

The dreadful Bight of Benin

Beware of the Bight of Benin

Few came out though many went
in

Malaria

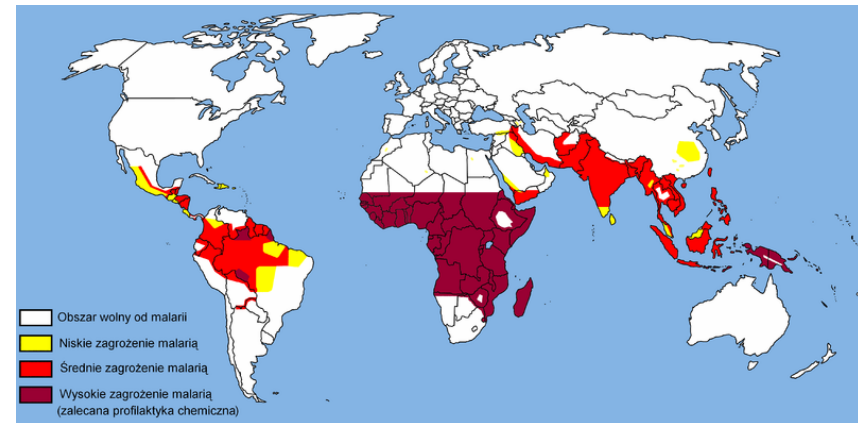
- WHO estimate:
2-300 million deaths in 20th
century
= annual 3 million

Agriculture, irrigation, settlements,
higher population density, like
the Fertile crescent..

Female mosquitoes with human
blood preference

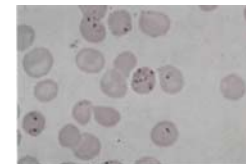
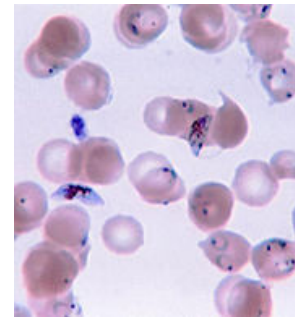
Roman fever, King of fevers(
Vedas), Alexander the Great (
323 B.C. in Mesopotamia),
Hippocrates (460-377 B.C.)

Marsh fever, tertian, quatrian,
recurrent fever

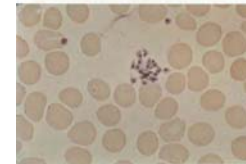


The parasite and malaria

- The protozoan parasite - Alfons Laveran 1880
- The vector: ANOPHELES - Ronald Mosquito Ross 1900
- 4 types of plasmodia
- Rossi 1900
 - P. vivax tertian (benign)
 - P. ovale
 - P. malariae (quartan) - may stay in host for decades > infect mosquito >
 - *P. falciparum* (malignant subtertian, tropical malaria) relatively new, Mediterranean region
 - *the distant relative of bird malaria,*



15. Árp. Plasmodium falciparum
Fiat! trofoziák (gyíri alakok)



The name of the medicine, the bark of Loxa, the Legend

quina, ghina, guina = the
bark (quechua-inka)

- Bado, Genoa 1653
- The miraculous recovery
of Countess Chinchon
wife of the Viceroy in Peru
- Linne : Cinchona
officinalis 1742 (La
Condamine)



The names of the bark

- From Loxa Protectorate>
The Loxa bark
- Peruvian bark
- Jesuit's Bark
- Cardinals Bark as champion for the use of the bark was Cardinal de Lugo as Director of Hospital Santo Spirito.
- Bark tested by the Pope's physician Fonseca. It appeared in 1651 in Schedula Romana as „ Corticus Peruvianus „



The meaning of the quinine/bark

Agustino Salumbrino 1630

- Different meaning of the bark in the Americas and for Europeans?
- San Pablo Hospital/Lima-Salumbrino
- Analogue symptoms: shaking, shivering from cold and in the fever attack of malaria
- 1492 and Genetic Polymorphism > *P. falciparum* and *vivax* probably not in the Americas < (No thalassemia, sickle cell anaemia, favism/ G6PD deficiency/, Baghdad fever, RBC Duffy negativity).
- Roman fever to be treated with Indian brew of bark against shivering?
- (Nocturnal)leg cramp



Semper aliquid novum ex Africa?

Galen and his teaching:

fever = mixing of bad
biles in blood that causes
boiling of it

Therapy: purging,
bloodletting

no mention of the bark by
Galen

The prestige, the authority

- Albrecht Durer in
Zeeland(the
Netherlands), 1520



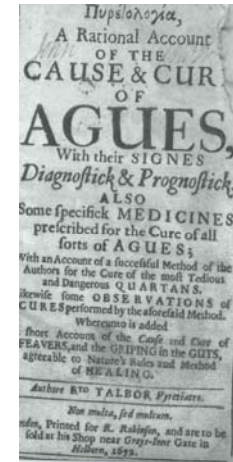
England

„He had a fever when he was in Spain
 And when the fit was on him
 I did mark how he did shake”
 Shakespeare Julius Caesar Act I. Scene 2 ,
 Line 119

Daniel Defoe : .. the youth from London
 return from Essex loaden with the kill
 and ...of Essex Ague.
 Robinson Crusoe...

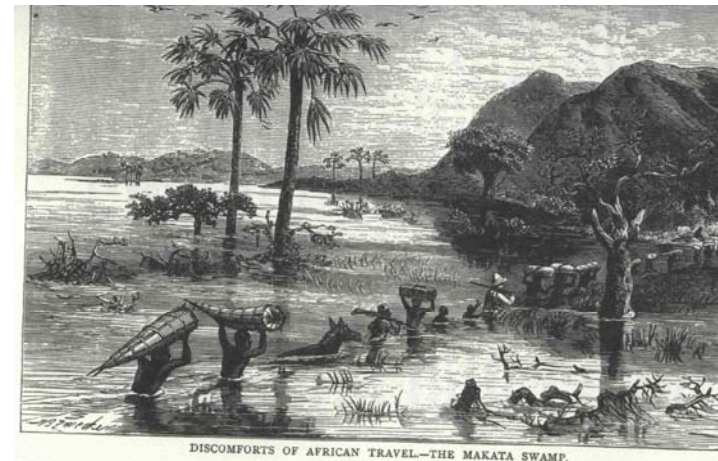
The Jesuit Plot and CROMWELL
 Jesuit's or Cardinal's bark suspicious
 First advertismment for Peruvian Bark in 1658 !
 by Antwerp merchant

The Quack or Chevalier(1678):
 Robert Talbor : The PYRETIATRO
 The English Remedy : Peruvian bark in Port
 Wine



The fever tree and the gunpowder

- Torti, 1711 : the bark useful against certain fevers , but not all!
- Ramazzini 1700: the cortex is of similar importance than the invention of gunpowder in war



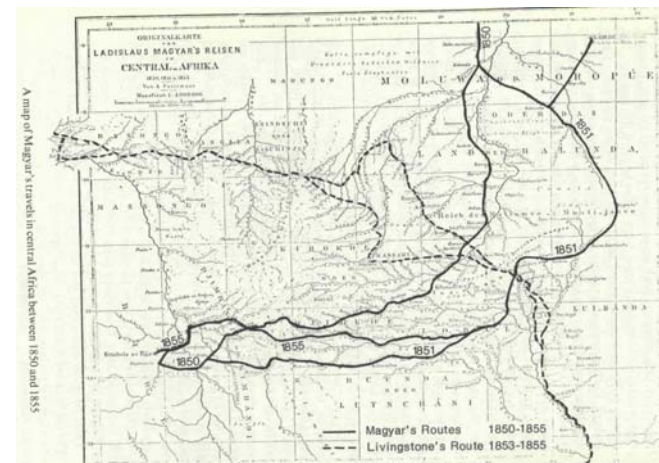
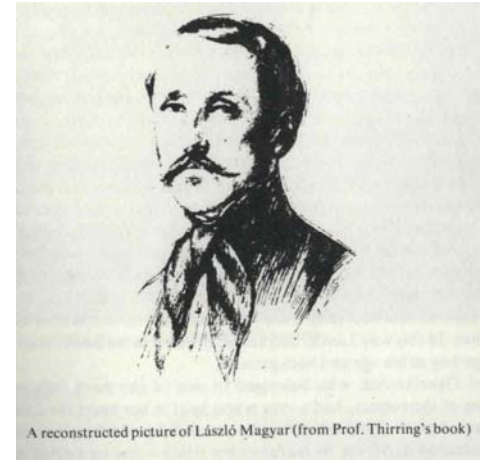
Bight of Benin

- Oil Rivers(Niger)
Palm oil for machinery as
lubricant, soap, food
in 1810: 1.000 tons Palm oil
in 1855:40.000 tons
Gold coast, Slave coast,
Ivory coast...
Inland travel on rivers:
Nile, Niger etc.



..few came out..

- 50% of soldiers died in a year (483 out of 1000)
- „a man of 25 after 2 years in this climate looks 10 years older , Europeans die here in 10-12 years” written by Magyar László (lived 1848-1856+ in Africa)
- carneirado, meat grinder carnivorous climate



The new meaning: Prevention

Dr. W. BAIKIE

- Mungo Park 1805 Gambia 2 survives of 46
- Baikie : Narrative on the rivers Binue and Kwora (Niger and Tsadda) 1854
 - „ a great modern discovery is that quinine not only cures but that actually prevents ..”
 - „ avoid night exposure sleeping in open air .. calomel has no real or curative effect” from his Treatise of Quinine 1856 – not published.



Pure Quinine

- 1816 Gomes
Portuguese naval
surgeon isolated
febrifuge Cinchonin
- 1820 Caventou and
Pelletier : quinine

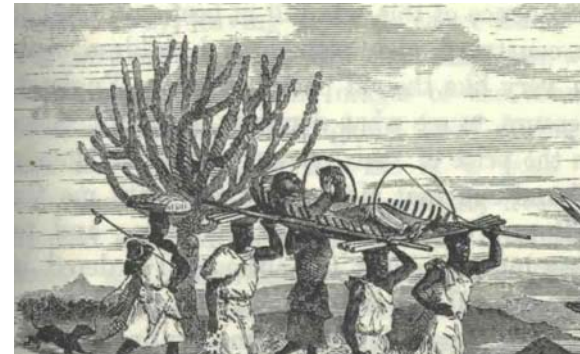
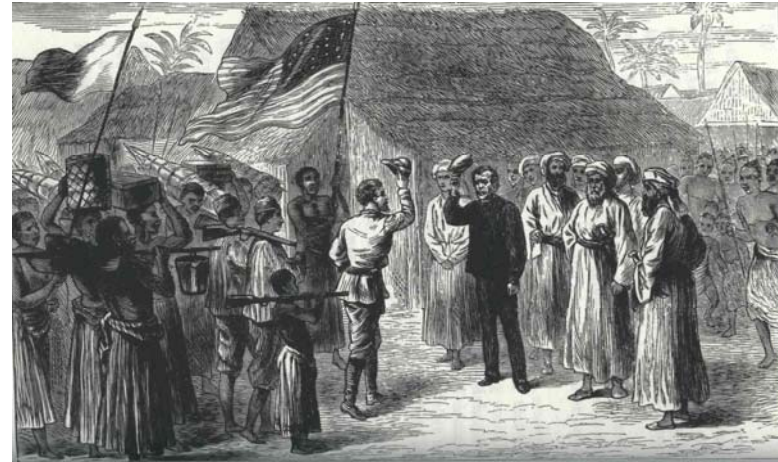


Travellers - and Scramble for Africa

Livingstone: „ a dose of quinine was administered in cherry wine but before it a dose of calomel and a dose of jalap or rhubarb and 4 grains of chinin or larger doses in every two hours or so till the ears ring or deafness ensues, this last is the essential part of the cure”. 1859 Zambesi Report

Stanley: „ the Doctor's prescription consists of 3 grains of resin of jalap, 3 grs of calomel with Tinct. cardamoms just to prevent irritation of the stomach. Quinine should be taken with this pills.. My stomach could never bear quinine unless subsequent to a cathartic... 3 grains of tartar emetic to eject bilious matter from the stomach. (How I found..1885)

Magyar: „ I took a dose of castor oil and 12-16 grains of sulfate of quinine and repeated it 4, 8 hours



Plantations: Quinine makes the Market

- The demand for quinine is soaring high
- Source was Spanish monopoly
- New plantations established by the English and Dutch in India and the Far East from middle of 19th century.
- Seeds, seedlings smuggled out from Spanish Americas : Spruce, Markham, Hasskarl (*C. succirubra*) and the best tree *C. calisaya* by Charles Ledger and Bolivian Manuel Incra Mamani +.
- Quinine content 2-3 % vs 14%
- Price of calisaya(also called ledgeriana) bark 5x than price of succirubra bark



The Kinabureau

- Factories produce quinine from *C. ledgeriana*
- Amsterdam and Dutch Kininfabrik, Bandung Factory in the Far-East
- Amsterdam : the centre of quinine market: Kinabureau

Less potent *C. succirubra* mixture: totaquine

Sold in British India „one rupee one ounce” = poor men’s quinine.
Encouraged by the Secretary of State of India: the first „continental”
size programme against a disease that killed millions in the
Subcontinent.

The WWs caused quinine shortage and started research for quinine
analogues Results: pamaquine, CHLOROQUINE, ... artemisin
derivates

Present: annual quinine production: 300-500 to (5.000-10.000 to bark)

Taste of Quinine

- Half of Quinine product used by food industry
- Indian Tonic Water
- (Dr Rozsnyai, Hungarian pharmacist :Chininum tannicum : a tasteless salt (1863)



Eradication?

- The Vectors: DDT and insecticides
- Mosquito net(impregnated)
- Vaccines
- To fight the enzymes that help plasmodium resistency
-

Cinchona trees

- The latest plantation in Bakuvu, Rwanda.
- Quinine is used in resistant malaria in injections,
- The Arms of Peru with the Cinchona tree

