

The Global Health CHRONICLES

MALARIA CONTROL: CDC BEGINNINGS

Steele, James H. DVM, MPH

Interviewed by Betty Hooper, CDC Public Affairs Specialist.

Date of Interview: 1986. Atlanta, GA.

Summary of Interview:

Dr. Steele discussed establishment of the veterinary corps, first at the NIH under Dr. Joseph Mountin and then as a program at the CDC. He described how CDC collaboration began with a rabies laboratory in Montgomery, Alabama. He began the interview by describing his public health career with a PHS fellowship and MPH at Harvard. He described meeting Joe Mountain while doing milk sanitation in Puerto Rico as well as difficulties in controlling psittacosis, cleaning salmonella off meat carcasses, cutting into a bat brain while tracing wild rabies, and reporting on foot-and-mouth in Mexico. He told fun stories of how the Pan American sanitary bureau survey in the Dominican Republic lead him to trouble with Trujillo's racehorses, where, after he gave advice, he was expected to stay and heal the horse. In another story about studying encephalitis and polio in Panama, a miscommunication led to receipt of ambulances for his sick mice!

Notable Quotations from Interview:

"Dr. Mountin: he looked up through his glasses directly as you, he says, "It's quite apparent we've got a lot of ignorance. Let's Exploit It" And that became a favorite expression of his and mine from then on." –Dr. James H. Steele about Dr. Joseph Mountin

Key Terms in Interview:

Harvard, Public Health Service (PHS), Montgomery, Rockefeller Foundation, Pan American Health Organization (PAHO), Pan American sanitary bureau, Department of Agriculture, EIS, milk and meat sanitation, sanitary engineer, veterinary public health officer, rabies, Q fever, brucellosis, foot-and mouth, encephalitis, Shigella, E. coli, leptospirosis, psittacosis, psittacine pneumonia, turkey processing plants, tetracycline,

Key People Mentioned in Interview:

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Dr. Joseph Mountin, Dr. Raymond A. Vonderlehr, Dr. Justin M. Andrews, Dr. Alexander Dr. Langmuir, Dr. Thomas Parran Jr., Dr. Joe Dean, Tom Shinnick, Dr. Henrik J. Stafseth, Dr. Mark Hollis, Dr. Ernest Tierkel, Dr. W.T.S. Thorpe, Dr. Charles Williams, Dr. Rolla Eugene Dyer, Dr. Morris Schaeffer, Dr. Bernice E. Eddy, Dr. Robert Kissling, Mildred M. Galton, John Scrugs, Dr. George Baer, Dictator Rafael Trujillo, Dr. Charles Williams Sr.

“CDC History: James H. Steele, DVM, MPH. PART I.”

Dr. Steele, CDC has been celebrating its 40th anniversary, this morning we’d like to talk about your experiences during the last 40 years at the CDC. Let’s start by talking a little bit about your career before you came to CDC.

Well I became interested in the USPHS about 1938, when one of my professors the late Dr. Henrik Stafseth returned from 300th anniversary of Harvard and told me that the PHS in conjunction with the Harvard School of Public Health was going to be offering fellowships for veterinarians who wanted to make a career in Public Health. This became my goal. I finished in 41, completed fellowship, -42, and completed my Master in Public Health, at end of time, war was on, I was recommended to US army veterinary corps from Harvard, PHS interjected and said they supported Steele so they should have first opportunity to enlist him. My first contact of an official of USPHS was with in Chicago with Dr. Henry Holly (health officer in Texas) he looked me over and said, yes, I think the PHS needs people like you. Introduced me to Vigler in Chicago office... Got in touch with Mr. Fuchs in charge of Milk sanitation to see if they could commission me immediately –but assigned to Chicago Health Dept. 42 to Oct. 43, I was commissioned, called 2 months, assigned to Puerto Rico office where I met Vonderlehr, Dr. Joe Dean, Jack Haldemen, Tom Shinnik, while in PR I did milk and meat sanitation but also surveys of animal diseases that might affect man. This is where I had my first contact with Joe Mountin. He came down to see what we were doing, I said I was out investigating animal disease transmissible to man, meat and milk. I always remember the day I’d been out in a dairy and I was splattered in brown stuff from cows, Joe Dean introduced me as here’s a man who really worked out in the field, Joe Mountain said yes I remember I came from the country too

I also got to meet Dr. Tom Parran but I had no communication.

What are you veterinarians going to do now that the war’s going over, got anything for your country?

So I had two months

Q/ yes I think this fit into Dr. Mountin's plans. He was one of the most imaginative men I've ever met. He gave you a lot of leadership and a lot of opportunity. Interested in MCWA a permanent part of PHS and was to be the Communicable Disease Center.

Dr. Joseph Mountin: Would you good look at properties to see if they'd be feasible for your labs?

Some were Mansions in NY, RI... I learned they were tax forfeits. None really suitable. Late 45/46 Dr. Harold Johnson (employee of Rockefeller foundation) ...were you aware they were closing their rabies laboratory in Montgomery? Why don't you come see? ... That gave me a first opportunity place to investigate animal diseases transmissible to man (zoonosis) .

Q : 46..

Yes, Joe Mountin had looked over my outline of what the Veterinary PH program would include. He told me to stay away from milk and food sanitation, the engineers would take care of that. I stayed with epidemiology of animals' diseases that were transmissible to man.

It's quite apparent you have a lot of information. What are you going to do about it? I kept saying well we don't have the answers

Dr. M: he looked up through his glasses directly as you, he says, "It's quite apparent we've got a lot of ignorance. Let's Exploit It" And that became a favorite expression of his and mine from then on.

I met Dr. Mark Hollis the sanitary engineer (director of CDC at time) I told him about my program (he'd heard from Dr. Mountin), I received a cordial welcome from him, I told him of the possibility of the already-built lab in Montgomery. He said we should follow through on that. Led to development of rabies lab where Dr. Ernie Tierkel came down (9/47) to start our operations there. I'd stayed in Washington till 47, though urged south earlier, being someone from NY I thought Atlanta was along ways south and Washington. Would I be as influential as I was in Washington.. As it worked out it was good, vet public health lab division set up in 7th floor of the Volunteer building on Lucky Street. That was the first office of my own. I'd been a part of Joe Mountin's office, T6. I had a secretary, Mrs. Bell and we had to do our own accounting and get own program under way.

Q: first veterinary officer in 48. Getting a category for veterinarians in the PHS...

Veterinarians had been brought in as sanitarians during the war. At end of war, NIH had a new category for scientists and veterinarians were eligible to be appointed as scientists. I had my category transferred from sanitarian to scientist under Dr. Mountin. As we went along, Dr. Mountin was favorable to veterinarian public health. I was to push for cadre of veterinarian medical officers. The first man I discussed it with was Dr. Mountain (he said ya uh uh uh that's alright) He wasn't going to object, but he was going to see how well you could execute. I contacted Dr. Eugene Dyer from NIH and his deputy, they were favorable, a memo written over their signature... Dr. Badger (deputy) did most of paper work. Moved forward on agenda for Surgeon General Spring 46 staff meeting, a favorable comment, then I was interviewed by James Crabtree (deputy SG) and Senior Officers to justify the establishment of a veterinary corps. Impetus: need for NIH to develop a vet program to supervise utilization of experimental animals. You need healthy ones. I needed to find a man who could handle that responsibility. I brought Dr. William Thorpe from Penn State to set up NIH first unit of comparative medicine investigation that led to large program that NIH have now.

Q: Veterinary at CDC.. 47/48 how large of a staff id you have? Org

Staff consisted of 6 or 7 officers, divided between investigations (Ernie Tierkel in Montgomery) and field services directly out of my offices, promoting demonstrations of utilizations of Vet Public Health officers in state health offices. Evaluate vaccines for control of rabies. We had great hope we could control it in US and leave to its elimination. Dr. Tierkel's first reports in 52 on utilization of vaccines that offered protection for 39 months. Field services devoted to investigation of Brucellosis and how we could motivate control. US Department of agriculture did this, we wanted to recognize it as a major PH problem.

We persuaded Chicago about milk... I'll talk about that later.

Q

It came about 1949, 2 things brought it to sharp focus: 1 an unusual outbreak of Q fever (LA, CA) had also occurred in Texas in 46. Could I provide ... a cattle born disease... at that time I had young officers Herb Stoner, John Win, Francis... as that CA program went on they were assigned to states to continue investigation of Cue fever.

JM (Dr. Joseph Mountin) joined me on an inspections tour. Mt went to Michigan with me to hear what state officer had to say, reaffirm Brucellosis was a major problem . bovine. Then to Indiana to see about Swine problem. Told him how pigs were important of

brucellosis. Environmental contamination from... contaminated by boar semen. "JM: by god, enough for a lifetime"... led to culmination that intensive study and support for brucellosis control in all the states.

Q: retained Washington. How many vets in the Corps

When I left DC I left with concern. Dr. Thorpe had come to NIH. Competent. Recruit for comparative medicine investigations... a milk sanitation colleague became my deputy for looking after needs of vets in sanitary engineering program. I was back to DC every other week. Dr. Charlie Williams would call me, DRM had open door, ____, during this period a bad Foot And Mouth Disease in people. I didn't consider enough problem to man, but media hysteria, worries about to spread to US and causing sterility in males. I was asked to prepare a report for the SG. They thought I should try to get to Mexico myself. I spent June in Mexico. It was much like I envisioned, not a pH program, a major zootic among cows. I made a report and gave highlights. This gave me credibility in SG office. I'd made a report not generating undue concern and I could meet with press... it was to be an occupational disease. Didn't cause PH labs... Events of that sort extended my interest in FDA and they also had a veterinary division, I was interested in getting them to work with hard facts instead of rumor and unsupportable

Air-born viruses, encephalitis Dr. Morris Schaeffer and Dr. Bernice E. Eddy became leading investigators in that area. I supported them by recruiting vets. Dr. Robert Kissling, Press Holden, and vet interest in insect borne viral diseases was long: problem: which animals were true reservoirs and which were ... horse..

Providence of Bob Kissling and ornithologist: source as being the songbirds. Songbirds across North America are source of encephalitis. About 1949 or of Jan 1950 – James Watt of NIH had great interest in CDC and collaborating with. We got together to talk about Salmonella. Met Ms. Millard Galton, our first salmonella investigation unit in Jacksonville FL.

[27:55]. Salmonella was a big story, it had been a major problem in the war. They were transmitted by dried eggs and spread all over the world. Trying to go back to the farm and control.

One of first things We had to contend with industry staying it was too much of a problem. Cliff Parker suggested we set up something we'd set up to find out which species infected man..how would we find human volunteers? That was his intent. I was amazed 400.

Diarrheal diseases: Shigellas, they were ruled out early. Not a zoonotic problem. But others were in focus on diseases. We've been focused a lot on E. Coli's but they're being broken down into different sections.

-Meat Inspection with Salmonella... Dr. John Scrugs came down to office, was my assistant, we got a request from the Hoover ...under Truman what could be cut back, we brought attention to people doing meat inspection we had a lot from poultry. Steps: improved hygiene, better washing facilities for carcasses... idea that we didn't have to inspect every chicken... we suggested inspection of every carcass was not necessary ...technicalities of legal process.

Salmonella and E. coliforms the major things in major concerns. Some Brucella investigation but no traced outbreak. Leptospirosis also never proved to be a food-borne disease (rat or dog urine on food). I pa respect to Millard Galton , she and Phil , she moved ahead in the nation.

She also did good work in hospitals determining how much Meningitis ...led to differentiation of Leptospirosis as a childhood disease instead of polio.

{psittacosis + occupational program with turkeys..} It was a great concern to PHS going back to 20s. I got info from Dr. Badger. There'd been ...Argentina ...parrots introducing disease. That was beginning of quarantines. A strong man in CA , Karl F. Meyer, who thought it was outrageous disease occurred.

Spring 27 I entered. Dr. Donahue asked Dr. Mountin to send me to review what we should do about psittacosis in advent of antibiotics. All taking this position that disease could be treated with tetracyclines. All fell into my lab. Excitement about when we'd relax the domestic quarantine.

Annual meeting in 1949 stated that it was impossible for CA to guarantee that birds leaving CA were free of disease. {Fashionable then to have birds like lovebirds and parakeets...even Woolworths and 10c stores would sell for small amount of money) ...I think that was part of post-war freedom, a new chance to exercise choice of pets. A large promotional effort of pets after war. A lot came from veterans association. War veterans raised parakeet farms. Old people getting into the business. Stretched from FL, TX, CA.. But CA's guarantee that couldn't stop six birds from leaving state. then onus on us to say "what're we going to do about it"...we explored vaccination. Results in But vaccine didn't work in mice did not protect against carrier state, just against disease. You could prevent pneumonia but birds would be still carrying it.. led us to ideas of using medicated food.

Occupational Outbreak in Turkey processing plants in TX, truly a catastrophe, before it was a case of pneumonia here in there, in TX, 7 people died of one plant...died of psittasine pneumonia from the turkeys...reoccurrence in 52, 54. We had all kinds of demands on us at CDC. Insurance agencies wanted to know if they should stop offering occupational insurance. If you provided ventilation then you could control atmosphere.

2) instruct all physicians nurses anybody develop an (respiratory?) disease, treat with tetracycline. What to do turkeys? ___ trend to vaccinate turkeys. Prevented pneumonia but not carrier. Suddenly there were no more outbreaks. ..one in Oregon. Monroe Homes investigated it. It was the first where we suspected insects and mites may have carried it. Gross contamination of environment led to it.

{eventually how many states had vets on there stats} oh, yrs. make #s disappear. 30 states...

{today vets have become state epidemiologist} yes, in many ways they were good candidates because they'd done animal as well as person investigation ...it often fell to them.

{follow up on organizational structure...Vonderlehr after Hollis...I took 3 yrs. leave and came back in 54. 47 to 50s ...who you reported to...day to day} V taken over for Hollis (became chief sanitary)..my relationship with V continued till Langmuir came down to take over Epi. Vet division became part of the epidemiology division. I reported to Langmuir. V out, Andrews in, Same chain, but during that period, 51?, I was named as chief veterinary officer of the PHS...staff meetings in Washington and at CDC...before I was just in by invitation. My relations with Dr. Andrews and Dr. Langmuir were excellent, both traveled with me. I remember one trip .."Stockyard Inn" in Chicago.. Langmuir and I took a long trip in the west...said I'd teach him veterinary medicine...He expressed his philosophy and I had that impressed on me the importance of hard epidemiological data. I think of Langmuir as a great friend and scientist.

{EIS??} 51 first physicians came in for training. 53 dr. Langmuir suggested some people (vets) I was training would be part of EIS... Our biggest recruitment was 54 when we had 12 in the class out of 30 or 50 total EIS officers. Gone on to be deans of veterinary education, some ...

{national rabies control activities unit established in your office...I was hired to work for Dr.Tierkel]

Dr. Tierkel had est. credentials as lab investigator well. We had Montgomery data that chicken embryo vaccine would protect for)) months. Tennessee application of this knowledge. Dr. George Baer encouraged National rabies program. A line item across states. Our labs were to continue at Montgomery..Dr keithy psyches bob Kissling Martha Edson. {Part in lab training program for diagnosis of rabies/ how big in 54?}

45, at end of war, rabies was rampant in every area in US where there were military institutions ...a lot of people moving around and dogs being abandoned.

From time his lab data became available there was an increasing use of chicken embryo vaccine through US so we saw a control of rabies. So we got goal that we could assist every state in setting up a rabies control unit. Tierkel on road formulating programs. The only place free of it was North West. In 55 or 56 the line of Urban rabies declined so that it surpassed wildlife rabies for the first time. An increasing program with wildlife rabies, first identified as fox rabies... Rockefeller... at one time lots of attention to vaccinating foxes... feasible but who would invest all the time and money?... direction became uncertain. Except to talk about reduction of animals... new appearances: skunk rabies in Texas and a belt to North. Most dramatic epizootic in northern planes... extensive piled up. Hard to test because they were frozen hard...

Other rabies namely in raccoons... investigator in FL reported vaccine rabies becoming a problem in Wst Palm beach in FL where there was a lot of waste food. Moved up and now is a suburban problem in NY city. People asked why did you stop it? Imagine shooting all raccoons! Then bat rabies hit us. All from different directions. A remarkable episode. LIFE magazine carried story in June 53 about bat rabies in Mexico, we'd had some concern in TX. First proven case was Tampa FL on small ranch outside city. A boy was bitten by a bat in evening time. Bat captured on ranch. They reported it was positive. When I was the first to see slides of Negri-bodies in bats. Slides were swarming with it. GA Dept. had excellent group.

I was leaving for world veterinary congress in Sweden... I was going to give extra talk about bat rabies. Ernie Tierkel said it can't be true... and he went on to Rome and talked about it. When I returned here we had our first report in PA about a bat in saloon... a comedy act... we never knew how many people were exposed, another in San Antonio. 1-year indication that it was a national program. Formed a bat rabies investigation program. CA. personal experience later with state health officers in Minnesota./as I was walking over to meeting, a regional director from Kansas... he said, Jim, there's a report of a rabid bat over here... a bat was paralyzed and on ground, I said get me a box so we can take it to laboratory. We dropped it into an ether jar. We took a brain out. It was full of inclusion bodies. I looked at Tom and he said, have you ever seen anything like this? We had every state health officer take a look at it. He attributed me with bringing bats around to investigate. We never had a media hysteria... fatalities did not extend 10. A frightening .we had a boy scout troupe enter a cave were doing vaccination... I said we had to id them all and make sure they took vaccine... we sweated that out all summer but nothing really happened... didn't matter what fences we put up.

[1:09]{consultant to WHO pan American health organization}

interesting and fortuitous. I'll start with the PAHO or Pan American sanitary bureau sent a request to PHS for

survey of Haiti and the Dominican Republic to see what their post-war plans would be. This grew out of a major anthrax outbreak in 43/44 in Haiti and spilled over, investigated by Dr. Stein from Department of Agriculture and they wanted follow up when they were seeing peace in 45. I was informed I'd be the officer investigating. To, in DA, id animal health programs. Small pasteurization and meat program not adequate, I had little lab to back me up.. They talked that they had rabies but they had little evidence, talked about arbor _ but no evidence.

--One unfortunate experience, towards end I was asked to look at racehorses belonging to Trujillo (DR dictator) no new horses from continent from years...he had broken down horses with all sorts of problems. I told trainer, an American on the lamb, I said these aren't fit to run, I said if you find a vet you can keep them going for a few months. I created an untenable situation fro my self. The Minister of Health was waiting for me at my hotel and the Minister of Agriculture...I just had 2 stripes and didn't expect it. Started with nice conversation. Then got to point when "president is delighted to hear what you had to say about his sources" and would you be the vet to do the treatment. I said I'm not a clinician n or racehorse special...they still wanted me to do an orthopedic investigation. They wanted my cooperation and I kept saying I lacked competency. Next morning a call from US Embassy, a secretary, I found they were disturbed about my behavior. President of country says you're uncooperative. "You will not render humane treatment to his horses". I thought there goes my health career. A young guy said, young man, you should men your ways before this goes into an official report. I went back to the trainer...who'd passed the word. I said where'd you think you were going to get that. He said, well, you went to school didn't you. I talked to Spanish vet...we studied from a Spanish veterinary book...and had a plan for bones. Roaring I had little idea about what to do. Asked a guy to hold the "twitch" I thought I hope he stayed sober. I sweat it during the operation but everything worked. And I got a suitcase from the president, I thought man the things you'd do for compliments.

..>Anthrax.. carried to DC. Cumming (Hugh S.??) was delighted with this whole thing. My first recognition of PH team. Do you think we should have one of PANAM...ripened the following Nov in 45, war over, Dr. Joseph Mountin had arranged for me to be there in July...learned of large outbreak of paralytic disease in Panama. I think Charlie Williams Sr. called me, said, "See what you can do for them". I assisted Carl Habel. Polio or encephalitis? 24 hr. delay on getting to Panama. Got up into interior. No doubt it was equine encephalitis. Horses dummy headed. Peruvian helped me do autopsies, inject mice. Then went to see human cases. Cultural shock to me to see hospital children on the floor, said this is polio, not encephalitis. 2 parallel disease outbreaks. Someone wanted to relate it to the horses disease. We worked a week , 10 days, I danced at a fiesta. We returned to canal zone, little plane. I'd been up in interior and I enjoyed milkshakes and usually got one when I got one. My upset stomach bothered

me whole weekend. In airplane I talked to officer... I said oh yeah It's importance to defense of western hemisphere. Changed planes at west palm after PHS put on a big show. I'd notified Joe Dean I was coming in with sick mice and as a sick man. He said he thought I was coming with 200 six men. I had an ambulance for every mouse!

Pan American led to biggest public health veterinarian health program in the world.

A nice introduction and we've got a lot left to talk about.

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Jim, as a preface to this 2nd episode in your career, perhaps you could give us a summary of the principle events in the first establish...

Had discussed establishment of the veterinary corps, of program at CDC (it was at NIH under Dr. Joe Mountin) our initial project at CDC :

It was the establishment of the rabies laboratory in Alabama that became the center of our rabies control activities for a long period at Montgomery AL, Dr. Ernest Tierkel set up basic studies area and vaccines, Dr. Robert Kissling followed on behavior of reservoir and rabies in nature. Out of Atlanta office Dr. Tierkel became my deputy he oversaw national rabies control program.

In addition to that was our efforts to control psittacosis. In the beginning, Difficult because movement of birds wasn't easy to control. But antibiotics, mainly tetracycline had reduced the mortality of disease so no longer a pressing PH problem as was in 30s and 40s before the era of antibiotics

Another was the establishment of veterinary public health laboratory. Mildred Galton in charge... Investigation of salmonella in animals that was transmissible to man. The roots that followed, also she Started leptospirosis investigations and Other food born diseases. At that time little knowledge of campylobacter of vibrio or listeria, later on we funded UI zoonosis center but Dr. Grey did listeria studies but he died prematurely. These studies never had deserved attention in 60s 70s now in 80s problems.

These were accomplishments, but not talked about International scene accomplishments. Before I talked about Pan American vet program, led to PH program developed by Dr. Ben Blood Dr. Pedro Alto (Acho?), Mario Fernandos, now Dr. Joe Held who was an early EIS vet. Today I'd like to pick up with our activities in WHO.

{Jim, let me break, with establishment of vets at PHS and CDC...was this unique in the world or were there other countries that had blazed this field ...gotten vets to PH}

no other country had integrated a veterinary program in their international program. Possibly Japan had an info-structure of vets in PH, but they were largely in framework of hygiene...not till McCarthy area where they came to grips with rabies. Intensity in which Japanese – they eliminated that disease and others – they had a large info-structure tied up... France had _ with Pasteur institute but they didn't have the tradition of epidemiology and field operations lying parallel, Germany –after the war they were separated and new Ministry of Health and Ministry of Agriculture had vet proponents within...

{some countries which have had outstanding veterinary PH programs that have had leadership...leadership of institutions or government... vets and liaison in medicine}

leadership is most important. Became part of Ministry of Agriculture in economic interest. 18th century establishment of first programs in Europe to protect tax base of country –big render ...something to do income of farmers and nobility that owned the farm + transportation of horses. Pasteur and others started talking about the PH function of...Dr. James Law the famous scotch vet that came to Cornell...even he felt the greatest contributions would be to agriculture and protecting economics of animal industries.

{WHO, when and what}

being at the right place at right time. Dr. Parran convener of 1st meeting of a group of PH experts to form WHO. San Francisco in 45 or earlier, a rec had been that within the UN there would be a health program following what league of nations had had. Meeting due in '46. Dr. Parran was host to all health officers of the world (the allies) a memorandum circulated to PH officers if they had ideas about what should go into the WHO (as it was to be called later)...we should let Dr. Donahue know and collect. I wrote a memo recommending that there be a vet component in WHO for control of zoonotic diseases and food hygiene. I said How were they received? So I feel I had a

small part in it. And food agricultural organization, sometime that year... Boyd (sec general of FAO) had meeting in DC to determine what vet component of FAO would be. He was most gracious to me, invited me. Dr. _ of Peru was there and added some international flavor. We thought there could be a liaison between the two groups... Dr. Martin M. Kaplan in Geneva and Dr. in Rome.

Dr. Kaplan was interest in PH and was part of international relief organization. INRISE following war in Geneva he was recruited by W.H.O. and became officer for developing the vet PH program. I met him in '49 world vet congress in London. Next year he had an expert group in Geneva to review what the program should encompass. They were asked to investigate by TB panel how important Bovine TB was in PH. Guys told me 1/3 of Germany TB was of bovine origin. On other had Scandinavians outside of war zone, they'd sent tuberculosis filled organisms to Germany. They'd had to support Germans with animals...he said when he sent them he sent all the bad ones and no more sick.. ...scientific resistance

Dr. Kaplan had good leadership, special interest in rabies, also brucellosis. Tb moved under its own steam. Conflict in use of BCG. Italy and France felt that BCG had a place. I was , and Scandinavians thought BCG had no use it....only to be used if no other means available. I believe no longer, but tries in Africa, use of BCG.

A nice relationship with WHO. Dr. Tierkel was made available to them. Tradition of what started with Kaplan in 1950 still goes on here.

3 or 4 principle achievements?

WHO – rabies control.. Intro of chick-embryo vaccine that could be produced world wide.

Elimination of rabies in W. Europe similar to NA pattern. Wild reservoir of Europe had expanded tremendously with fox rabies, other animals involved.

Parasitic studies started by WHO. High level of hygiene (brief and pork tapeworm) require better social improvement.

Who had some interest in Mediterranean area...

Q: WHO and vet PH in influenza

1956- thanks for reminding me. This was a big program. Dr. Kaplan organized a Geneva meeting late 56 after Asian influenza had arisen to determine if there was any

animal reservoir of the disease. Encouraged us to test the Asian strain in swine. Dr. Gordon Wallace demonstrated swine were susceptible to Asian train but it was a short duration and none of the animals became carriers.

Evidence conclusive from humans to swine. Still can find it in swine to these days.

Q: why do they not go back to humans, especially when humans are no longer immune.

Cranked up a national program, widely received that it would occur that year. Swine influenza stopped in April 46 ...and human cases. In 1918, both had remained at epidemic level. Why it hasn't occurred? Influenza specialists speculated that 1918 would return some day and cause a pandemic. Best answer that there's no recombinant at this time that affects man in that pandemic behavior.

Put people working with pigs are associated regularly...taking medicine

Yes. Is this protecting us, I don't know

Most successful and longest running have been those with POLAND PL48 Funds national currencies used to pay for American food products, deposited to be used

of these studies aside carried in W. Europe, Israel... by end of 50s they were terminated and funds exhausted

in Poland still lots of funds. We were invited to do a review. 59 we visited to determine what projects were feasible under PL480 I designed a trichinosis program. I think they continued. Supplemented by tapeworm studies, studies on Giardia.

Q: Dr. Povlaski is back in Poland and we are trying to reestablish those ties.

What programs with vet PH in Soviet Union?

No real exchange with Soviet union. Visits...we'd hoped we might have exchanged on rabies. Nothing really ever developed. A small exchange of vaccine. There was to be a small exchange of scientists. May it will come.

Q: return to disease psittacosis problem + new concepts of rabies control.

Psittacosis – I'd talked about Turkey Ornithosis in TX...

Continued to have problem of psittacosis in birds. Dr. KF Meyer (UC, a consultant, SG)

These studies were to determine the value of immunization, prophylaxis, hygiene, and medicated seed, antibiotics. Vaccinations had no success. Hygiene now matter how astute still had programs. Medicated seed had a nice answer. [31:21} ...to control of disease. This was tried by different methods: problem to get birds to each medical seed bcc hem test. Meyer with pharmacy in San Francisco "Keet life" distributed by a large pet supplier in this country. After 10 yrs. of experimentation concluded this was best way to control for domestic industry. Importation of birds didn't go as well. Avian influenza, once identified this produced a problem outside interest of public healths: economic. Important to agriculture, supervising the importation. Today this is probably the biggest problem that still faces the industry. Evidence that avian influenza was in these birds stimulated research on wide scale...Avian influenza is a progenitor of mammal influenza.

{work under KF Meyers, +under CDC, recognized as real problems. Those individuals play role in chlamydia pneumonia, chlamydia Venereal Disease, chlamydia eye diseases, no end to them . they've been separated from the animal chlamydia –those are all human.. Animal still remains the psittacosis...we still have good control of the animal chlamydias. One other source, not too important in US – duck ornithosis (Europe)

{Rabies early in US dog transmitted rabies. Vaccine success. Problem of wild animal reservoirs...completely different strategies?}

Earliest vaccines phenolized brain tissue from early human experimentations in India, animals in Japan, in US for 10 years until Chicken Embryo vaccine came. Subsequent we had disease tissue vaccines that could be denatured. Then 60s could we conceive game plan for dealing with wild rabies and skunk, fox rabies. Raccoon rabies. In 1960 veterinary office George Baer proposed an idea for vaccines to be oral...I was aghast my early reaction was this isn't going to work. Baer persuaded me we should make an effort, demonstrated it was a viable option. You could immunize animals orally. Pellets shot into mouth of fox, diff bates, big experiments in Europe in using chicken necks inoculated with live virus – got approval all through central Europe. Not reached the point of putting it in field in US. This was one time that I was really wrong. Some people

are looking it as a solution in Philippines. May offer a solution to most of the urban rabies of the world were they don't have resources...

{International programs WHO and Europe... Great problems of Zoonotics in developing countries}

3rd world, to encourage countries to development programs, WHO to assign vets to these countries, federal vets to states and them taking over programs – would work worldwide. Many of these countries are hard pressed to raise revenues internally to support themselves. Trying to continue assignments of officers, the countries start to think they're a part of the infrastructure, they don't look at them as a demonstration. A type that CDC is looking at now, developing an EIS corps - training people parallel with those who are assigned to the country. Going pretty well. On other hand you look at programs in Latin America, can't do anything in Peru, on verge of anarchy... Chile has a lot of advances they've done it on their own with occasional – they have a lot under control themselves. Neighbor Argentina seems to go along in the same fashion... exception that Pehoe reduced rabies from 1000 cases in dogs to near 0... hydatid disease control efforts in certain provinces..70s programs have decreased it's transition... great improvement in Tineacides in animals has contributed that. ...health message was really getting out.

Biggest thing I wish we could accomplish for SA, they need a solution to the foot-and-mouth, technology has been developed in PANAM center in Rio... 2x year instead of 3 x year. It would be much more than contributions for internal development, funds for military equipment as far as I can see is never used... so useful to use aid for destruction when we could use it to fight economic calamity.

{first 25 years with PHS... 68 assistant surgeon general with broader activities}

It brought me to DC world in real way. -Problems of contention then. Concern about management and handling of experimental animals. Dr. WTS Thorpe had developed a good program; at that time the pressure for humaneness in handling of experimental animals had become a big national issue. Laws passed in congress for upgrading management of lab animals. We had to develop guidelines with a joint inter-agency committee in DC. Same guidelines developed by American PH Association. Demand for even higher levels of humaneness that required inspection of animal facilities, this became a problem I was concerned with, I was told by assistant director Phil Lee that this was a problem that had to be resolved... we should have a large force of inspectors across country looking at how lab animals were used. I would subscribe to the

acceptance of responsibility that we could operate such a program in the PHS but people in the service who said we don't want to be inspecting the work of research scientists and intruding on their activities. So inspection of animal research facility then went to the Department of Agriculture where it's under the APHIS administration. This still hasn't been resolved to everybody's satisfaction. I think a corps of vets under NIH or FDA could be an effective program. I think Ag feels this is an unnecessary operation on their part – doesn't reflect their philosophy of helping farmers.

{After being assistant SG in PS you retired}

It was 30 years. I'D BEEN supported by PHS I did internship, then PHS fellowship at Harvard, then to Ohio health department for an internship 18mnths then I was commissioned as a sanitarian, then science, then established veterinary corps. It was a great career.

We were bringing vets in and assigning them to different activities. Dr. Art Wolfe – assigned to state –then salmonella and brucellosis then outbreak of Anthrax traced to imported wools, Wolfe went on with this, specialized in occupational medicine, then radiology and application of that to public health, then assistant administrator for agency that dealt with environmental impact before the EPA was developed.

Dr. William Kaplan came in 1950, he'd been in Mexico with foot and mouth, heard about ours. He was assigned to state activity for a while...said they wanted someone who could help with animal disease, then he became one of the leading veterinary mycologists of the world...recognized in Barcelona with Lucille George Award.

Dr. Harry Rubin came out of Mexico and went to rabies labs, isolated unusual strains, wanted bigger things in research, went to Cal Tech felt he didn't need a PhD was ready for a university assignment – Berkeley professor.

Many made great careers independent of CDC. Some went into health education. Dr. James Lieberman did milk sanitation but came to develop materials at CDC and did audiovisual .

Veterinary medicine has touched on many areas of public health.

{important national PH programs that clearly had an animal reservoir requiring vet skills...discussed that

we've done a very good job and we've worked ourselves out of a job. How do you see a changing role of the veterinary in PH in the US as a veterinarian?

Yes, I think a vet is trained as a physician on a broad base. The difference is their clinical subjects. When remove subjects you can look at public health in the same broad way. Problems that should be a concern is the changing behavior of infectious diseases. None are static. They're all seeking out a solution to their existence, seeking social security. Illustrations: KF Meyer when we talked about plague... why was are something confined to a part of the US... why is a line parallel work as a divider of plague... why limitation of plague in Alaska even though can be rampant in Canada. Ecological importance and public health. Why disease also change their behavior and seek out new hosts. What's happened in last 20 yrs. in US something I'd like to see vets study... plague in dogs and cats... plagues in coyotes... then feline pets being source of human disease, a practitioner who finds a cat with pneumonia should think of plague.

On the other hand the dog developed antibodies and didn't get the plague. But little concern for this stuff when AIDS is going on... Plague is hardly recognized at any place. Mexico didn't recognize, Peru has not seen it...but they haven't cleaned up their hygiene, and fleas. There are cycles of disease that no one's pursuing. And then reflect on pathology in different species.

A new one? Look at Lyme disease. Borrelia was one of the original quarantine disease. t his has declined steadily and is no longer a problem of displaced people. So many different borrelia strains.. When old Lime appeared in new England 74 we didn't know if infectious or chronic or what etiology. An officer worked on it after I left, published, on transmission of lime disease to dogs and how it affected dogs... hardly received attention ...12 years later in 1988 ...many other species have lime disease and ticks may not be the only route for transmission. Borrelia can be passed in urine of dogs. University of Wisconsin found many cows with antibodies. But which Borrelia are you talking about at? They exist at Yale... Dr. Tom Ang... press could report 100s of thousands of cases occurring in the general population, not people with AIDs and some peculiar habits. Arthritis, neuritis signs identified with lyme disease make this a big event. Vets could really pursue this further.

{one of continuing areas is new approaches to old problems and changing problems. Other areas?}

look at Salmonella Enteritis acting just like Polarum...really coming out of ovaries of chickens? Is this a repeat? If we hadn't ended Polarum we wouldn't have the same number of chickens we have today.

Campylobacter a new strain of embryo. Yersinia...all of these..listeria and how many strains there are and how many are pathogenic for man, how many for animals, how do they survive? Need microbiology back up and look at viruses that are constantly evolving. A plant reservoir as well as animals...calls for people outside of vets and Drs. There's a call for all the resources of biological problems. Fear of radiation. And to explain to public we need assistance of social scientists. Are we creating a new problem with so many antibiotics used for animals? I say without them, how many diseases would be rampant? My own feeling is yes we do have a problem, I remember what happened with milk and penicillin, yes, and we should try to keep it out of food chain. I don't see any mortality of humans caused by antibiotics used for animals.

{Giardia? When I studied it as a commensal, but not only most common cause of water-borne and a major player in daycare centers...}

matter of strains in giardia has bewildered me. In TX we know we have giardia in city water supply, but little disease that we associate with it. But vets see a lot of giardia in their practice. One that confuses me worst is the pet-farms beyond suburbia where raising animals to cell in malls, they have a huge problem with giardia...but I never hear of these animals causing human disease.

{we found 42% of pups up for sale with symptoms of giardia...some degree of immunity. We couldn't really determine the PH significance}

I had student do a thesis on Yersinia in dogs...could've been a PH program. But human disease associated only under most impossible hygienic conditions.

Some people say oh yeah we have a lot of Listeria...then they say identifying it is up to laboratory. I say can't we sort this out better.

Like vibrio campylobacter ...near impossible to make a diagnosis. {1:17}

To defined what you're building with {what other}

Radiation of animal tissue- meat poultry sausages etc. – controlling the salmonella. Surface contamination, campylobacter,...no matter how you look at all this, you can wash, we did studies on flow of water, chlorination, germicides to remove bacteria – you could remove it to a certain point but you still had a few left, you conclude a lot of clean

water is good. Within 2 weeks if you'd kept the product you'd have enough salmonella to produce an epidemic, even though they were clean right when you came out.

Radiation of meat, Europe environmentalists are dead set against it. Even hormones to keep down the fat, they're dead set against it. Demonstrating and explaining that it doesn't cause health problems. If I'd had this kind of resistance to antibiotics we wouldn't have come so far.

I think radiation is creating the biggest challenge. Look we're using it in our hospitals. We know tools are sterile...we can apply that to food if people getting in trouble. Even processors back off.

I think the new director of the WHO a Dr. from Japan and he's pointed out that the next challenge in public health is education and communication and knowing what public health can do for you.

One I can point to and has taken up my time is the compilation of the handbook of zoonosis. CRC 8 volumes. Genesis of relations with KF Meyer. When we were winding down psittacosis and plague studies and he was telling me things I should keep in perspective for future studies. He said we should put a series together... 67,68 it was talk for 5 years then I retired in 71, then I got tied up with his 90th birthday celebration putting issue of his fest script 72-73 to funds for that and get coordination of all papers...getting funds more difficult, but Max Stern, I'd gone I was getting 200 here 500 there...but I wasn't getting 120000, UC wanted to put together a series of reviews dedicated to K.F. Meyer, and Max Stern chairman of Hartz Mountain company we'd work with to resolve psittacosis, he says, KF is of such importance to me and my society I'll do anything to support, if you have any problem paying the bill, send it to me. We'd raised 3000 and he picked up the rest of it. KF will have one party at a club in San Fran and women a party in hotel...women uproar, he became ill Feb 1974. Others said he wasn't doing well, hospital then, then anemia, in and out of hospital, he had a colon cancer, gave his last lecture at the Medical School...word he had inoperable colon cancer, and I got a telegram when he died. That changed celebrating but it meant let's get this book done. CRC press had asked me to sign a contract. Arrangements that summer and we were in gear the next year getting author's contributions. I was occupied with that book 10 years (to 84). I'd say this was my most important contribution in my post-career.

Naturally I think the first would be the PHS, receiving their distinguished service award and so forth.

The Bronkmon (the APHA) funds was a vote of all APHA stood high with me

Those I received within veterinary circles... Universities, AVMA.

Associations ...American Society of tropical medicine... centennial ward. All these have many.

Past two years: international awards: one great deal satisfaction: German Government gave me recognition. Here I am someone who opposed Hitler from day 1... I'd been approached to be a part of the Arian culture... I'd been pulled by people saying socialism was good... It's been the hardest thing in life to be a moderate. Germans recognized them badly for that. In 55 they asked me to consult on their problems, which I did objectively. And this last year they gave me an award... sometimes 'humaniacs' are more concerned for animals than they are to human beings, to me, human beings come first. [1:32}

I still a great enthusiasm for PH and research careers in PH. Can be funded by NIH grants or department of Agriculture. I've gotten to know many practitioners and I've spent a lot of time eating with them, having a drink they've all been, *what a wonderful life you've had, what an exciting life, you're at cutting edge of research and you have this sense that you've made contributions. As you look back on your life you that you say you really left something behind. And they all say, "Yes my practice goes well and I've made good investments, etc. etc., but do I have what you have? Now I don't use that in a lecture but I raise that theme: That You can have a great degree of satisfaction from a research career that is constantly bringing up new facets, new ideas, new challenges. And one, the challenge that I consider most important of all is, what is life? Where did life begin? Do you have any hypothesis of the origin of life? Or is it matter of faith that you combine with your scientific knowledge? Those are challenges that will be with you forever, I don't see any easy solution. But getting back to the practicality of what's...uh...*

*I guess we go back 25 years when we first had sessions with deans around the country on how we should teach Public Health in the schools. We'd always had a tradition of a little meat inspection, a little milk inspection and maybe somebody added a few words about poultry inspection, maybe somebody said something about dog control. Well I said these things are all very important. They should know about it sometime or another, that they can answer questions. **But to me, the genesis of why they do this, this is important. And this is things that you learn as you go along. You learn a***

little bit from anatomy learn from physiology, biochemistry, pathology: everything is contributing. But you got to have some place where you weigh these things, and that's what epidemiology is all about. Where you bring these facts together, and where you apply a mathematical formula to determine what their significance is. There are too many people who are willing to talk any time, any place and say "I know, I have seen" but they have no idea how to correlate that with any background information, or how to make a rate out of it or how to determine how it should be pursued. And the people that teach all the way through should have a knowledge of epidemiology so they can pull it together and then by the time that you reach your senior year you have an elective called epidemiology or you can have a elective as epidemiology as you're going along to try to bring all these things together to give you some explanation of what all of what this science is all about and what it means both to the clinical patient you'll be dealing with, what types of medications you'll be using, Chi Square, what the values may be, and then what then what the overall problems are.

I'd say this is a romantic way of doing on it...it'll stimulate...And then if you want to go on and have a career then go on and get your graduate degrees. Be the MS, MPH, PhDs whatever you want...Anybody in science today knows they must go beyond their clinical careers.

{Jim I think we've covered a lot of ground. To finish}

I speak to students frequently. Often freshman class. I like to dwell on 50 years and enormous advances that have occurred. What's the bottom line? Social security. Look at life expectancy. I've passed 50 by about 25 years. We might not be able to take care of all the things when we've.

Were will we be 50 years from now. What will you be doing? What will you have contributed.

How are we on time? We have another 20 minutes if we need it.

Take a break for a minute... I'd like to move my feet my legs are getting numb.

CUT

Darkness {1:40}

Jim, one bacterial disease considered a zoonosis hasn't yielded its secret... armadillo as animal model/reservoir

I've been on fringes of that for more than 20 years. Reports from SW Louisiana 68 69 a grad student inoculated armadillos with *M. Leprae*, it attracted a lot of attention. Lots of people in the field looking at it. In 74 a student at Texas SPH asked me what I thought about appearance of leprosy in wild armadillos in armadillo? Has it escaped from the lab? (my reaction for a # yrs.) There had been an accident in the lab. I didn't get it strait till Charles Shepherd came out to give a talk (we gave him a diploma) I asked him if there was a relation from *M. Leprae*, he said oh they're the same. Complexion of things change. Dr. Smith at Galvestone now Texas A&M did a survey of coastal counties, I and Dr. Langmuir visited, he'd identified 25% as positive, along Gulf Louisiana as far south as Corpus Christi, he asked us if we could help him collect. We did for the next couple of year. Armadillo was a highly infective animal – they were discharging large numbers... Dr. Smith demonstrated nasal acidates were swarming with the organisms... musculature of body was contaminated, all sorts of orifices had it. Beginning in 1982 question came, does this have any influence on human disease. I wasn't the only one with this question. Dermatologists were looking at it. Annals ... stating 5/7 armadillo handlers in LO have been infected. I have a study going this year from a Baylor med student evaluating 12 or so cases that have occurred in TX that... and as far as I know we've gotten reasonable histories on 1/2 these people and it looks like their source of infections was armadillos. Why hasn't it moved out his region where armadillos have been identified as infected? Hasn't crossed Mississippi River or entered Alabama or FL, nor out of coastal region of TX... I have in my backyard though. At this moment we have a lot of interest in this as possibly a new zoonotic diseases.

"We don't know what nature's up cooking all the time. And what these organisms are striving for"

Cryptosporidiosis – now seen as an important PH problem. Involved?

1983, 4 years ago, about time when AIDS was a problem of big hospitals. Dr. Bob Hickey cornered me and asked me, what is this protozoa disease of animals that are doing so much damage to our AIDS question? I was bewildered. These people are bleeding all over the place. Staff are afraid to handle them.

I went home thinking, what are they talking about? Someone at CDC told me it was an invasion of ... extensive bleeding following. Summer I went to AVMA in NY and there was a seminar at Cryptosporidiosis, room filled with practitioners. This was something

I'd missed. Following year ASTM had a session devoted for it. Questionnaires for Houston areas. Outside big hospitals where it was a factor with AIDs I didn't see much of it. In schools a big deal now.

[now community water-borne outbreaks, an important agent in day care centers}
but it's self-limiting in an immuno-competent patient.

What do they call the species? Most investigators aren't touching on that difference. They're going back to drawing boards

I'm curious about pneumocystis carinii? Difference between ones in animals and humans>

Interviewer: no difference. Almost ubiquitous. Lots to be learned. No good evidence ...would suggest that almost everyone is exposed. A high amount of carriers.

Before AIDS this was almost a disease of cancer patients repressed immune systems...or malnourished stressed children.

Why not see trachina in our AIDS patients?

I: trachina could see one being a problem. BC it can reproduce for extended periods of time. Why is it slow...perhaps not observed. Or if mechanism of immunosuppression doesn't give advantage to that.

___ a Helminth disease... asexual reproduction... corticosteroids..it hasn't been observed in AIDS patients.

Trachina

I: We see a fatality every other year...without a specific control program aimed at Trachina. Education, every housewife in this country has been taught they have to cook pork fully... I remember you lecturing to me when you talked about home freezers. Freezing pork can also kill it. Trachina's still a problem in pigs... 1/1000 marketed houses 6-7-8 times that rate in NJ and New England States... Philly... farmer may feed them waste, or does not remove carcasses, cannibalism occurs...

S: Need for ELISA testing for our 90 million pigs.

Technology says an accuracy to these tests...one could for all practical purposes could prevent transmission, more it could be used for identifying problem herds.

Objective for serologic test for identifying cattle...now a good test for cisticercosis in humans. I can see it's time to wind up.

S: your generation I'm sure will have problems that were just as engaging as they were to us.

END

