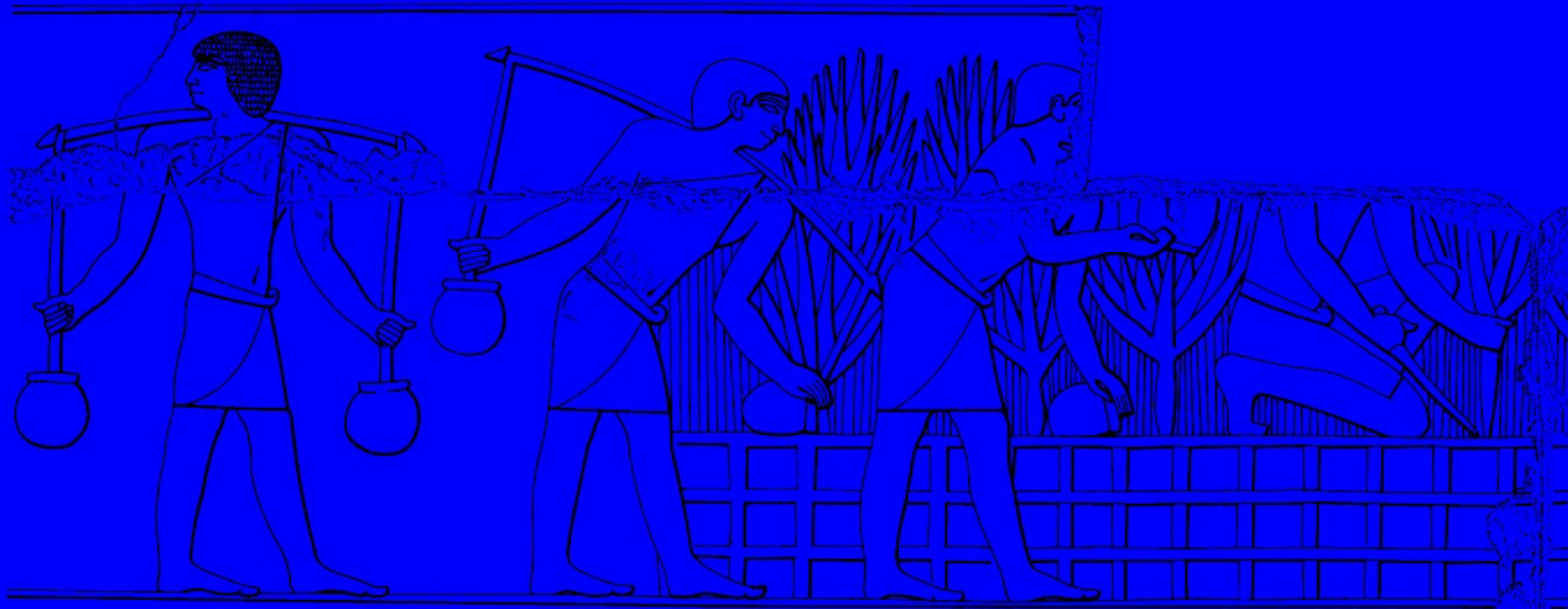
センネジェムの墓



# Fayum Basin



# Cultivation in Perennial Garden



**Figure 3** Cultivating perennial gardens: the original method. Water is carried to the square growing-beds in pairs of pottery jars suspended on wooden yokes. On the right a man kneels planting a lettuce in a hole made with a stick. Tomb of Mereruka, Sakkara, c. 2300 BC, after P. Duell, *The Mastaba of Merenuka I*, Chicago, 1938, Plate 21 (redrawn by B. Garfi).

# Shaduf



Wall painting of Ancient Egypt

Kom Ombos



# Saqiya

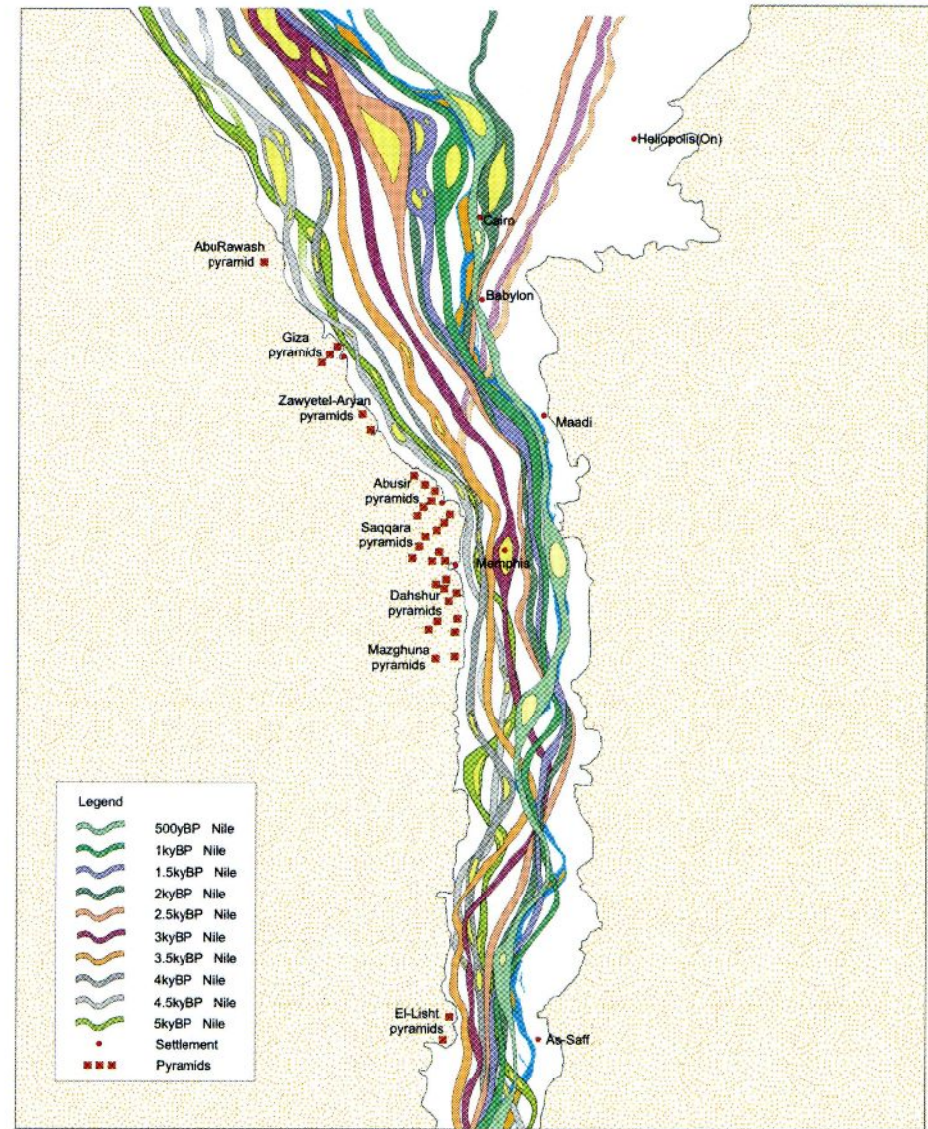
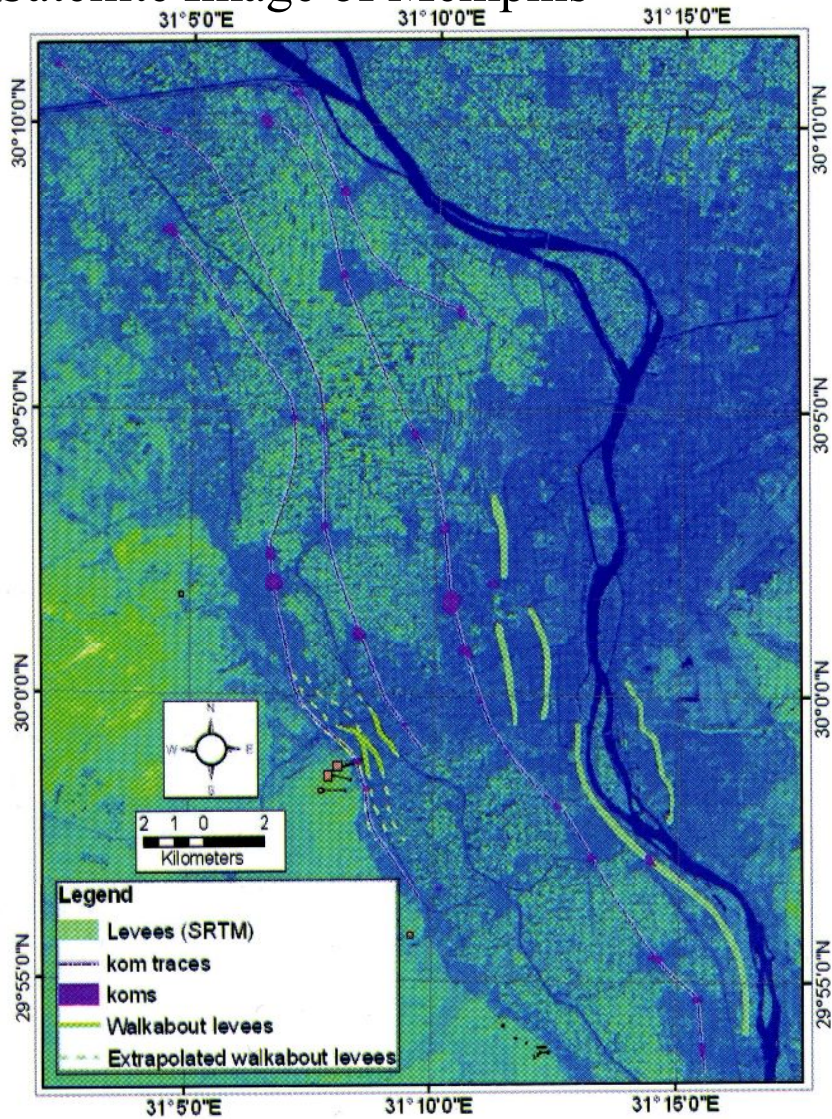


# Recent Geological Survey

J. Bunbury et al. 2008

## Migration of the Nile

### Satellite Image of Memphis



Final map showing best fit estimate of ancient river positions from all sources of information

# **Recent Research and Studies**

- 1) Geological Survey of the Alluvial Plain
- 2) Palaeo-pathological Studies
- 3) Historical and Social Studies of Islamic Period

# Bibliography

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