Global Health Histories Seminar

Guinea Worm Disease. Chasing the Dragon

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How can questions from historians and social scientists contribute to the management of international public health?
تصویر 99 - کرم گینه ای (رشته عرق مدنی، پیک) در سواحل خلیج فارس به ویژه در مناطقی از بند عباس بازار مشاهده می‌شود. ماده کرم گینه ای ۶۰ سانتی‌متر طول دارد و در پانچه‌ها یا بدن زنده می‌کند. هنگامی که رحم درگیر است، این کرم به‌خشن‌هایی از بدن که با آب در تماس است مهاجرت کرده و در ۹۰ درصد به ساق پاها یا خود پاها وارد می‌شود و باعث ریز زیر پوست، لاورهای خود را آب‌آور می‌کند.
Multiple worms emerging in the same man, in the Sputh of Iran
A disease known for long

The disease may be traced back to Biblical times (the Book of Numbers), as witness worms found in mummies.

Descriptions are read in Alexandrian Greek medicine (Plutarch, Soranos of Ephesus).

Detailed accounts are found in Arabic and Persian medicine, (i.e. Ibn Sina, *Canon*, 11th century AD).
The INVISIBILITY of a too visible
disease:
a historical paradox

This « picturesque » disease has been •
described for more than 2000 years and
frequently attributed to drinking foul water
The cycle in Man and the intermediary •
host Cyclops were described before the
era of bacteriology (Fedchenko 1868)
Discoveries of Alexei Fedchenko, Boukhara 1868

The Russian biologist •

Various aspects of D medinensis
The cycle of the disease

1. Human drinks unfiltered water containing copepods with L3 larvae.
2. Larvae are released when copepods die. Larvae penetrate the host's stomach and intestinal wall. They mature and reproduce.
3. Fertilized female worm migrates to surface of skin, causes a blister, and discharges larvae.
4. L1 larvae released into water from the emerging female worm.
5. Female worm begins to emerge from skin one year after infection.
6. Larvae undergoes two molts in the copepod and becomes a L3 larvae.
The contemporary landscape

Nearly half the world’s current cases of guinea worm disease are in Ghana.

Between 1989 and 1990, cases of guinea worm disease in Nigeria fell from 640,008 to 394,082.
Why Medinensis?

• Ibn Sina called it this way

In Medina and Mecca, infected people came to the pilgrimage from different countries, and the disease was well known.
3- Conditions of pilgrims aboard the steamboat.
14- Pilgrims before reaching Makkah.
31- One of the pools that provide pilgrims with water when they are at Arafat.
The disease appears when the weather is hot, water scarce and the vector hides in ponds and wells.
People contaminated themselves by drinking water containing the vector (Cyclops, a crustacean)

They contaminated water by stepping into the ponds

Here one of the famous stepwells in Pakistan
Infection has a SEASONAL profile

A long period intercalates between • infection and disease,
Transmission happens • EITHER at the END of the rain season, in hot – and humid countries,
- or at the BEGINNING of the rains in • semi-desertic regions
Guinea Worm disease has prevailed for in Subsaharan Africa, the Middle East and India

Travellers exported the worm into the world

In particular Slaves in the whole American continent

But the disease was never established permanently there
The ecology of the disease is illustrated by the Egyptian case:

was Egypt endemic for the « dragonneau »?

Clot bey, physician of the pasha Mohammed Al,i described 100 cases when he arrived at Cairo in 1825 at the Abou Zabel hospital.
Wars and slavery were in Egypt the main cause of the disease.

Mohammed Ali waged wars in Sudan.

The disease decreased in Egypt with the end of conscription.
The disease in the Delta in fact came from the Upper Egypt and Sudan.
Slavery disseminated the disease in four continents

The human cost of the disease is part of the slavery heritage

A former souk for the slaves
The disease is associated to water-linked human behavior.

People contaminate themselves by drinking water full of infected Cyclops and contaminate the water by dipping their wounded legs in the water.
Local knowledge and local knowhow are important

Some people KNEW that the worm appears a long time after the contamination

They KNEW the best thing was to try to get rid of it by twisting it around a piece of wood or a match,

They also KNEW they had to cope with a CHRONICAL disease, incapacitating and painful
Western doctors LEARNT from local tabibs and patients how to deal with the disease.

Western doctors Polak and Schlimmer learnt from the Persians about Dracunculus at Tehran in the 1850-70s.
August Hirsch, a famous epidemiologist, who reviewed all documents in the 1870s concluded at the end of the prebacteriological era, that the affection can affect everybody, with no distinction of - GENDER
- SOCIAL CLASS
- « RACE »
- NATION
- BUT…………………………
BUT THE AFFECTION HAPPENED MORE OFTEN

MEN > WOMEN •
POOR > RICH •
ADULTS > OLD •
SOLDIERS > OFFICERS •
BLACK > WHITE •
NATIVES > EUROPEANS •

SUGGESTING A STRONG SOCIAL AND BEHAVIOURAL COMPONENT
YET the eradication idea was launched by WHO only in the 1980s

Guinea worm disease was considered as the first candidate to eradication only after the success story of smallpox in 1979.

Let us return to the question: why not planning eradication earlier?

Historians’s answer: the disease was a rural and chronical disease, invisible for the urban elites who led the post independence countries
Here is what Dr Johann Schlimmer thought of Guinea worm disease, in Tehran... in 1874

A disease which strikes countries far away from the capital, hardly raises any interest from scholars who possess the scientific tools, while they should pay attention to the well-being of the suffering people. »
How can questions from social scientists, contribute to the management of public health?

Historians question the link between knowledge and decision.
Sociologists of science and anthropologists investigate the practices.
Scientific Knowledge is important but does not suffice.
Ideology makes its truths appear desirable,
Communication contrives to make them palpable, palatable and concrete.
Resistance is not only a biological phenomenon.
People also resist to change and constraint.
Another historical question

• Despite the scientific knowledge accumulated during centuries, the fight against the disease lagged for years.

Why did the episode of eradication in Central Asia in the 1930s pass unnoticed?
A little known episode:
Medina worm disease was eliminated from central Asia by the Soviets between 1925 and 1931

The strategy combined:
Counting the case number
Drying up basins and reservoirs
Treating wounds with occlusive dressings
Fighting traditional medicine
Health Education of the young

Boukhara mosque and its reservoir
Ill water carriers were forbidden to work (with compensation)

In the social context, The Soviet action probably fostered A lot of resistance and unease