

Mike - for having proposed this very special celebration

The idea of a special event such as this ~~was~~ came as a total surprise
From my discussions with the publisher and the publisher -

Assumed that the formality of publication was like birthing & labor
A long and fairly painful process but then one simply relaxes
and ~~lets~~^{life force} ~~it~~ ^{it} quietly on.

A joyous celebration with so many old friends and colleagues is wonderful surprise including ⁸⁰ many ~~old~~ veterans who instructed me in the proper art of drawing over 14 years - Edythe, ~~Chase~~ ^{Mr. K} Chase, Sylvia, Alan ~~and family~~ - and so many others from Hopkins and the Baltimore community.

Especially meaningful to me to have Line 46 to whom the book is dedicated

Anna Singh - a Bangladeshi epidemiologist living in Baltimore

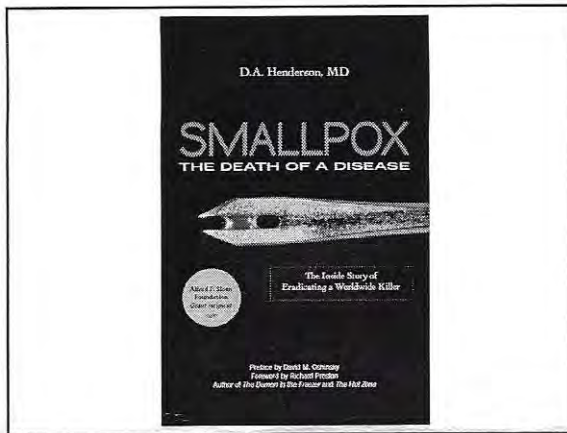
David Hurdman, a sculptor, and Kate Task, a painter - Brooklyn Heights

Dong, a composer and sound artist from Berlin, Germany.

✓ Escherichia *E. coli* is history - no case for > 30 years

Understandably, few individuals ever have seen a case, and few who know much about the program, the incredible feats of innovation, dedication and sacrifice by a comparatively young international staff of 173 different nationalities to achieving a feat under the aegis of ^{a relatively tiny} ~~an~~ international organization at a third ^{country's resources} ~~cost~~ and a few ^{individuals} ~~people~~ ^{achieved on their own}.

~~As I shall not~~ what a profound effect the program has had on public
heart. Prompt the world. This book endeavors to convey this message.



"There has been no greater medical – or humanitarian – miracle in modern times than the eradication of smallpox... *Smallpox—the Death of a Disease* is more than a riveting account of the day-to-day struggle for international cooperation in a divided world; it also offers a winning blue print for the great medical challenges to come."

David Oshinsky – Winner of the 2006 Pulitzer Prize in History

Smallpox, the disease

- Caused by a virus
 - It is spread by face-to-face contact during the time a rash is present
- Only humans can be infected
 - A chain of infection going back to the Pharaohs 3500+ years
- Death rate = 30%
 - No treatment
 - But survivors are permanently immune

Sapona

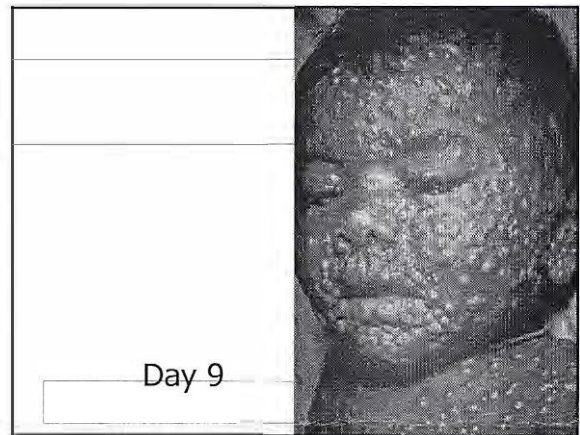
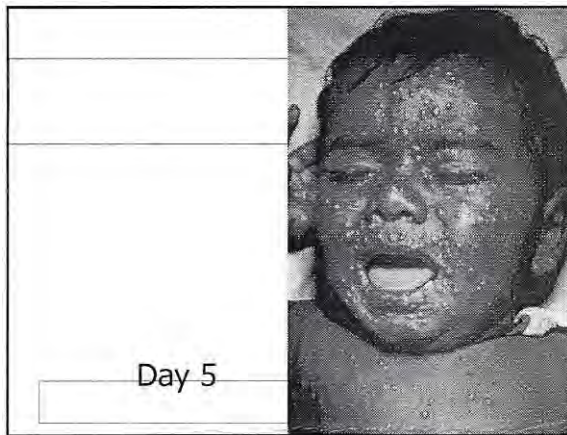


Sitala Mata



Day 3





Smallpox in the 20th Century

- Deaths – 300,000,000 before 1978
 NYTimes: 120,000,000 died either directly or indirectly
 as a result of armed conflict
- Compulsory vaccination in the U.S. until 1972
 Last U.S. case was 1949
- International travelers carried a "yellow booklet"
 documenting vaccination in past 3 years

WHO global eradication program

- Director General submits a plan to World Health Assembly-- May 1966
 - Strategy
 - Mass vaccination to reach 80% of population
 - Surveillance and containment
 - 10 year program – WHO budget of \$ 2.4 million/year
- Objections by delegates
 - Not feasible
 - Demand for no further increases in WHO budget
- 58 votes needed to pass; 60 voted in favor

Program leadership

- Director General believed program would fail
 Malaria eradication program was collapsing
 WHO and public health credibility was at risk
- He demanded that an American serve as Director
 - The candidate declined:
 - Responsibilities for new CDC African program
 - Limited resources -- <\$50,000 each for 50 countries
 - Not enough even to buy the vaccine required
 - He received a career option

The Challenge

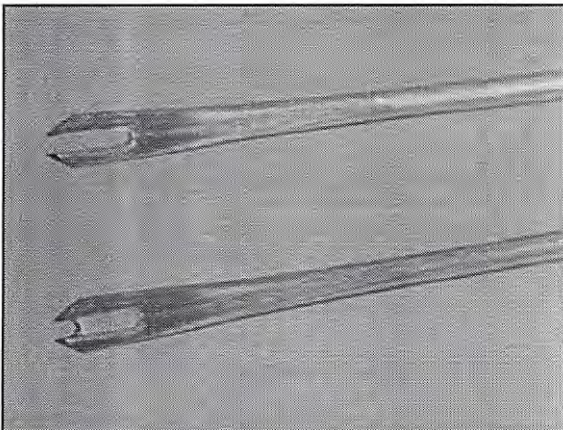
- Status of smallpox – 1967
 - >10,000,000 cases
 - 2,000,000 deaths
 - 43 countries reported cases
- Program staff
 - Headquarters – 4 medical, 2 admin, 3 secretaries
 - Regions – one each in 4 WHO Regions
 - International staff – never more than 150

The first crisis -- vaccine supply

- Vaccine produced in 42 countries
 - International control labs in Netherlands and Canada -- less than 10% meets standards
 - Pledged donations would meet ~35% of need
- National capacity developed in many countries
 - Production manual
 - On-site consultants
 - By 1972, >80% produced in endemic countries

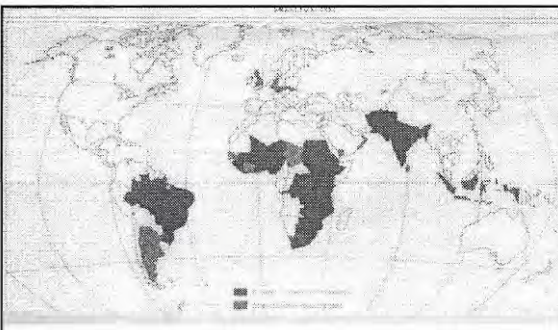
Vaccination technique

- Need for a more rapid, effective method
 - Traditional
 - scratch through a drop
 - Bifurcated needle—multiple puncture method
 - One-fourth as much vaccine required
 - Training time -- 15 minutes
 - Easily sterilized and reused
 - Cost -- \$5 per thousand



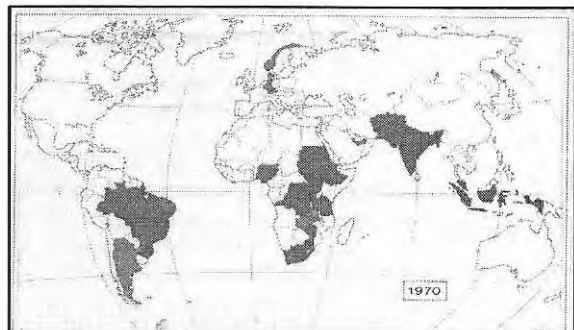
Surveillance-containment

- The strategy
 - Surveillance -- weekly report from every health unit
 - Teams -- contain outbreaks by "ring vaccination"
 - Field studies show
 - The text books are wrong
 - "Smallpox spreads like a prairie fire"
 - "Revaccination is needed every 3 to 5 years"
 - "Don't vaccinate until child is 12 months of age"



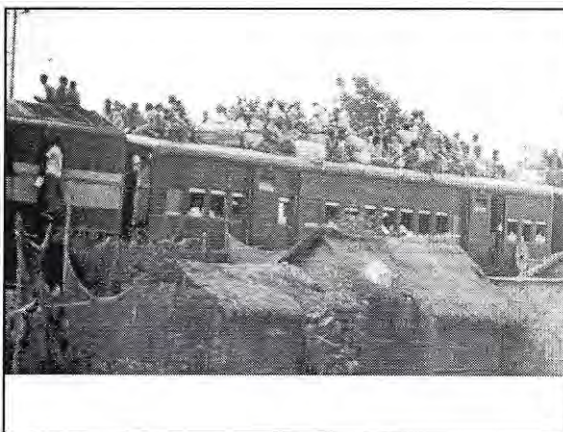
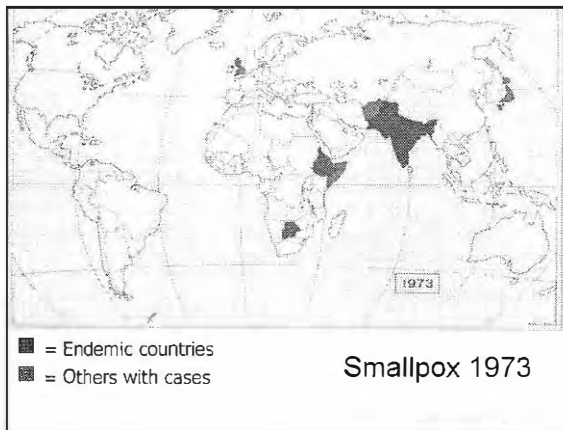
■ = Endemic countries
■ = Others with cases

Smallpox 1967



■ = Endemic countries
■ = Others with cases

Smallpox 1970



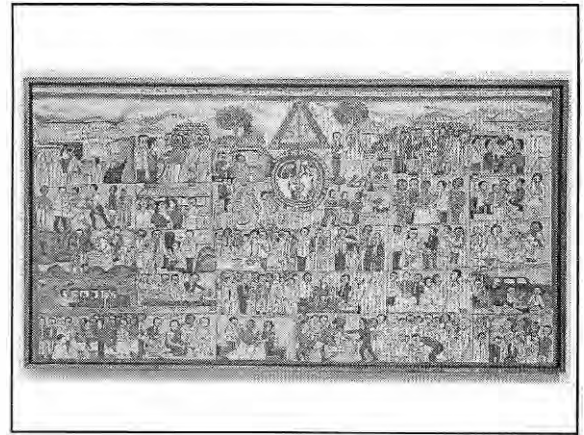
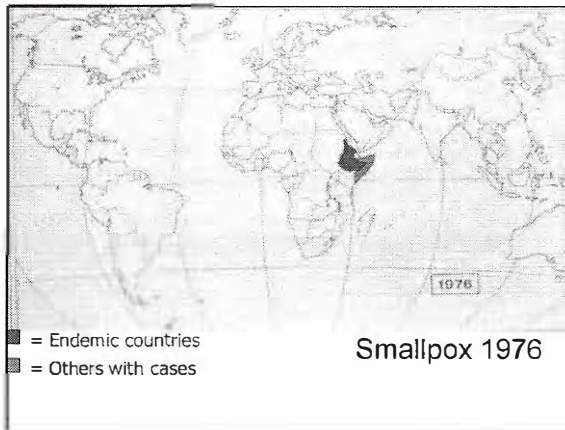
A new strategy – June 1973

- Search every village in India in 10 days
120,000 health staff
Containment teams to go to every outbreak
- By the third round, every house was visited
- Catastrophic problems Jan to May 1974
 - Gasoline crisis
 - Railroads, airlines, finally health workers on strike
 - Worst floods in three decades
 - India detonates an atomic weapon—May 1974

Indian Independence Day August 15, 1975

Prime Minister Indira Gandhi

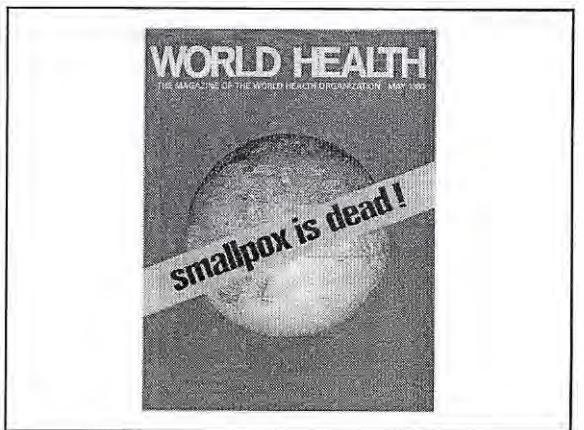
- Salutes India on its 28th Anniversary
- Announces India's freedom from smallpox for the first time in written history



World Health Assembly --1980

- Declares solemnly that the world and all its peoples have won freedom from smallpox
- Smallpox vaccination should be discontinued in every country

» Thirty-third World Health Assembly, 8 May 1980

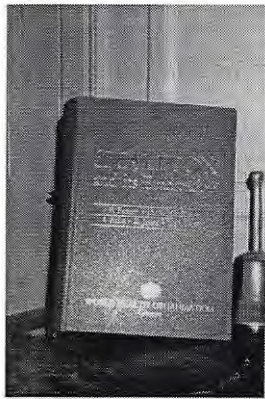


Meanwhile, we expanded horizons

- 1970 – international meeting
 - An Expanded Program on Immunization
 - To establish a global program to vaccinate all children vs. smallpox, measles, polio, pertussis, diphtheria, tetanus
 - Target: 1990 – 90% coverage: essentially achieved
 - In the Americas
 - Polio eliminated in 1991
 - Measles eliminated in 2004
 - German measles to be eliminated in 2010
 - Eleven different vaccines now in use in Latin America

A memorable era– 1976-1990

- A dean is inaugurated and duly trained
 - "Hygiene" grows in size and stature
 - AIDS program
 - Immunization Center and international health
 - Virtually every department grew in size and stature
 - Community-based programs developed
- From a 9 month calendar to 12 full months
- Arguments ceased as to which school was the big "H" and which the small "h"



But the book was not finished

- 1995: The threat of bioterrorism
 - USSR BW program – as large as its nuclear program
 - Hopkins Center for Civilian Biodefense Studies
 - Trade Towers destroyed and Anthrax attacks – 2001
 - A new Office of Public Health Emergency Preparedness --a Director was appointed
 - A three billion dollar program with emphasis on public health
 - A major confrontation with the Vice President's Office
 - "We must vaccinate all America" – we disagreed
- 1996+ The destruction of the virus
 - Defense Department and some scientists want to retain it
 - Most countries want to see it destroyed – I agreed

- From the book's introduction:

"We are only beginning to realize the potential of public health...It is a field begging for fresh, resourceful ideas and a new generation of professionals who are not constrained by 'knowing' what can't be done. So it was with so many who contributed so much to making smallpox eradication a possibility. Their stories, as well as mine, constitute the heart of this book."

