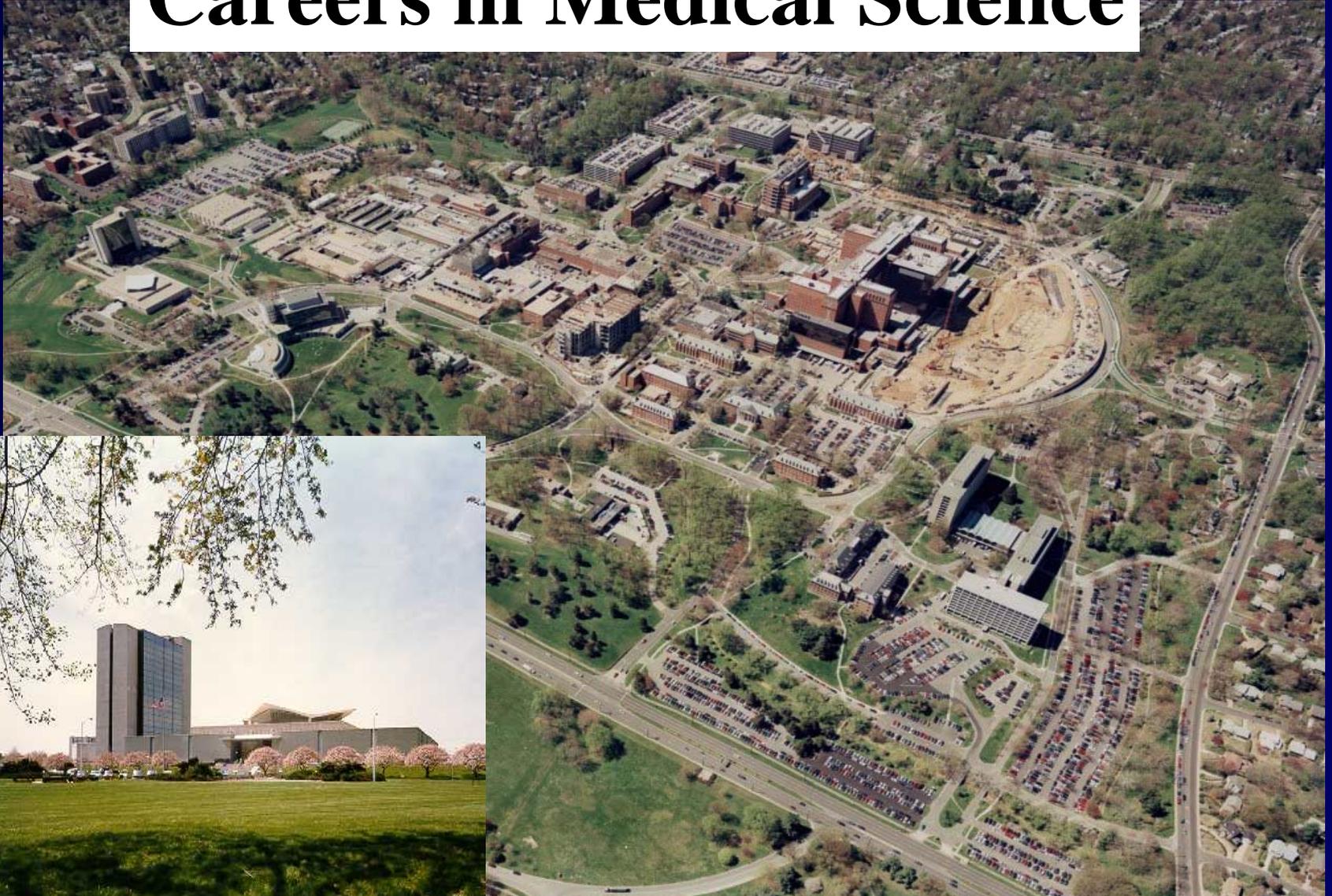


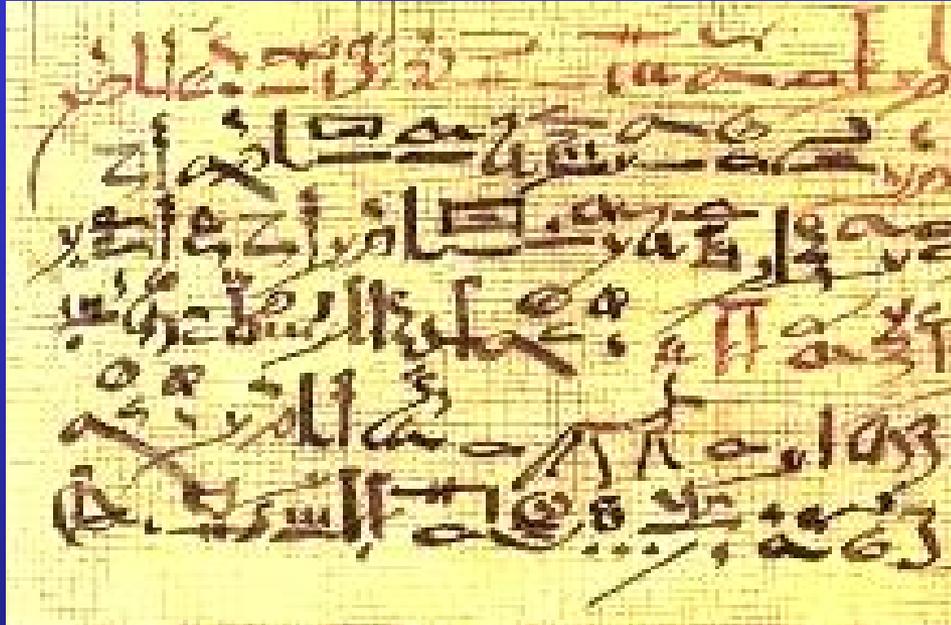
# Careers in Medical Science



*National Library of Medicine*

**National Institutes of Health**

# *E.G.: Edwin Smith papyrus :2 sided*



**Describes 48 cases**

*1. standard treatments*

*2. incantations & potions*

- world's earliest known medical document

- written in hieratic around the 17th century BCE

based on material from a thousand years earlier

# Heart Transplants & Other Fun Things to Do



Transplant surgery

*Steven J. Phillips, MD*  
*March 13, 2008*  
*Associate Director,*  
*Specialized Information Services,*  
*NLM, NIH, DHHS*  
*[sphillip@mail.nih.gov](mailto:sphillip@mail.nih.gov)*

- 10,000 heart surgeries
- 86 heart transplant
- 7 total artificial hearts
- 300 publications
- 10 innovations
  - 6 patents



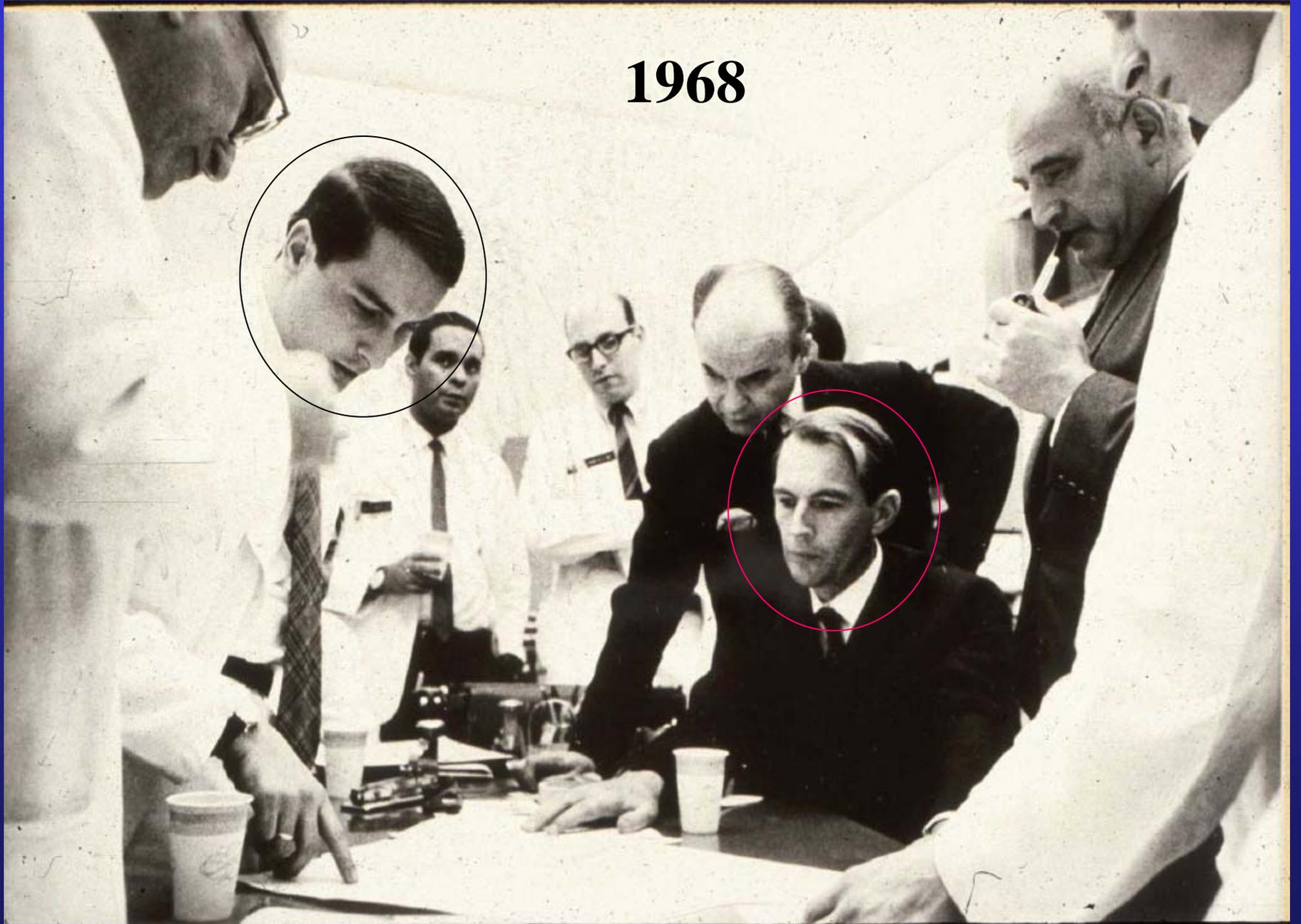


*Leg Transplant 1495*

1967

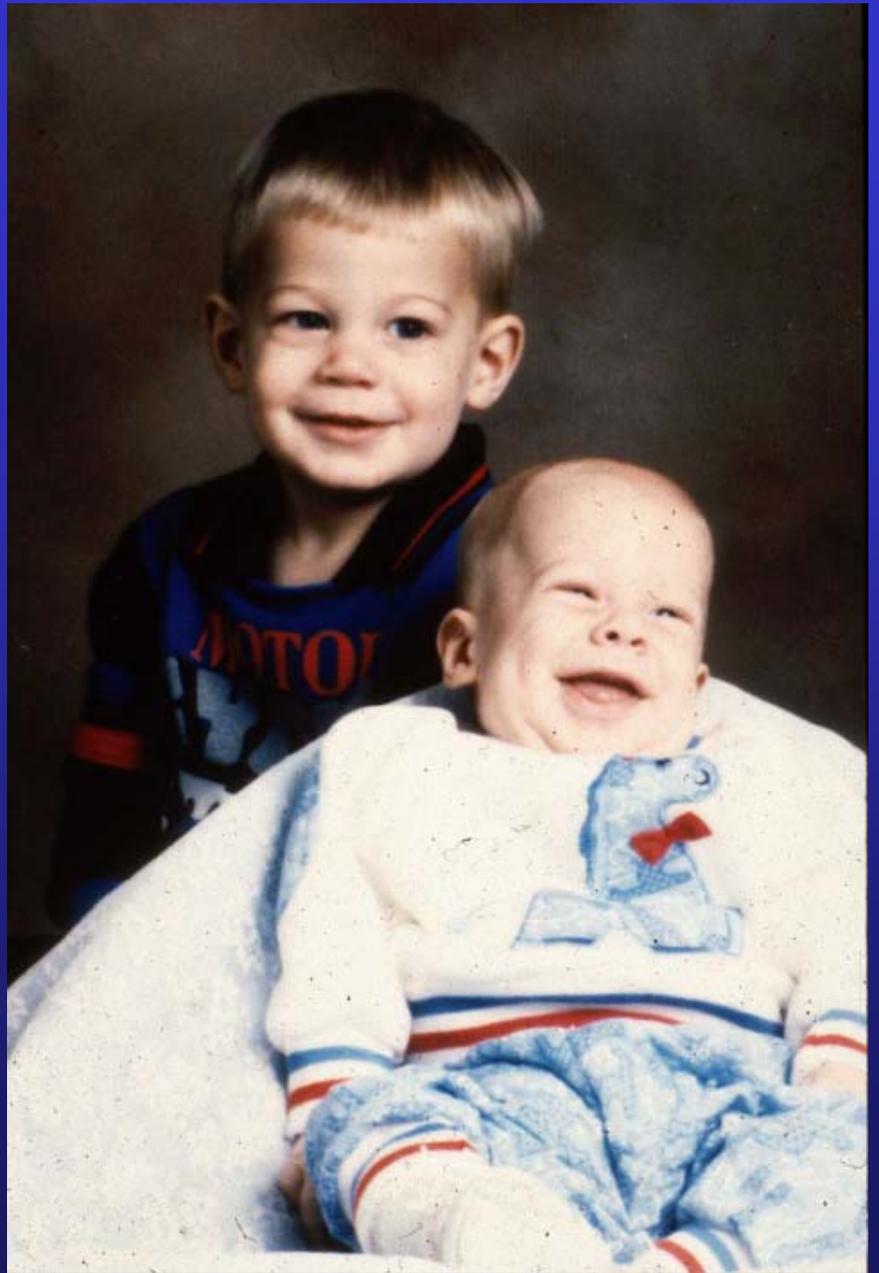


1968

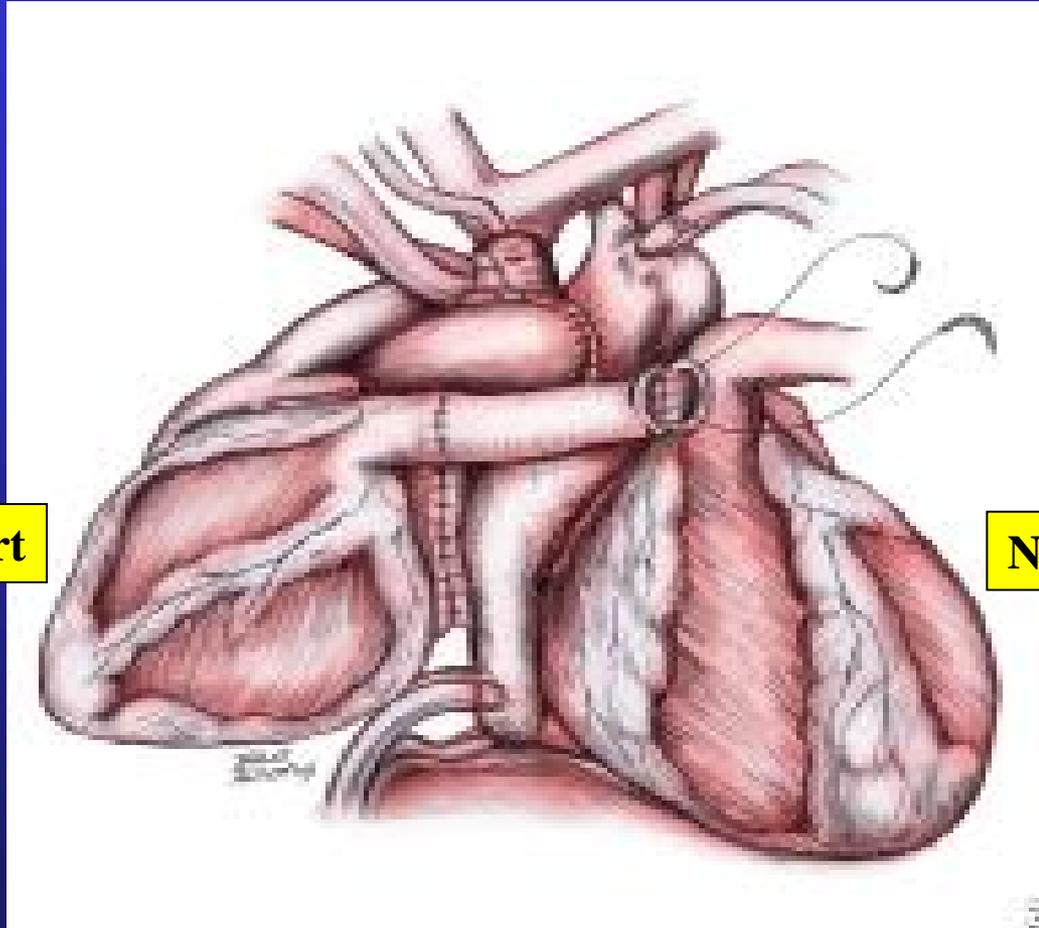




Transplant surgery



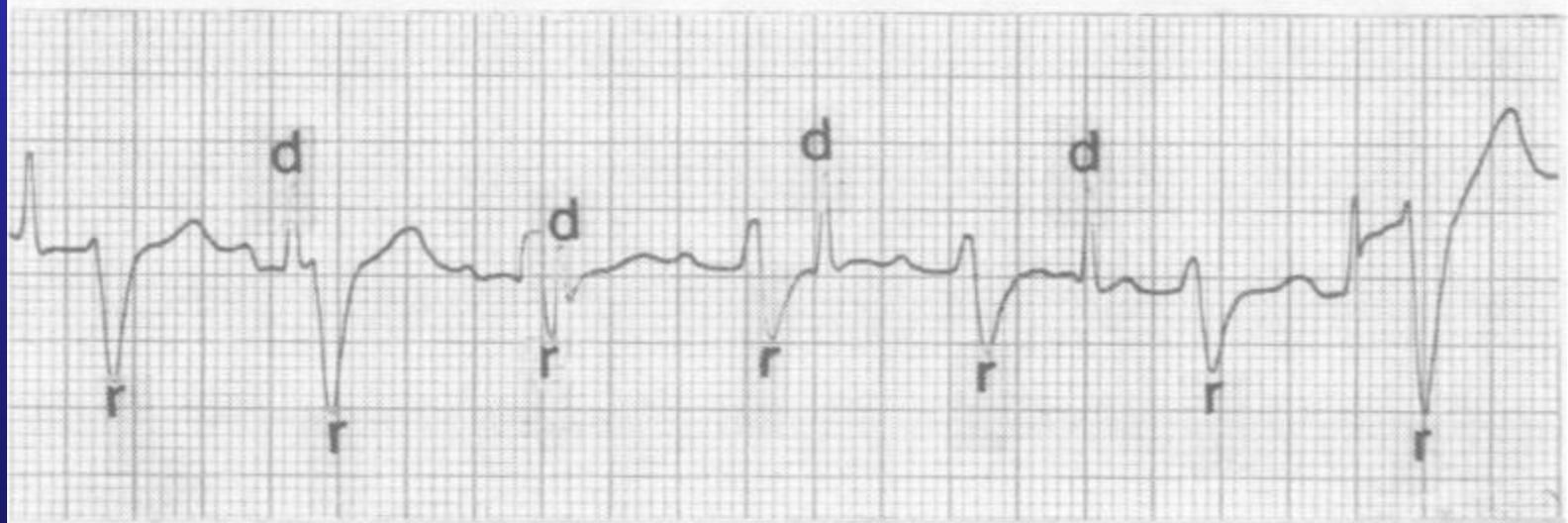
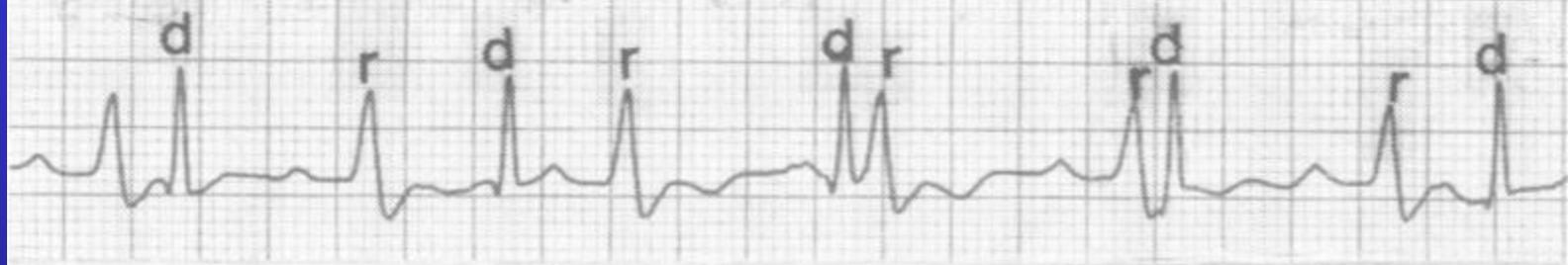
# ***“MAN WITH TWO HEARTS”***

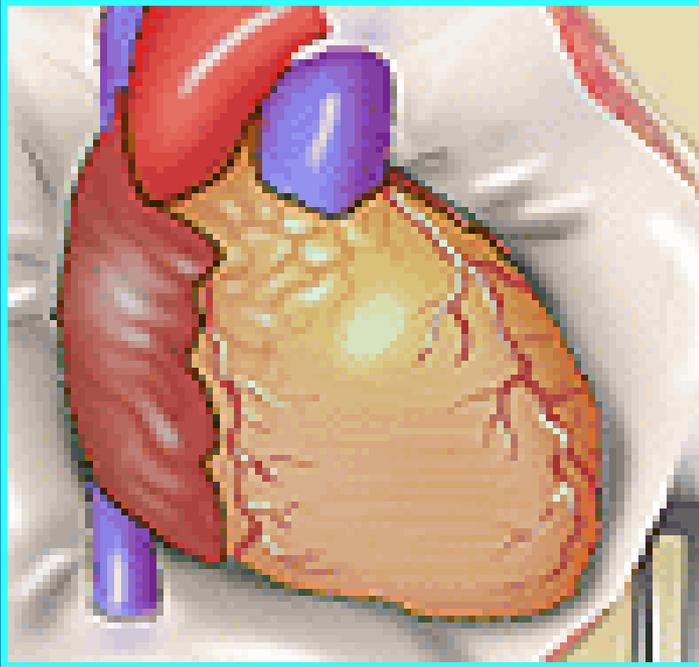


**Donor heart**

**Native heart**

RHYTHM STRIP: II  
25 mm/sec; 1 cm/mV





# *Operation: Heart Transplant*

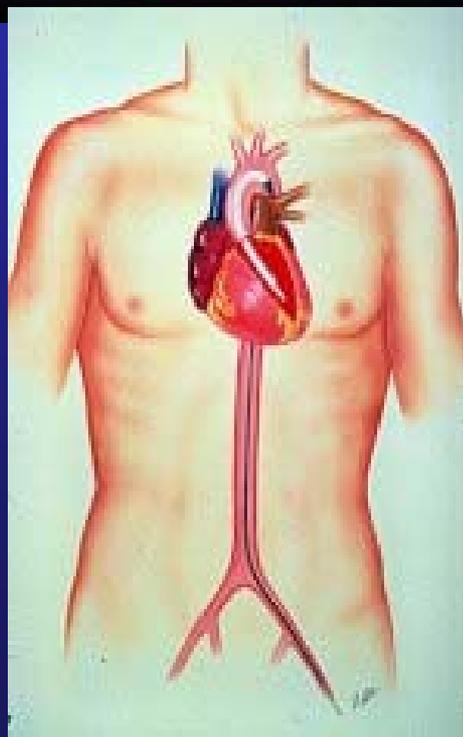
**How to Transplant a Heart in Nineteen Easy Steps**

<http://www.pbs.org/wgbh/nova/eheart/transplant.html>

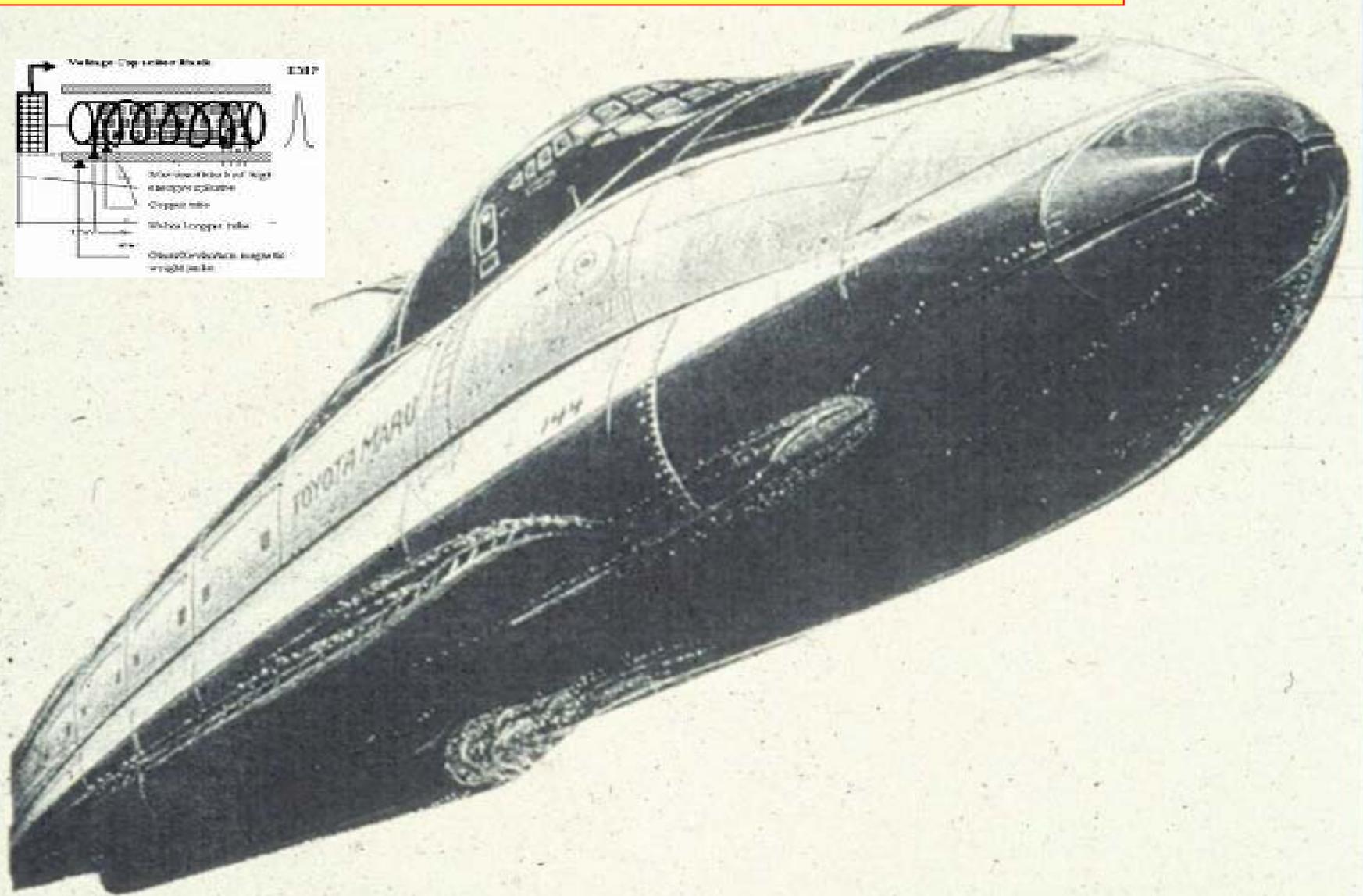
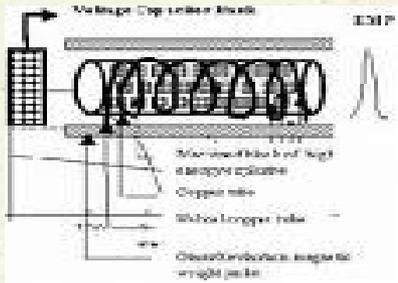
*piglet heart into calf*

- filtered calf blood
- *cobra venom*

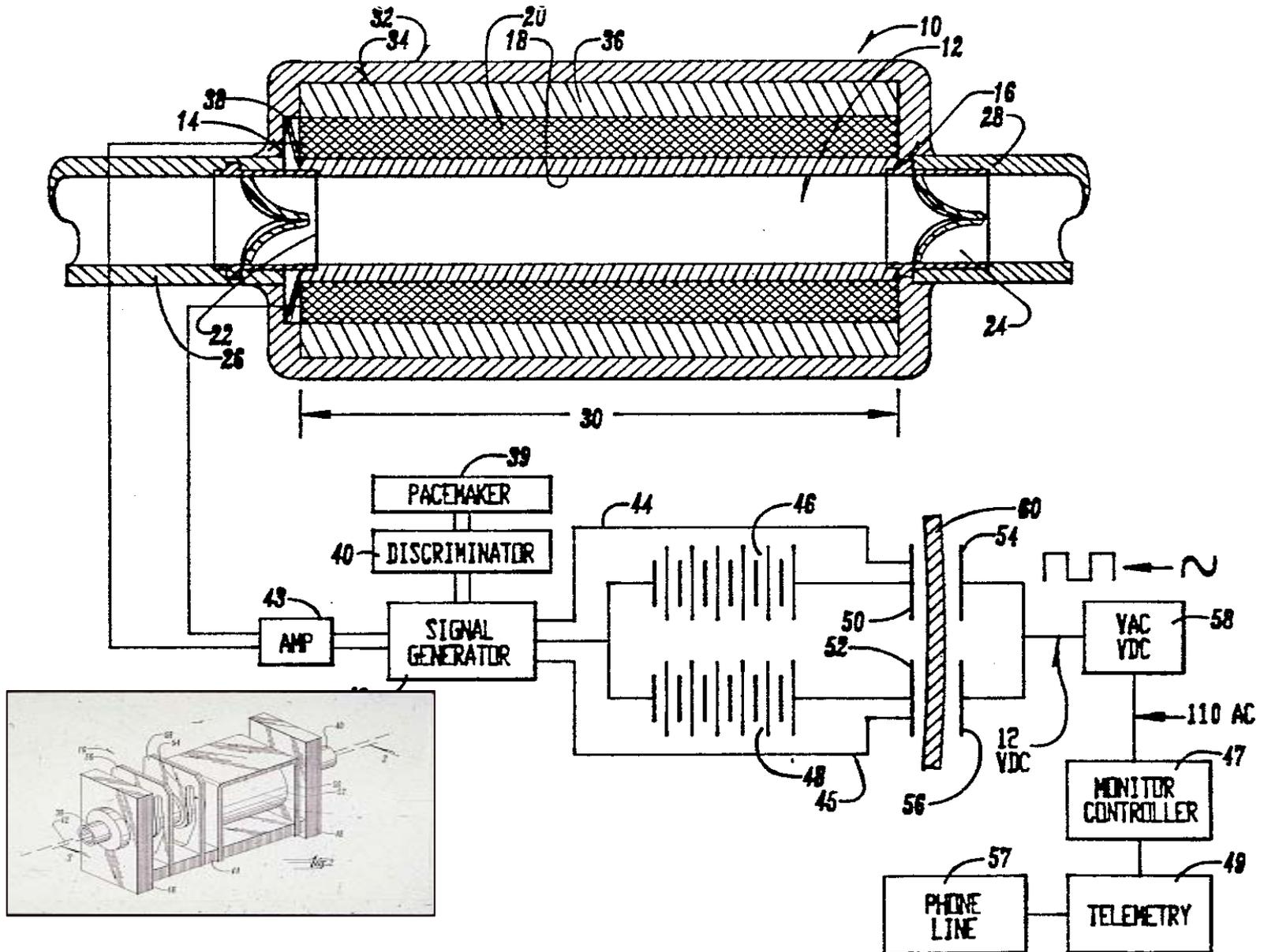




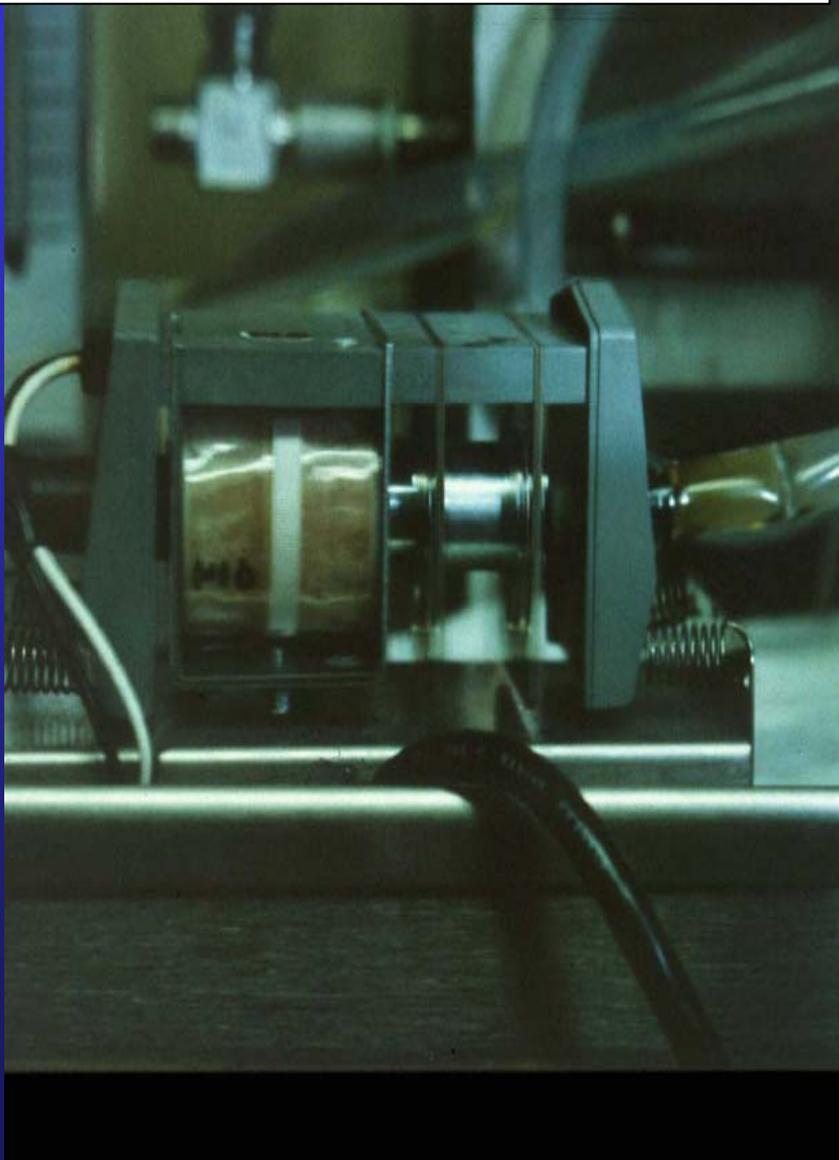
# The HUNT for RED OCTOBER



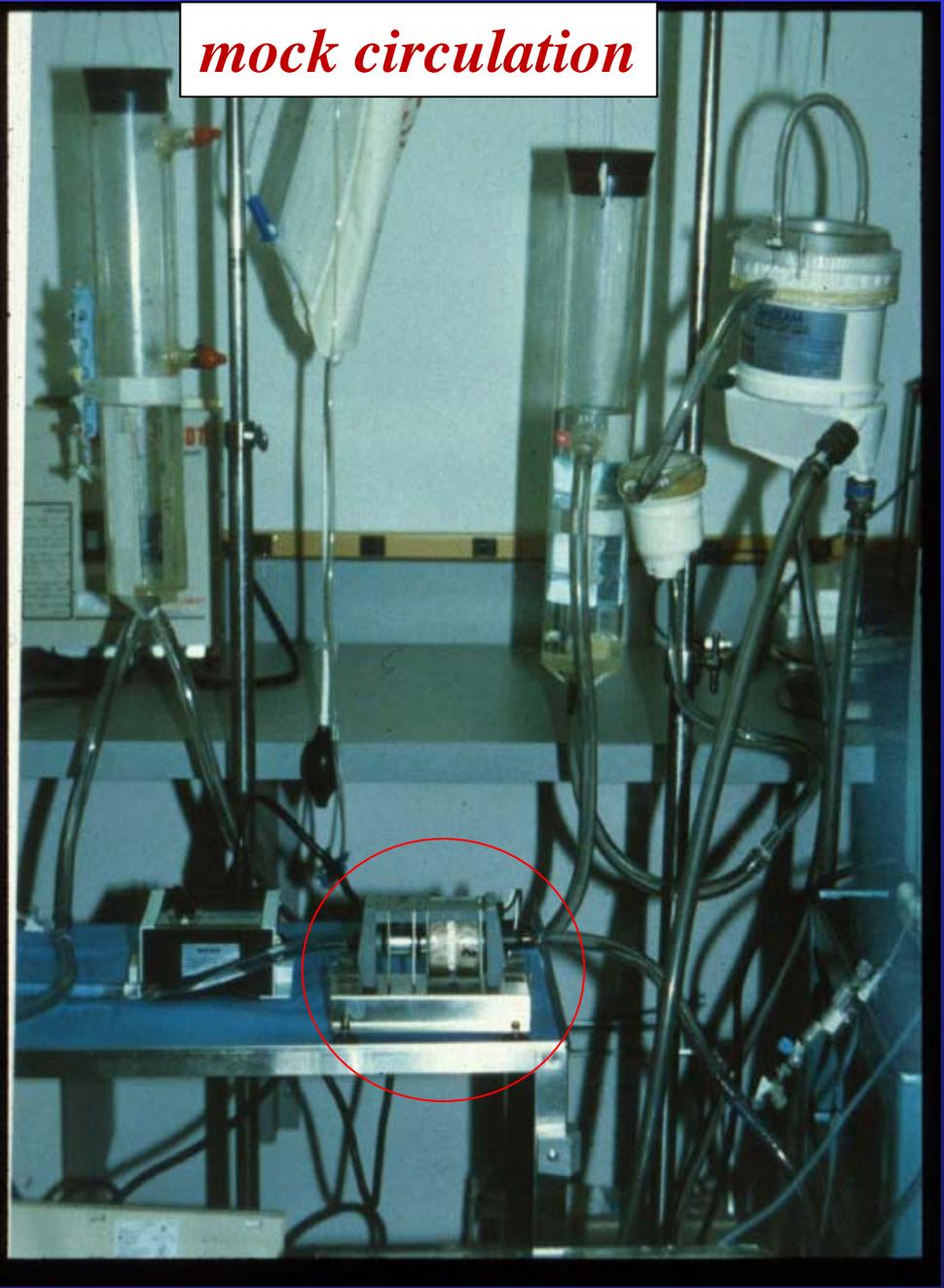
# Magneto-hydrodynamics



*magneto-hydrodynamic  
pump*



*mock circulation*



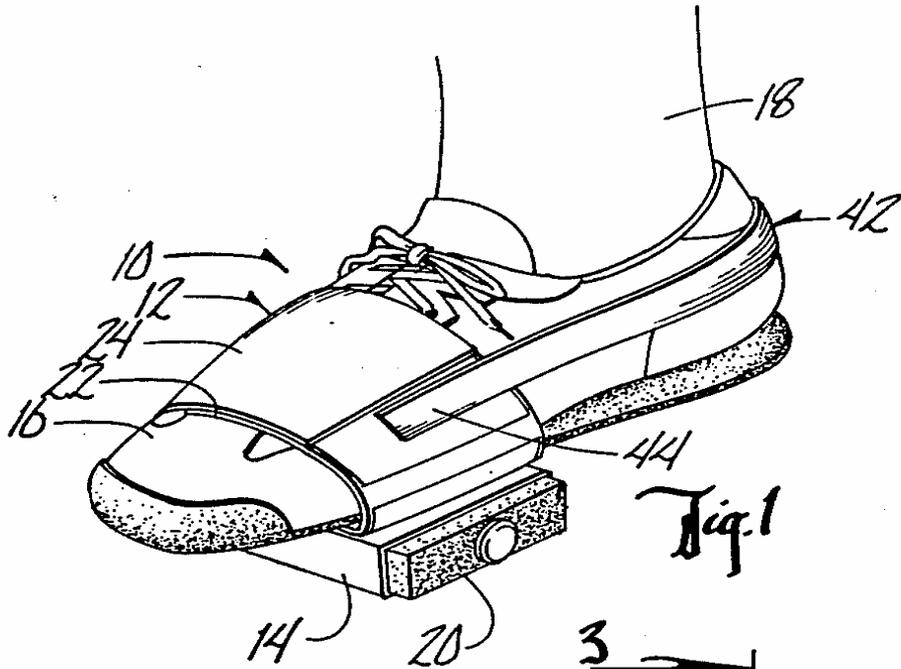


Fig. 1

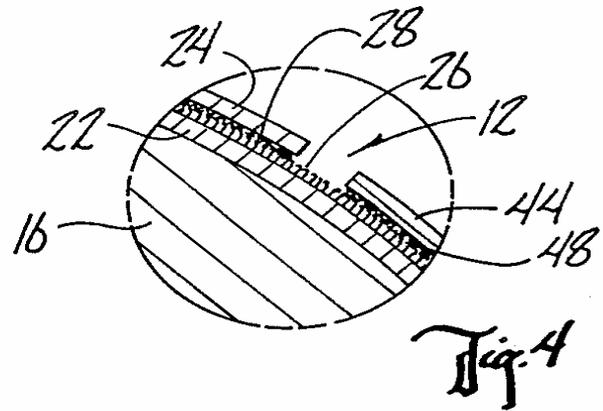


Fig. 4

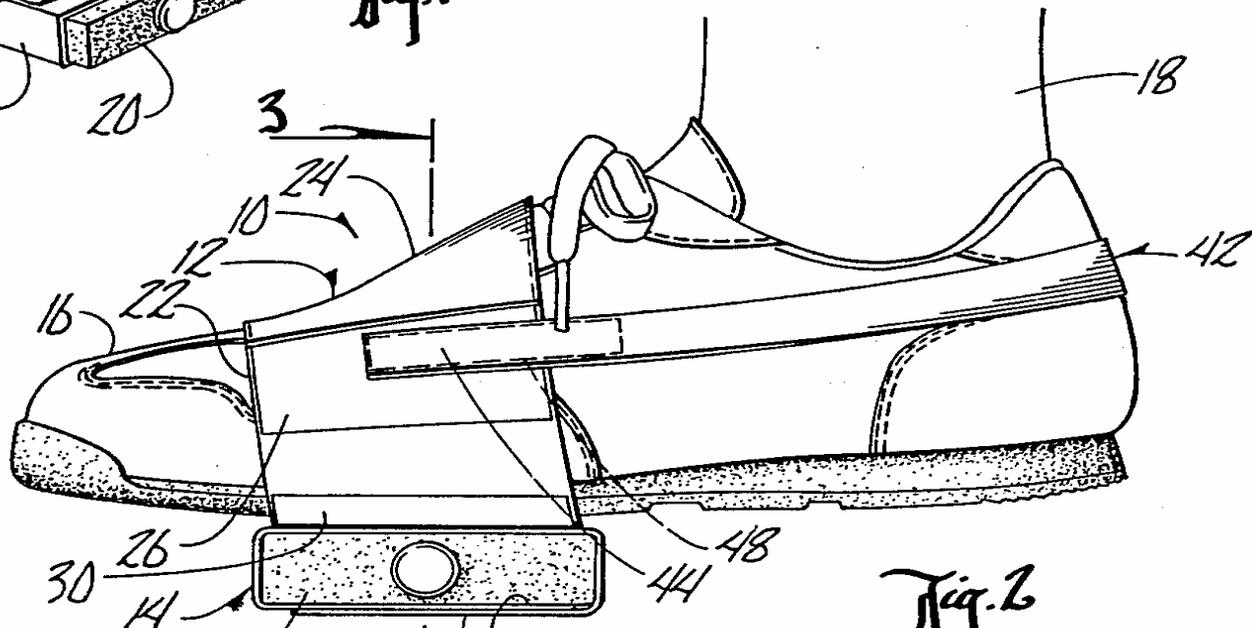
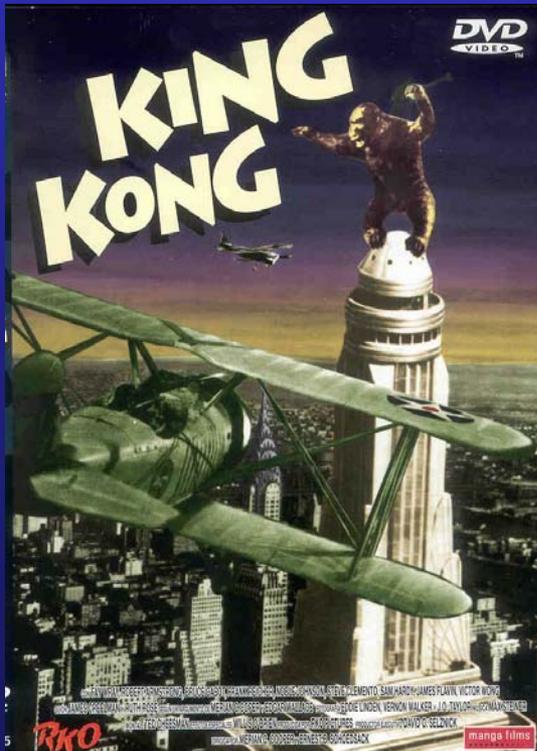
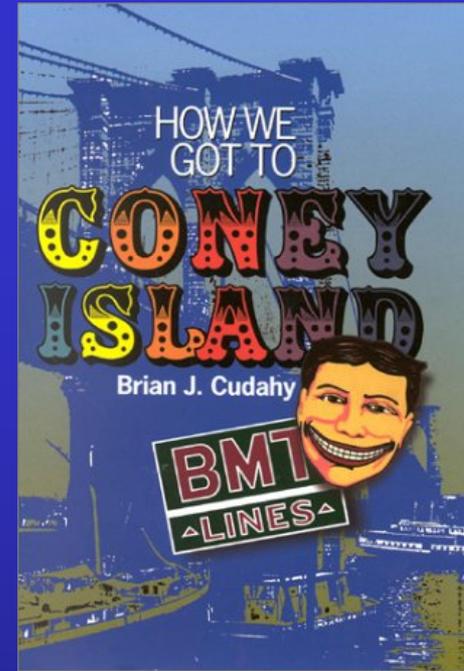


Fig. 2



*Brooklyn*



**America's  
 Greatness  
 Was  
 In His  
 Fists...  
 The  
 Screen's  
 Big  
 Story  
 Is In  
 His  
 Heart!**

*The triumph, the let-  
 down, the love he  
 searched for it's all  
 here in the real life  
 adventure of the  
 fighter... the man  
 the legend they  
 called the "Brown  
 Bomber!"*

*They don't  
 make any  
 bigger  
 than  
 this!*

# **The JOE LOUIS Story**

**THE JOE LOUIS STORY**  
 with PAUL STEWART - HOLM CORBIN  
 JAMES EDWARDS - JOHN MARLEY  
 COTTIS JOHNSON and introducing  
 COLLEY WALLACE as JOE LOUIS  
 A Warner P. Company - A Presentation  
 Produced by Stanley Kubrick  
 Directed by Robert Rossen  
 Original Storyline by Robert Rossen  
 Music by George Bizet  
 Released May, 1945  
 Approved May, 1945

**SEE  
 the  
 original  
 in  
 color**

**SEE  
 the  
 original  
 in  
 color  
 with  
 color  
 commentary  
 by  
 the  
 original  
 color  
 cast**



# THE BOYS OF SUMMER

*ROGER KAHN*

*A warm, delightful narrative of growing up within shouting distance of Ebbets Field, working for the Herald Tribune in the Jackie Robinson years ... and what's happened to everybody since*



Jackie Robinson, 1952 © Ardy Jurek 1995

8691



WILLIAM MONTEGOMERY FLAGG

**I WANT YOU  
FOR U.S. ARMY**

**NEAREST RECRUITING STATION**

*Camp Eagle  
Aid Station*



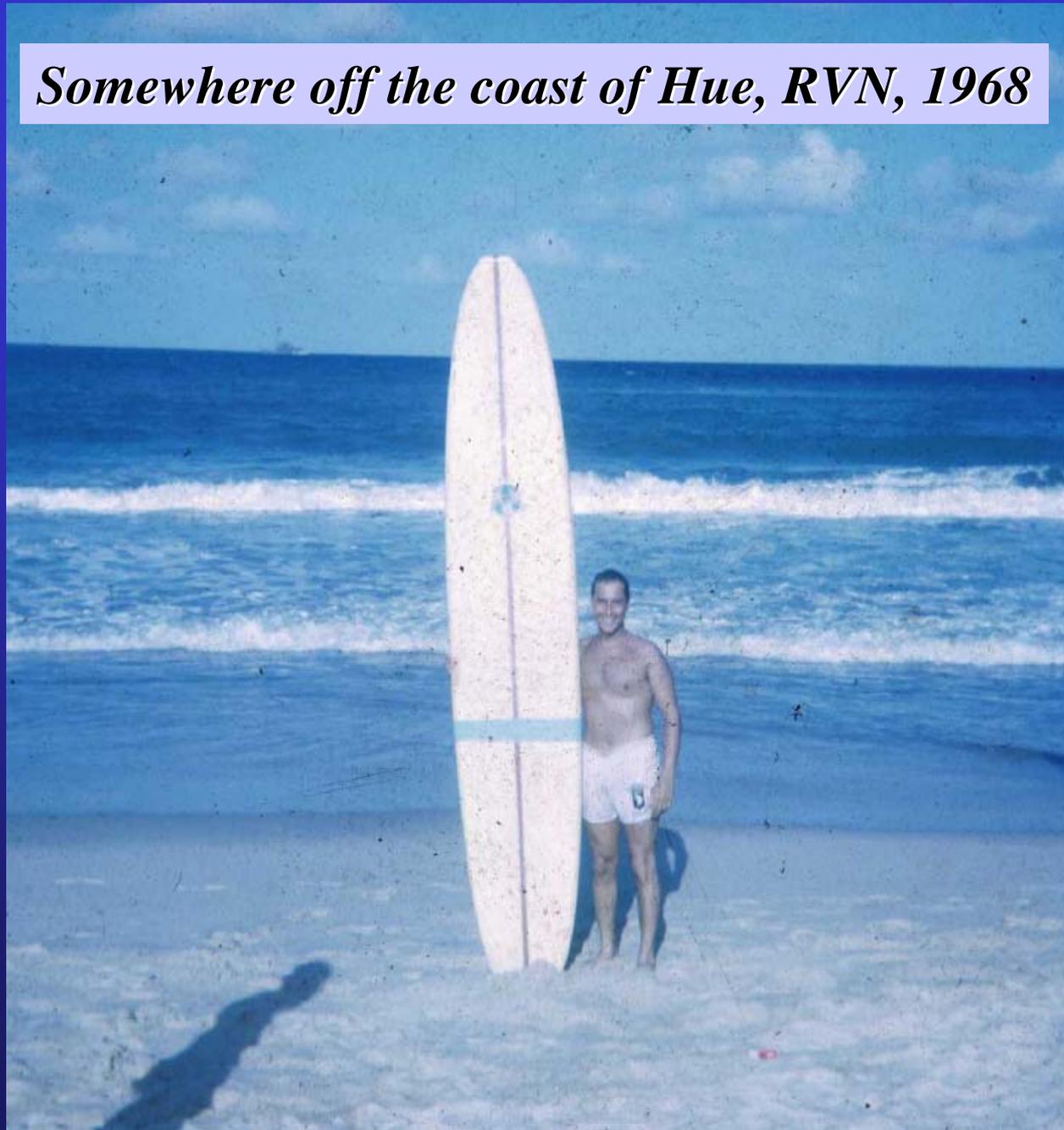
**1968-9**



*Combat support mission*



*Somewhere off the coast of Hue, RVN, 1968*





# Vietnam Veterans Memorial





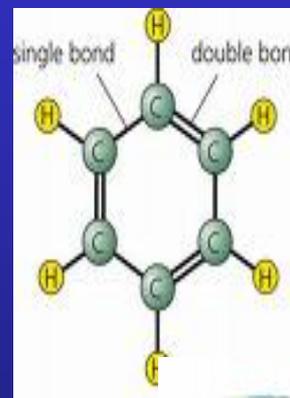
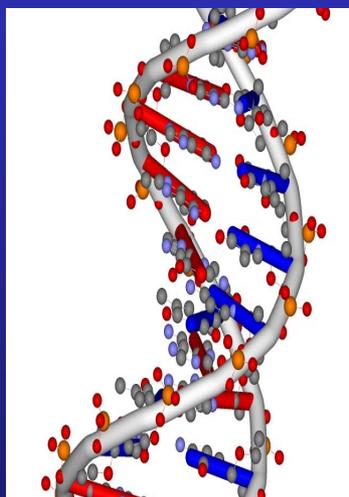
# National Institutes of Health



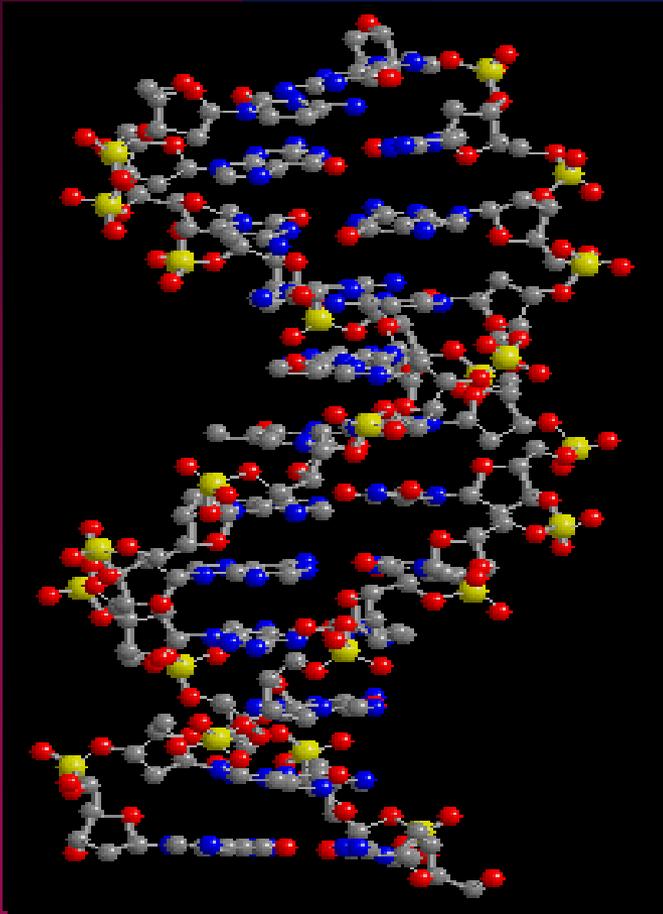
*National Library of Medicine*

***NLM : expert in information management***

Genome / MedLine / ToxNet



# *Human Genome*



- 6 feet of *DNA* in each cell
- 46 chromosomes contain *DNA* for @ 30,000 *genes*

**The National Library of Medicine's**

**Visible Human Project (TM)**

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**Human-Computer Interaction Lab  
Univ. of Maryland at College Park**

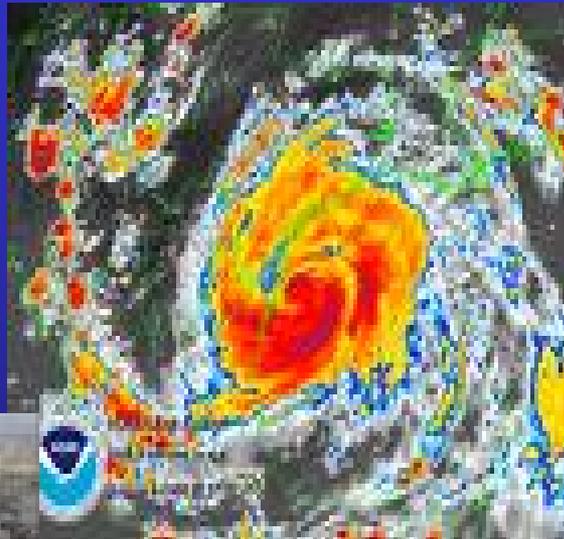
# Turning Pages



# Disaster Information Management Research Center

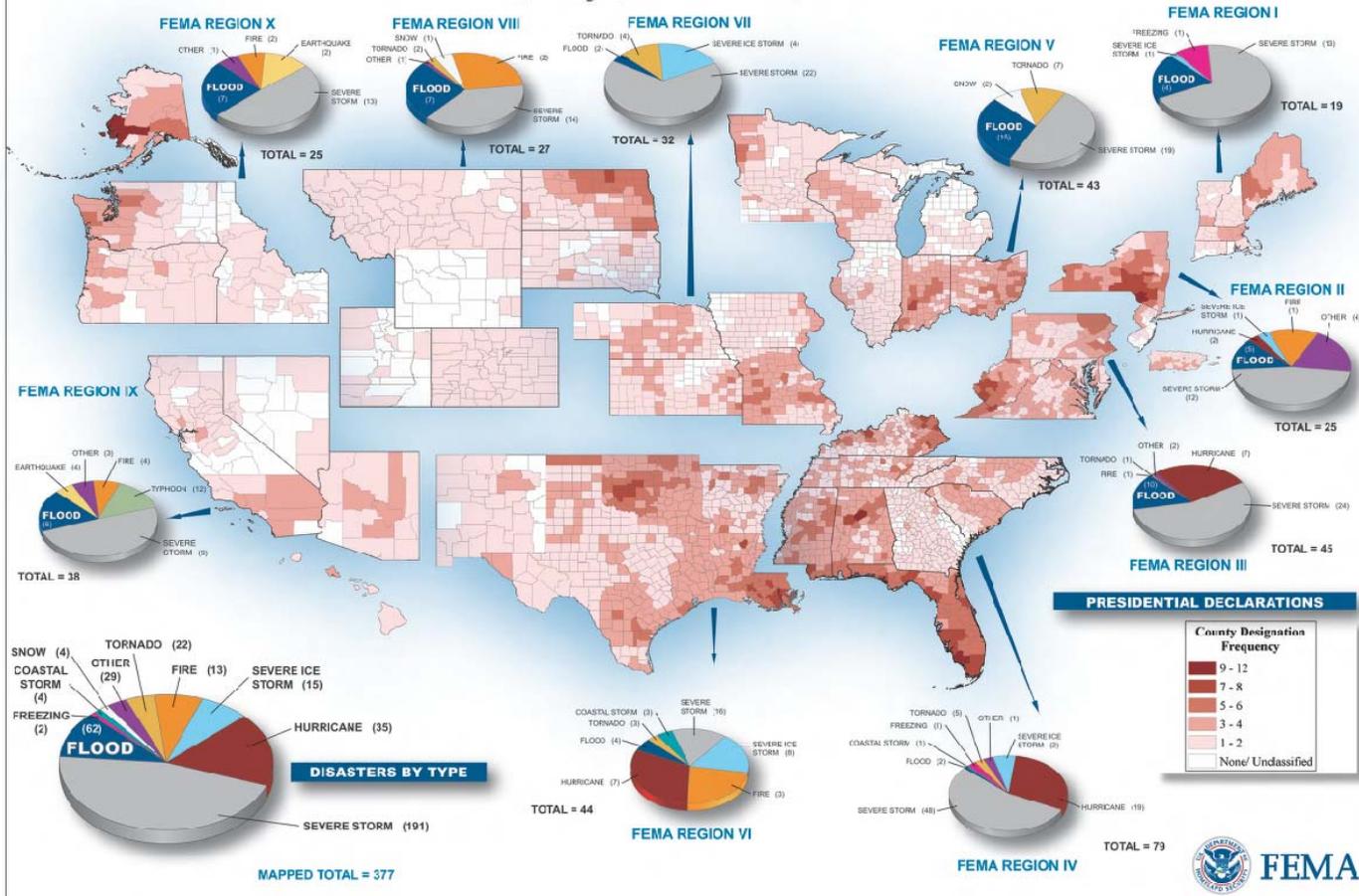
**What are Disasters ?**

- *Acts of Nature: majority*

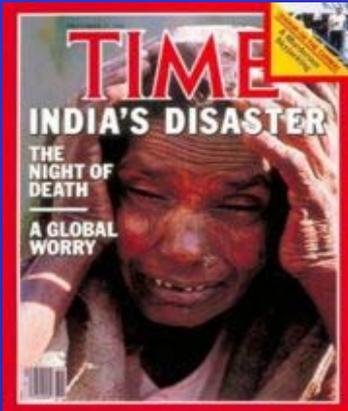


# PRESIDENTIAL DISASTER DECLARATIONS

January 3, 2000 to March 3, 2007



# “Accidents”



Bhopal India



Chernobyl

50 nuclear weapons  
lost - U.S. lists 11

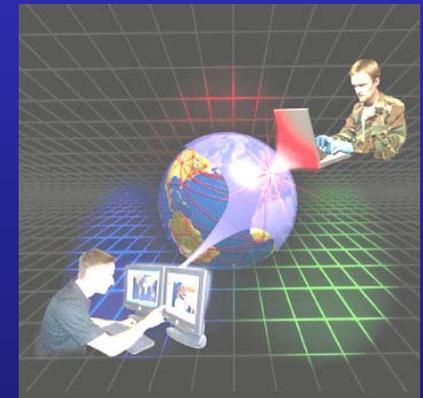
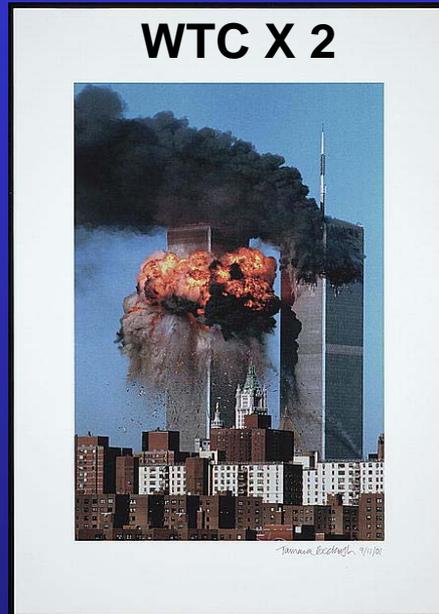
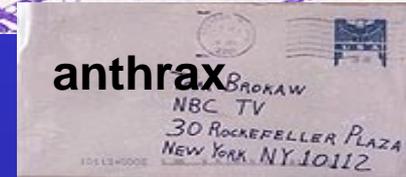


Rapeseed oil

Soviet Anthrax Lying  
Unguarded on Test Island

ONE of the world's largest dumps of the biological weapon agent anthrax has been left unguarded. The dump is on Renaissance Island in the middle of the Aral Sea,

# Terrorism

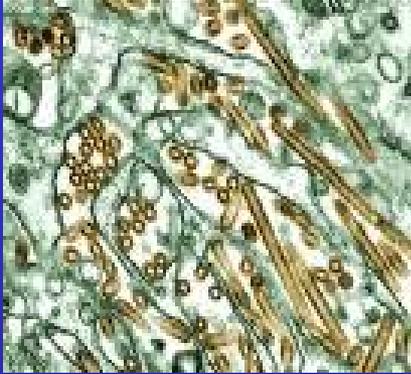


Cyber Terrorism

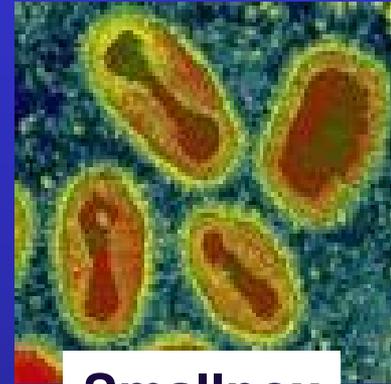


UK, Spain, India

**Bio-Terrorism:** *intentional use of microorganisms or toxins, to cause death & disease in humans, animals, or plants, in a civilian settings*



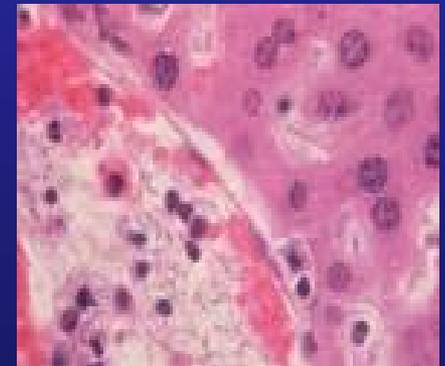
**Avian (H5N1)**



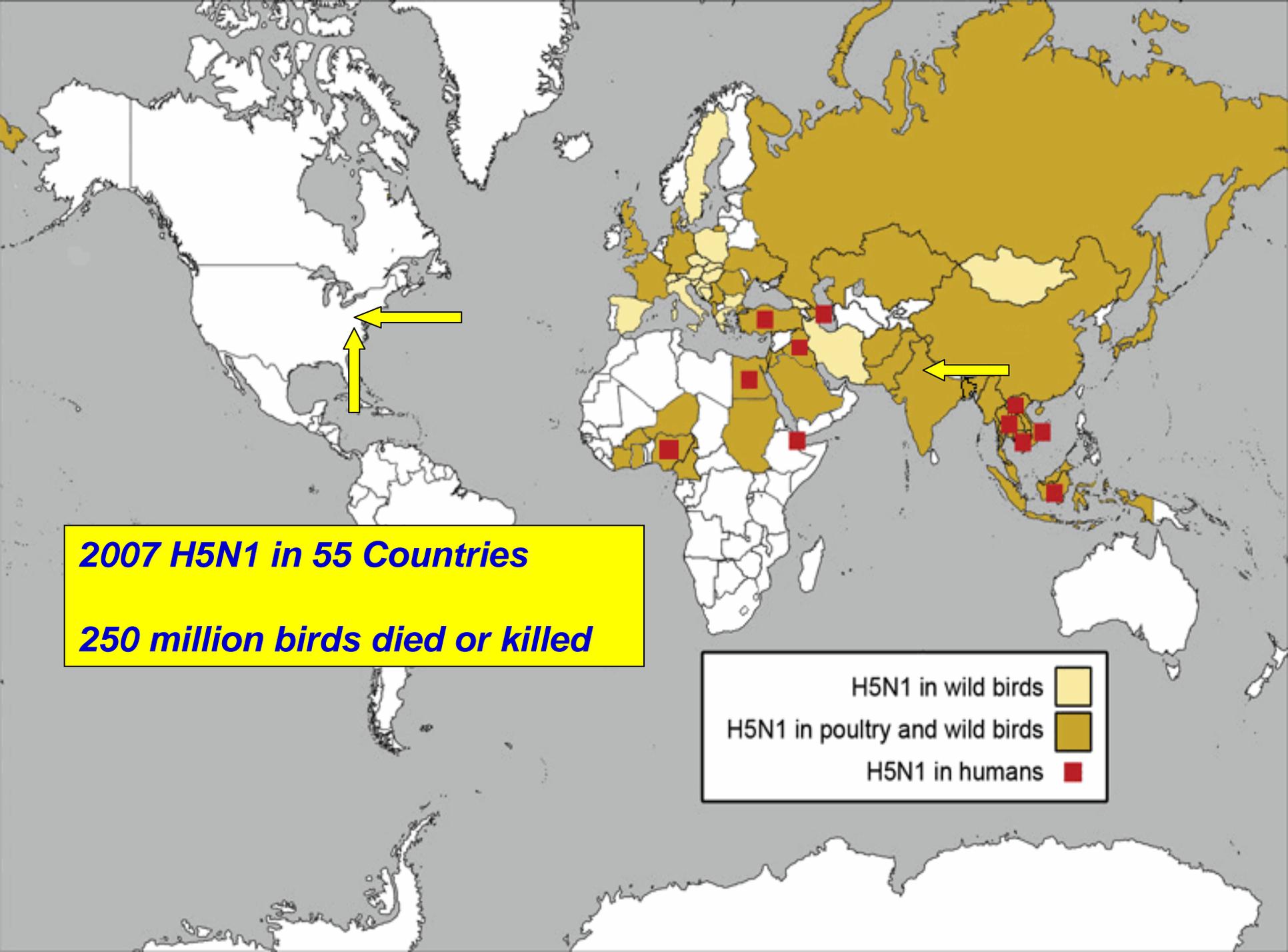
**Smallpox**



*500 sent to the US*



**Ames Anthrax**



***2007 H5N1 in 55 Countries***

***250 million birds died or killed***

H5N1 in wild birds   
H5N1 in poultry and wild birds   
H5N1 in humans



# Disaster Information Management Research Center of the NLM

- *Disaster Information Specialist*

- *Tools for responders*

WISER, REMM

- *Research*

Communications

Data Triage

- *Tutorials & Simulations*

Second life

**Steven J. Phillips, MD: Associate Director  
Specialized Information Services, NLM  
sPhillip@mail.nih.gov**

*“Information allows us to make the correct decisions”*



- NATIONAL RESPONSE PLAN

- NATIONAL INCIDENT MANAGEMENT SYSTEMS

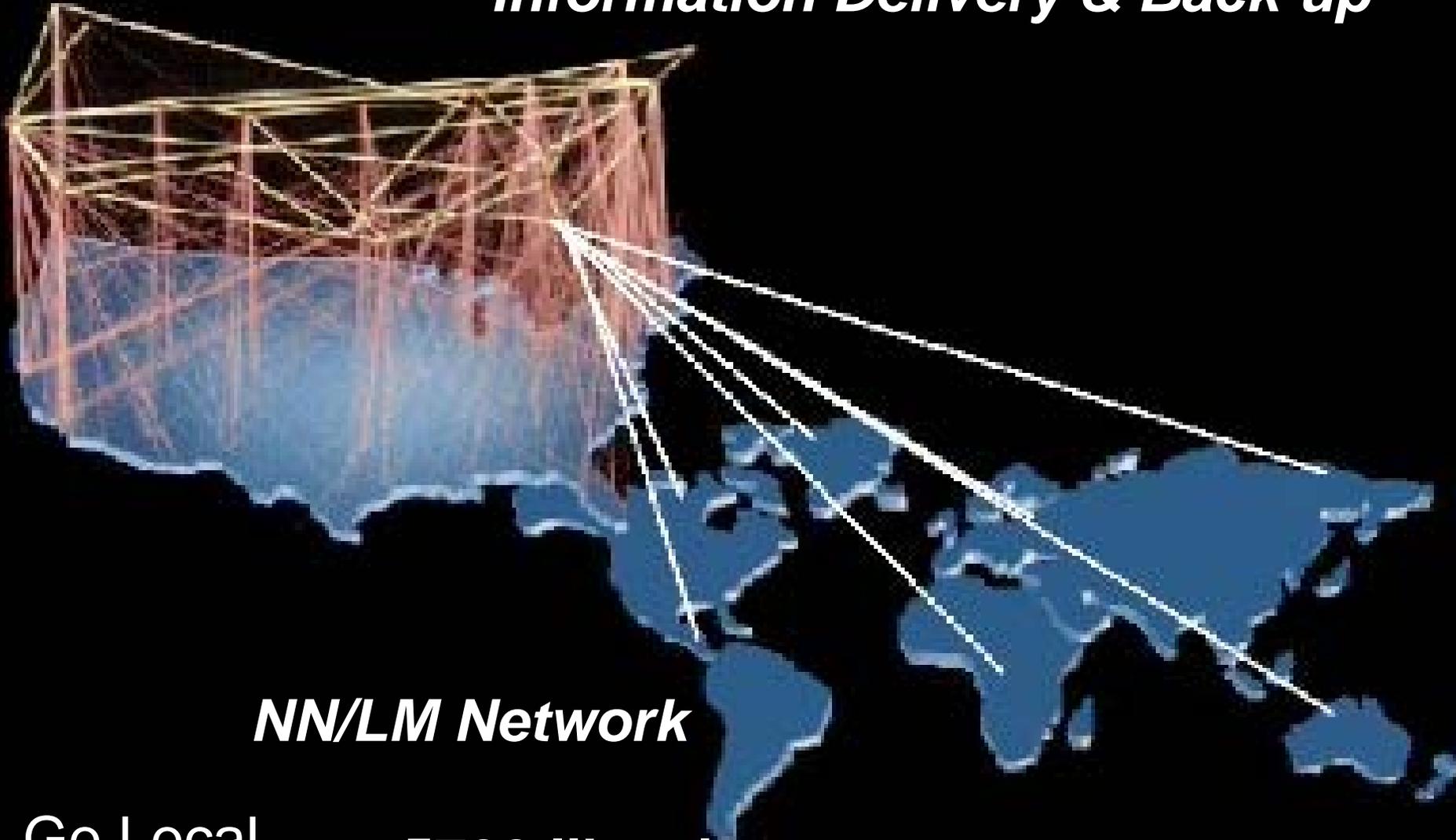
- HOMELAND SECURITY PRESIDENTIAL DIRECTIVE

*HSPD-18, 21*

**SOC, NNMC, NYU, Sarasota**



# *Information Delivery & Back-up*



***NN/LM Network***

**Go Local**

**5700 libraries  
+ associated libraries**

# WISER

## Wireless Information System for Emergency Responders

<http://www.wiser.nlm.nih.gov>



- Easy navigation, intuitive
- Information tailored to the specific role of the emergency responder
- Focus on unknown substance identification capabilities
- Provide a platform that can be expanded to support other emergency response needs
- Rich, stand-alone capability with enhanced connected (wireless) capabilities
- Cross-platform, multi-device architecture
- *Adding GIS*



ASPR

## Radiation Event Medical Management

- Provide guidance for health care providers, primarily physicians, about clinical diagnosis and treatment during mass casualty radiological/nuclear (rad/nuc) events
- Provide just-in-time, evidence-based, usable information with sufficient background and context to make complex issues understandable to those *without* formal radiation medicine expertise
- Provide web-based information that is also downloadable in advance, so that it would be available during an event if the internet is not accessible

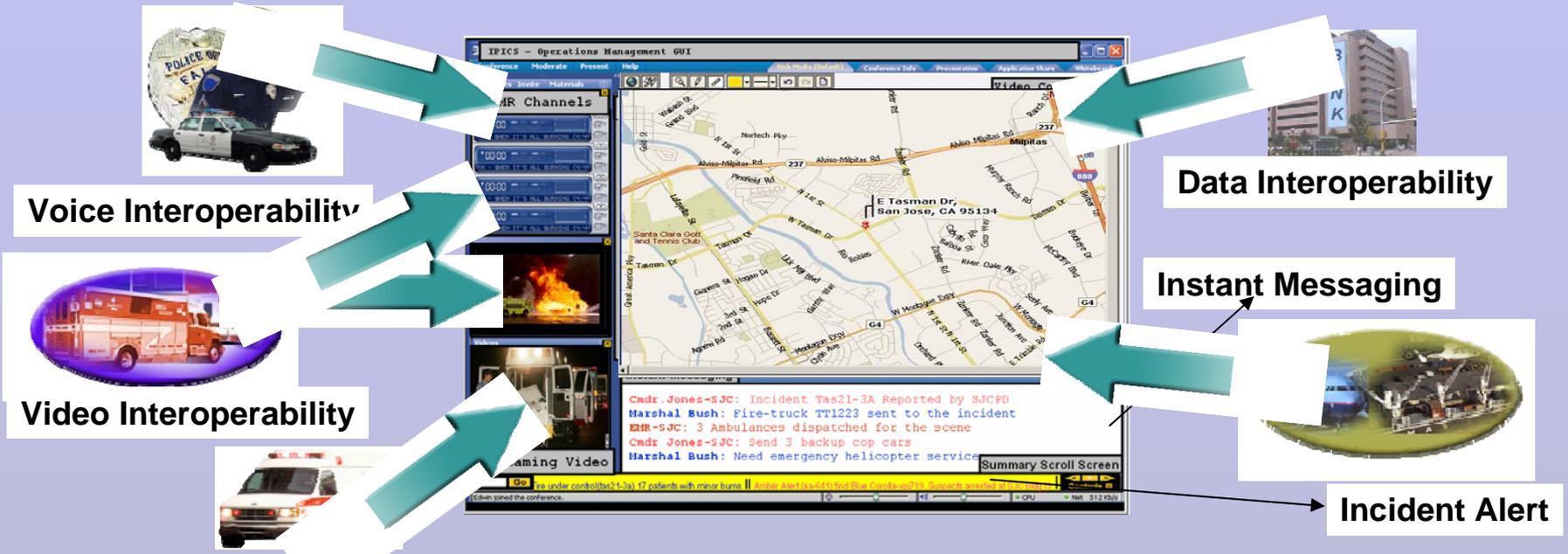
8

<http://www.remm.nlm.gov>

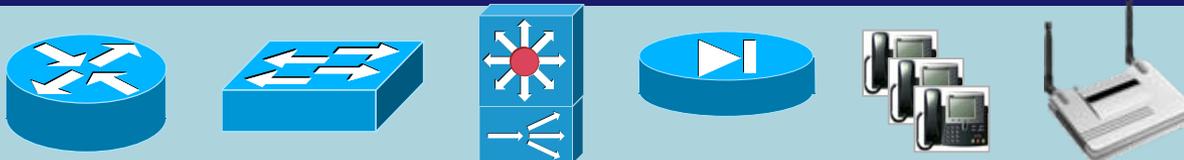
# Research Agenda

- **Disaster Patient Data Management Testbed**
  - *Data Capture*
  - *Data Tracking*
  - *Data Exchange*
- **Wireless IP Technologies for Voice Communication**
- **Digital Radio Communications Backup System**
- **Virtual Environments for Disaster Training**

# Enable communications interoperability



## *IP-based Interoperability with Voice, Video, and Data Integration*



**INTELLIGENT NETWORK INFRASTRUCTURE**

**Gateways  
Mobile Solutions  
Switching, Routing  
Wired, Wireless**

# 2nd Life Virtual Environments for Emergency/Disaster Training



- Used in NLM's TOXTOWN
- Virtual platform for BHEPP drills and simulations
- 3-D mapping of Bethesda area



# Summary: DIMRC

*U.S. Government portal dedicated to provide personnel, tools, information & research ways to assist with disaster preparedness & response*