

May 1994

was for me
It's a wonderful excuse to return again to Oberlin and to enjoy ~~what we all remember~~ a well-remembered day of typical-Oberlin weather

ADVENTURES IN INTERNATIONAL HEALTH SYMPOSIUM

May I express to you my pleasure in having been ^{invited} ~~selected~~ to present this Alumni Lecture. It is important, however, that I first pay appropriate tribute to the class of 1934. ^{and to one of the most distinguished alumni, Dr. Ken Schuman, a good friend of 30 years}

^{the class of 34} I am told that ~~it~~ is unquestionably the best to have ever graduated from Oberlin. And except for the class of 1950, you have no argument from me. Most remarkable of all is the fact that none of you, I am sure, look a day older that you did ~~50~~ years ago.

International scene, today, appears to be an unvoluntary series of disasters - civil wars, AIDS, poverty, famine. The news media report all of these ~~at~~ at length, and with relish. Today, I'd like to share with you another type of story - equally as dramatic as the world scenes described. My ~~own~~ career path since leaving Oberlin and ~~the~~ Rochester ~~School of Medicine~~ ^{has}

been anything but orderly. I began specialty training in internal medicine and, more specifically, cardiology, but before I got very far, I was summoned to military service by Uncle Sam. One had a choice ^{then} as to which service one wished to spend two years with - Army, Navy, Air Force or Public Health Service. I didn't perceive that there was a great deal to choose between them - as I saw it, very young, very inexperienced physicians were unlikely to be given ~~very~~ significant responsibilities in any of the services. The Public Health Service eventually won out for two very cogent but not very high-minded reasons. First, one did not have to endure an inductee boot camp and, second, most PHS officers didn't wear uniforms.

That decision, so thoughtfully made, proved to be one of the ~~most~~ most important decisions of my life. I was assigned to the Communicable Disease Center in Atlanta where a unique group had been ^{created} ~~founded~~ - the Epidemic Intelligence Service - commonly referred to in the press, then and now, as the disease detectives. We were on call 24 hours a day to respond to requests for help in combatting disease outbreaks wherever they might

but wholly positive and optimistic - ~~and~~ and all but unknown ^{media} ~~through~~ the press. By virtue of inadvertent circumstances - and chance decisions, I have been fortunate to ^{begeth} ~~share~~ participate in what has ~~been~~ been a remarkable revolution in child health, I should like today to share ~~with~~ with you a few vignettes of that adventure

Obviously, none of us could be exempt in all the diseases outbreaks to which we were summoned. Common practice - reprint file

occur. ~~What adventures they were!~~ For me, I was engaged in epidemics of diphtheria in Alabama, hepatitis in New Jersey, food poisoning in Puerto Rico, botulism in Argentina, poliomyelitis in the South Pacific, smallpox in Yugoslavia and cholera in the Philippines. What began as a two year tour of service lasted 21 years and shaped a lifetime career in public health.

Quite clearly, our most effective weapons were ~~the~~ vaccines. ^{During the 1950s and 1960s} ~~We did numerous field tests of new vaccines and then participated in the campaigns to introduce them for use.~~ ^{We forgot how much of the earlier years.} ~~The first - polio vaccine~~
~~1953-54 Medical student - Rochester // respirators // schools, movie theaters // our own rooms~~
The Salk polio vaccine, licensed in 1955, transformed summers for parents and children alike as it removed the dreaded specter of polio. ^{At CDC - much more} The Sabin oral vaccine came along in 1962 and we worked in cities across the country in organizing S.O.S. campaigns — "Sabin on Sunday." And then came rubella and mumps vaccines.

As a medical practitioner, one derives immense satisfaction from one's personal contacts with patients and in helping them successfully weather the inevitable array of illnesses to which mankind is subject. ^{As it was to discover,} ^{was} Professional gratification in public health is very different but, in other ways, ^{it proved} ~~even~~ more rewarding as ^{we} ~~one~~ directs and participated in programs whose goals ^{we} ~~are~~ the prevention of hundreds of thousands even, millions, of cases of disease and deaths. ^{To} One's children, ^{however, we, public health physicians} ~~sometimes have difficulties with~~ ^{we, a bit of a puzzle and somewhat incomprehensible,} ~~this distinction, however,~~ as ^{because} One of mine at an early age was overheard telling a friend that I was a doctor but not a real doctor. ^{I never treated patients}

second landmark for me occurred

~~A turning point in my career occurred~~

In the early 1960's, ^{cases of} increasing numbers of imported smallpox cases began to occur in Europe, in large part because of the increased volume of air travel. ^{This was a matter of fact at that time,} ~~Of all the diseases~~ ^{of all diseases that in all countries} ~~this~~ ^{smallpox} was probably the most feared. Death rates of 20 to 30% were usual; there was no treatment. ^{you will recall that} All travelers were supposed to be vaccinated every three years and to present a yellow vaccination card attesting to this fact. Even though smallpox was absent from many countries, including Europe and North America, all conducted routine vaccination programs, and in the U.S. vaccination before school entry was a requirement in all states. ^{Every one of you has a vaccination scar, I am sure.} Britain and Germany, in fact, maintained special smallpox hospitals to be opened when importations occurred.

The last

~~No~~ cases of smallpox had occurred in the U.S. ~~since~~ ⁱⁿ 1949 but, with the problems in

Europe, we decided it would be prudent to better prepare ourselves for imported outbreaks which we saw as inevitable. We ^{sent} ~~trained~~ our "disease detectives" ^{To outbreaks in Europe and here to become familiar} in smallpox diagnosis and control. ^{we} ~~and~~ began testing electrically powered jet injector guns which would permit us to vaccinate as many as one thousand persons per hour.

It was

The year 1965 marked my tenth year in the Public Health Service, ~~but likewise~~ ^{transforming me in important} a year which was to significantly transform the rest of my life. The Agency for International

Development, on the request of a number of French West African States, agreed to provide them ~~support~~ ^{supplies of} to vaccinate all children up to 6 years of age ~~with~~ the new measles vaccine.

There was no question but that measles in Africa was, and is, a far more serious diseases than in the U.S., although still ^{much} ~~significantly~~ less serious than smallpox. AID asked the

The program to us made little sense - vaccines = \$1/dose
countries then couldn't afford to buy vaccine costing 10¢/dose
At the end of 6.5 yr. program - back to square '0'

Public Health Service to undertake the design and implementation of this program. To us at CDC, it seemed more practical, economical and effective to mount a ~~combined~~ program utilizing both measles and smallpox vaccine. Moreover, we believed that with an effective program, one should be able to ~~both control~~ ^{control} measles ~~and~~ ^{(a temporary solution) but} to eradicate smallpox from the whole of West Africa ^(which might be permanent) - ~~some~~ ^{some} 20 countries with a population of one hundred million persons ^{was involved.} We estimated ^{the} a cost ^{to be} of \$35 million — rather more than the \$10 million AID had planned to spend. Weeks of discussion and indecision ensued when suddenly, the total CDC plan was approved. We were stunned but not until much later did we learn what had happened. The year 1966 was being celebrated as International Cooperation Year.

President Johnson, ^{wanting to} ~~is a public statement~~ affirming ~~ing~~ ^{decided} U.S. support, ~~wanted~~ to announce some sort of new initiative as a U.S. contribution to the effort. The various government agencies were solicited for ideas; the Surgeon General proposed the West Africa program; the

President's staff thought it was a splendid idea and ordered AID to fund it. ^{In November 1965,} we began the development phase of the program / recruiting / supplies / government agreements, AID told us that a program such as this required not less than 2-3 years to begin. ^{We saw no technical reason why it couldn't be started within 12 months - and we did!} If it was a good idea for West Africa, why not the world? And so, six months later

the U.S. joined the Soviet Union in proposing to the World Health Assembly a global eradication program. ~~But~~ ^{There were then} many countries, including most of Europe, were highly skeptical — and for good reasons. ^{10-15 x 10⁶ cases / 2-2.5 x 10⁶ deaths in 43 countries} No disease had ever been eradicated and those countries with the most smallpox were the most impoverished with poor health systems, limited road networks and few trained medical staff. The debate ^{in the Assembly} was a long and bitter one. The Director General of WHO, a distinguished Brazilian malariologist, assured the delegates that it was technically impossible. He believed it could not be accomplished without vaccinating every

last person in the world and he knew well that there were Brazilian Indian tribes who were totally out of contact with the outside world. Finally, a vote was taken and the decision for global eradication passed with a plurality of just two votes. 2.5×10^6 was used available - about \$50 000 per country. A 10 year target was established.

The Director General was furious, believing that a failed smallpox program would seriously discredit WHO. He laid the principal blame for the Assembly's decision on the U.S. and promptly approached the Surgeon General to assign an American as director. ^{When it failed - U.S. would be holding the bag} A certain Dr. Henderson was the one.

Ordered to go - at least 18 months.
So in Nov. 1966, stored half of my ^{household possessions} ~~possessions~~ and departed for

Several
inherent
issues

- o Geneva. We were not to see the ~~plumbers~~ ^{plumbers} for 11 years.
 - o Russia's attitude.
 - o Assumed that they were wanted ~~to eradicate~~ ^{to eradicate} ~~the disease~~ ^{the disease} - certainly the endemic countries.
 - o ^{Sponsored, meeting in support of most devel. countries.} What countries agree to in the Assembly and what they actually do - 2 dif. things.
- Said - if all countries implemented as many as 10% of programs they agree to in the Assembly, the world would be approaching a disease-free state.
- One by one they had to be persuaded to participate - sometimes by reason, sometimes by other means. Illustrative - 3 countries.
- + Nigeria
 - + Ethiopia
 - + India.

- + Funds -
- U.S. agreed to support prog. in W. Africa.
Anticipated that European countries would provide perhaps $\$5-7 \times 10^6$ / yr.
At end of 5 years - $\$100 000$ \$150 000 / country
- ~~Significant support from USSR, but~~ ^{Gradually more funds but over during the last 2 years}

- + Vaccine -
- All countries vaccinating to some degree, often using locally produced vaccine.
1st step - check the potency.
 $< 10\%$
Some no virus.
Steps - vaccine production + USSR supply

It was clear that we had a major task before us but then some positive developments (6)

+ Bifurcated needles.

John Scott needed - Ben Rubin.

Bell/Eddison/Forini.

+ Discovery that manpower was not a problem -

Every country is countless unemployed/underemployed health staff.

+ Vaccination - community involvement & large scale vaccination.

+ ~~Assign~~ ^{Assign} cases and build barriers of immunity

o 30 hours

o South Asia - watch guards / 5 miles.

5 years - South America free; Indonesia; all but 2 countries in Africa.

Major focus - India, B'desh, Pak, Nepal

1 billion people - moving actively from place to place.

~~Strategies~~ ^{Strategies} ~~Septima~~ ^{Septima} ~~obstacles~~ - did not work → home of smallpox.

Summer of 1973 - the "search strategy"

Many more cases found - newspaper accounts, ^{India} Spring 74

August 76 - Indian independence day - page 8 of paper.

1976 Only one country - Ethiopia -

Worse than all countries on Eastern seaboard.

Half of population > 1 day's walk from any road.

100 staff. (invest. of suspect case - 7 days walk)

Surgeon-General → 3 helicopters

Not 0 problems - land grenade incident.

shut down

lake Victoria

Rebel areas - Blue Nile Gorge expedition.

Somalia invaded Ethiopia

Finally - Somalia

Oct 26 1977 - last case - 10 yrs / 9 / 26

Confirmation

Reward.

Global Commission → WHA May 1980

Certified eradication - stop vaccination everywhere.

Such might represent a happy ending to a story but this ~~is~~ ^{the 1st chapter} ~~is~~ ^{beginning} rather the last.

→ Clear that it was possible, under wro. to mobilize a global effort and, in fact, gain the active participation of every country.

• Visits to hospitals - polio, measles, etc.

EPI - 1977 DPT / Measles / Polio / BCG

Need for one billion doses annually. - not possible

A beginning was made -

UNICEF - "Child Survival Revolution"

ROTARY - 100×10^6

Progressive countries to all countries.

1990 - Child Health Summit in N.Y.

To celebrate 80% minimum level.

Most extensive social intervention prog. ever carried out ~~in the world~~

Prog. of Pakistan - justed services

1985 - Polio eradication in the ^{Western Hemisphere} ~~the world~~ - target end 1990

Aug 1991 - Peru.

1988 - Global program erad. of polio. - year 2000.

China - Vac. days = 100×10^6

1990 Children's Vaccine Initiative - review of science.

Combine vaccines

Plastic surface like material

Vaccine recombinant.

New vaccines - ? AIDS

Ultraviolet radiation wafers.
Now engaged in a global program for vaccine self-sufficiency research
and vaccine self-sufficiency. Anticipating and a pledge of \$1 billion by July.

World Bank Report

Vaccine - single most cost-effective procedure in medical armamentarium and
the simplest

- primary ~~effect~~ use in children

↓ infant mortality

→ ↓ fertility.

Lower, healthier children.

What began as smallpox eradication little more than 25 years ago is now a
global preventive program with annual investments of $> \$300 \times 10^6$ / year.

But there are now 5×10^6 fewer deaths every year and millions more
~~gone~~ without the severe disabilities caused by ~~common~~ the serious childhood diseases.