Notes of Lecture, Harvard, Nov. 18, 1960

Time Required - 90 minutes

The following slides were used.

MM. Glass Guarda

49 mounted Aa eradication indices

São Luis and Maranhão

21 unmounted Vale Canaan, 1932

xx mounted color YF in Southern Brazil 1934–1940

53 mounted Aa Paraguay DDT

43 mounted Aa eradication Brazil 1943–52

influence of DDT

xxx mounted color Aa in Americas 1957

unmounted Jungle at Tocumen

x1 mounted JYF Cent. Am. 1948–57

unmounted Tree Ferns

unmounted Colorado Indians

unmounted Jungle YF and Plague, Caracas

71 mounted YF in Americas 1946–53

137 mounted YF in Americas, 1954–56

Yellow Fever Problem

A. Tropical Public Health

B. International Health

Reality of Problem
America - Man - Monkeys

Africa - Man - Primates

Present

Asia Potential - Man - Monkeys

Temperate Zones - Seasonal Man.

Most difficult problem for International Quarantine Committee

Most fearsome disease

Most emotional reaction

Most severe restrictions on travel to Asia

Yellow Fever

Zoonosis -

Man and Other Primates

Virus - Acute Infection

Death or Immunity

No Carrier State

Transmission

Aa - urban maritime

Haemogogus - Aedes - Sabeites

Aedes africanus, Aedes simpsoni

No Trans-Ovarian persistence

Continued Existence of Virus

Requires series of acute mammalian infections - not further spaced than life time of infected mosquito
Clinically - short incubation -

rapid onset -

A. infection
B. null
C. intoxication
   albuminuria
   hemorrhage
   anuria

Diagnosis

A. Time schedule
   albuminuria
B. Isolation virus
C. Repeated neutralization

Pathology - Liver

Immunology - complement fixation

neutralization - 2B Virus 9

haemagglutination

Immunization -

1. Natural - maternal antibodies + early ... infection

2. Vaccination
   a. killed virus
   b. virus plus serum
   c. cultured virus plus serum
   d. Fch neurotropic virus
   e. 17D

Duration of immunity!

(Comment on Polio Vaccination - YF vaccine
viruses are neutropic - Fch. kills 100% mice
and 100% + monkeys - Fch gives 60% viremia
17D gives 5% viremia)
Today's lecture on YF is in the course on Ecology and Epidemiology of Infectious Diseases in Department of Microbiology and Tropical Public Health.

Tropical Public Health
Tropical Medicine - successes always in preventive medicine -

YF in 1900 - YF only after Columbus
RF in 1913 - Rose to Asia
1915 - Gorgas studied a decade and a half of results.

R.F. embarked on Eradication of YF based on reduction of Aedes in key centers of infection
Spontaneous Disappearance

Early victories
Ecuador, Peru, Central America, Mexico

Failures

<table>
<thead>
<tr>
<th>Brazil</th>
<th>1919-20 Federal Comissão</th>
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<tbody>
<tr>
<td>R.F.</td>
<td>1923-26</td>
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<td>Brazil</td>
<td>R.F. 1926-28</td>
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<td>Rio outbreak 1928-29</td>
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<td>Recife cases in control area 1929</td>
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<td>Colombia - Sonorro 1929</td>
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<td>Venezuela - Guasapati 1929</td>
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<td>Bolivia - Sta Cruz 1932</td>
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Personal experience on becoming responsible for YF in North Brazil.

Belém to Macéio

Reorganization - Manual - Maps

FA 52 - Detailed Records

Larvicide to all foci

Adult captures Threshold of Visibility
ViscerotomY YF = Aa

Results =

a. unrecognized Aa breeding - Local eradication in several cities.
2 slides - Light.

b. unrecognized endemic Aa transmitted

YF in rural areas of NE Brazil - attack on Aa in rural areas ended endemic in Aug, 1934

2 slides - unrecognized jungle Yf very widespread in many areas where Yf had never been recorded

Became clear that Socorro, Guassapati and Santa Cruz were secondary to Jungle Yf

Yf virus not eradicable - program changed to eradicate Aa - give story of expansion to 1960 - DDT helped

3 slides lights

Jungle YF - clinically identical

Depends on animal infections and on forest mosquitoes
(Wave phenomenon in \( Aa \) and Jungle Fever)

**America**

Men is incidental, often dead-end infection unless \( Aa \) is present in domicile - Transmission by day time biting mosquitoes

Men not so frequently infected in forest - vector is night biting

**Africa**

\( A. \) africanus - monkey brings virus to Aedes simpsoni which transmits man to man.

Protection against jungle yf requires individual vaccination -

Endemic \( Aa \), yf travels with man along human routes of travel

Jungle yf travels through forests.

Recent yf history

Under - reporting Africa, Americas

Africa - virus widespread, but few recognized cases

Panama - Mexico - 2 slides

Pacific Coast - Ecuador 2 slides

Trinidad - Caracas 1954 1 slide

YF 1946 - 1956 2 slides

Eradication of \( Aa \) led to eradication of \( Ag \)

Brazil - Egypt
Rehabilitation of Eradication Concept

Eradication must expand -
International cooperation Essential

WHO, PAHO, UNICEF, TCA

But, complete coverage in individual countries needed - USA not entirely ready.

small pox, tuberculosis, leprosy, typhoid, yaws, syphilis

Local general unit vs Unilateral Campaigns