

**Alexis Shelokov Interview**  
**December 12, 2005**

Lisa Walker: This is Lisa Walker, interviewing Dr. Alexis Shelokov on December 12, 2005 in Dallas, Texas. This interview is part of Lisa Walker's research as a DeWitt Stetten Fellow in the Office of NIH History.

Can you just give me a verbal "yes" that you know we're recording?

Alexis Shelokov: Yes, I do.

LW: Okay. Dr. Shelokov, my question to you specifically starting off, is about growing up and who your role models were, in terms of your decisions later to go into science, to go into medicine, first of all.

AS: Well, okay. One [set] of role models, not surprisingly, were two physicians. I come from a family in which no one had ever been in medicine. There were scientists, natural scientists, on my mother's side. [On my] Father's side, I do not know. But when I told my father that I wanted to be a doctor, he became very upset, and he said something to effect of: "You mean to tell me that you want to do rectal examinations on people? and you want to do pelvic examinations on women whom you very [well] might even know socially?" I don't remember the exact words, but basically he said, "What are you? Are you a pervert of some sort?"

LW: Interesting, that was his first impression.

AS: That's right. Well, he's from another generation, and it was inconceivable to him that I would like to do this kind of thing.

LW: And he was a businessman, is that correct?

AS: He was a businessman, yes, for many, many years, and involved very much in politics. [There is] a local American [here in Dallas] who's been to Russia a number of times and collects Russian books. He reads Russian quite well, and speaks some. We've become very close in the last few months. He is also very interested in the issue of the Russian diaspora and Russian émigré viewpoints and how they developed. Among other books, on one of his trips to Russia, he picked up a book called *Russkii Kharbin*, which means "Russian Harbin<sup>1</sup>," and in it, there is a page or so on my father.

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<sup>1</sup> Harbin is a city in northeast China (Manchuria region) that was founded by the Russian Empire in the late nineteenth century as the imperial Ministries of Communication and Finance oversaw the construction of the Trans-Siberian Railway and its southern (Trans-Manchurian) spur. With the October 1917 revolution in Russia and the escape to China of opposition figures and refugees from Bolshevik Russia, Harbin became a center of the anti-Bolshevik "White Guard" movement and generally an important community of Russian émigrés. Alexis Shelokov's parents had lived in Harbin for several years before his birth there in 1919.

At that time [ca. 1920], my parents already had separated, but he continued to live in the original mansion, and his home is described by the author of this particular article, published in Harbin, and then reprinted in Moscow a year or two ago. [In it], again, he is described as a “*magnat*” [entrepreneur, business magnate], a “*russkii magnat*” [Russian business magnate] living in this beautiful place, because he was still well-to-do, and had been a millionaire (and lost millions eventually). At this time he would entertain everyday at luncheon the cream of Russian émigrés. This was 1920, so it was three or four years after the revolution. [The author] said the lunches were attended by princes, generals, and they would sit around and plan how they were going to retake Russia, and take it back away from the Soviets.

That, I’m sure, did not endear him to the Soviet authorities, and thus his history is very well known. The other thing that he did, a little earlier: he was a book publisher and bookseller. At one time he had the only European bookstore in Harbin – [selling] not just Russian, but European [books].

During the war I spent [several months] in Washington being interviewed for a job with the Office of Strategic Services, OSS, as I eventually found [out], for an assignment to drop behind Japanese lines in Manchuria and engage in what we nowadays would call terrorist activities: blowing up bridges and so on. And eventually, many years later, I met the man who got that assignment, and he told me the hell that they went through.

In several books, published in several languages, my father is mentioned by a fellow named Nikolai Sokolov, who was sent by the White Guard to find out what happened to the Romanov dynasty [after the execution of Emperor Nikolai II and the rest of the Imperial royal family in July 1918].<sup>2</sup>

[In the midst of the Russian Civil War, in late July 1918,] the Russian [White Guard, anti-Bolshevik forces] specifically threw an attack on the city of Yekaterinburg<sup>3</sup>, recaptured the city, and they arrested the people who were involved [in the Romanovs’ deaths shortly before the city’s capture]. Of course, the [Bolshevik] commissars escaped to Moscow immediately, and Sverdlov<sup>4</sup> specifically. But [the White Guards who took

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<sup>2</sup> Nikolai A. Sokolov was an investigator sent in early 1919 on the orders of White Guard commander Admiral Kolchak to Yekaterinburg to investigate the deaths of the Imperial royal family. The results of his investigation were published in France shortly before his death in 1924 under the title *Enquête judiciaire sur l’assassinat de la famille impériale Russe*.

<sup>3</sup> Yekaterinburg is a large city in the Ural region of Russia, where the Imperial family was held under house arrest in 1918. The city was renamed Sverdlovsk in 1924, in honor of Bolshevik leader Sverdlov. The original name Yekaterinburg was reinstated in 1991 after the collapse of the Soviet Union and the failed coup d’état that brought an end to Communist Party rule in Russia. The discussion in the recorded interview reflects the variation in names for the city.

<sup>4</sup> Yakov M. Sverdlov was a Bolshevik party leader and chairman of the Central Executive Committee from shortly after the October Revolution in November 1917 up to his death in March 1919. As chair of the Central Committee in 1918, as White Guard forces were closing in on Yekaterinburg, where the imperial family was being held under house arrest, it is widely believed that Sverdlov ordered their execution. Sverdlov was not present in Yekaterinburg at the time of the execution, but the Bolshevik secret police official (Chekist) widely accepted to have locally directed the execution, Yakov Yurovsky, is known to

over the city] rounded up [the] people who had carried out [the killings], including some Magyar<sup>5</sup> prisoners who carried out the murder, and they got the story from them.

The man who conducted this investigation was an investigative coroner from Imperial Russia by the name of Nikolai Sokolov. His book [has appeared] in every language, sometimes called “The Murder of the Romanov Family,” sometimes it’s called “The Assassination of the Romanovs,” and so on, but it’s all the same [account]. There were movies -- “Nicholas and Alexandra” -- that were based on that, and so on.

[Sokolov] was the man who [se expedition] was financed probably by Admiral Kolchak<sup>6</sup>. [Sokolov] recovered the remains [of Emperor Nikolai and the royal family], and he questioned the people who were around, and some of the people who did the murder. And then the Soviets retook the city, and [Sokolov] escaped [and ended up in Harbin]. He brought with him several suitcases of evidence, including the Empress Alexandra’s finger, the buckles where they didn’t burn -- other things like that. Some diamonds, which were hidden in the corsets for the girls... Because they were burning the bodies at night, in the muck, and then the Whites took the city, a lot of that stuff was left behind. So [Sokolov] dug it all up, and he brought it all [with him]. And when he came, he stayed in our house and lived with my father for a while, and that’s [mentioned] in the book.

So he [Sokolov] brought this to Harbin, stayed with my father. At that time, my mother and father were separated. And the Chinese government was going to turn him over to the Soviets. That’s not in the book. As I understood it, my father told me once, that Sokolov then came to him. Sokolov lived in our house for a while, kept a suitcase there. (He may have stayed someplace else, or maybe he continued to stay in the mansion, because Mother was living with the other two children elsewhere. At the time I was not around yet, [they had] just the two children.) There was good reason to believe that he would get arrested by the Chinese authorities, and turned over, and the evidence of course would be totally destroyed.

He [Sokolov] appealed, as he says in the book, to the French military attaché [in Harbin] General Jenin, who said, “It’s a matter of personal honor for me, in this situation, to provide you with diplomatic immunity, to get the evidence of the murder of the Romanovs out of Harbin, rather than have the Soviets get it.” So, as I understand it, he picked up Nikolai Sokolov from my father’s house with all of these things. But Jenin did not give him any money, and so in the book it says, “And at that time, I. T.

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have communicated directly with Sverdlov in the period prior to the killing. The speaker may be referring to the escape of Yurovsky to Moscow after the White Guards’ capture of Yekaterinburg.

<sup>5</sup> Many Austro-Hungarian (Magyar) prisoners of war, who found themselves in Russia following the October Revolution, subsequently enlisted (some freely, some under duress) in the Bolshevik forces’ Red Army. It is believed that a number of those who carried out the execution of the imperial family were Austro-Hungarian soldiers fighting for the Red Army or working to support the Bolshevik regime in some capacity.

<sup>6</sup> Admiral Alexander Kolchak was former Imperial Navy commander who commanded the anti-Bolshevik White Guard forces during the Russian Civil War and served as Supreme Leader of the White government based in Siberia from 1918 to 1920.

Shchyolokhov,”-- in Russian it’s “Shchyolokhov,” not “Shelokov” -- “gave me a gold bar, which I was able to sell and it paid for my voyage from Harbin to Paris.” And that’s in the book, so of course the Soviets had that information [about my father’s role in the White Guard investigator’s escape].

When the Soviets occupied Harbin in 1945. (That’s another long story, as to relations with China. I had sources over there, as well as in Washington -- it’s not the version that we’re usually taught, [about] what happened). [The Americans] dropped the atom bomb on Hiroshima and Nagasaki, and it was a surprise to the Soviets. The Soviets did not know what we were going to drop [it]. It was a deep secret. Actually, there was another secret agreement between the American and Soviet governments: the bomb was dropped on August 6<sup>th</sup>, 1945, and ended the war with Japan. The secret agreement between Stalin and, by that time, Truman was: that Russia [sic: USSR] would attack Manchuria, creating a second front; that we would land our troops on the beaches of Japan; and they would sweep into Manchuria, and paralyze the [Japanese] Kwantung Army<sup>7</sup>, which many people felt was one of the strongest armies, and they were trying to keep China under control. And then Stalin found out, of course, that we dropped the bombs, and basically our government’s strategy then was to win the war alone, and to keep the Soviets out [and to avoid] having to divide Tokyo in the same way as Berlin.

LW: Right.

AS: By that time there was no end of trouble, because Stalin was... probably a psychopath by this time. And our government already knew that it’s impossible to work really jointly with the Soviet government.

LW: Right. They’d already made that judgment, okay.

AS: That’s why the bomb was dropped so early, you see: in order to *end* the war. But the Soviets, then, and Stalin and his generals, in their fury that the treaty was broken -- or their *agreement* was broken, not treaty -- they attacked on the day that was scheduled.

LW: I see.

AS: Which was several days later in August. But that was a date set maybe at Yalta or someplace. And then they swept [through], because of course the Japanese army was collapsing. Actually, these people had not yet collapsed. Tokyo had collapsed, but people in Manchuria, they tried to fight back and so on. But it was still easy. But the Soviets, interestingly enough, as I understand, did not send Russian troops -- that is, they were not ethnic Russians.

LW: Right. So who were they?

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<sup>7</sup> The Japanese Kwantung Army originated with the garrison established to defend and administer Manchuria following the Russian Empire’s defeat in the Russo-Japanese War, and Japan’s capture of the Kwantung territory of Manchuria, in 1905. From 1931 to 1945, the Kwantung Army played an important role in administering the Japanese-controlled Manchukuo state.

AS: Ethnic Mongolians; Mongols, from Soviet Mongolia, who basically hated Russia, and particularly had been completely brainwashed to hate White Russian [émigré]s, politically.

LW: I see.

AS: So they came in, and they were *rough*. There was rape; they were raping the Russian émigré women. There were beatings, there was theft. But no really major problems; these are personal problems to people, but --

LW: In terms of state politics.

AS: That's right: there were no state executions or anything like that.

LW: I see.

AS: There was just individual disorder: maybe sailors, maybe soldiers, who maybe would get drunk or whatever. They were given a free hand at a very low level. That was in [early] August [1945]. Soon after, the A-bomb was dropped.

[brief interruption]

LW: Okay, you were talking about August 1945 in Harbin, in Manchuria.

AS: Right. So [after] the [Soviet] troops [invaded], then the NKVD (subsequently the KGB)<sup>8</sup> arrived. They were not there right away, just the army. Then [with the arrival of the NKVD,] they started rounding up the White Guard leaders, and people who were on their list.

LW: So then it became more political.

AS: Yes, completely political. My mother was left alone. But in order to survive [she] was forced to accept Soviet citizenship. She hated the Soviets, but she had to survive. Also by then the Chinese government stepped in. Although I hate Mao Tse-Tung, and I have problems with him too, the Chinese revolutionary government that replaced the Manchurian imperial government was a lot less corrupt. They had some ideals. The others [preceding them] had sold [out] to the Japanese. They were really the dregs.

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<sup>8</sup> The NKVD, or *Narodnyi komissariat vnutrennykh del* (People's Commissariat for Internal Affairs), was the state organization that took over domestic affairs, and primarily responsibility for state security, from the imperial ministries in 1917. The NKVD contained within it the political "secret" police. The successor body to the NKVD, which took over specifically the police and security functions of the internal affairs commissariat in 1954, was the KGB, or *Komitet gosudarstvennoi bezopasnosti* (Committee for State Security).

And so the Russian [Soviet] secret police moved in. They rounded up people, obviously from lists prepared much earlier: they knew exactly who they wanted. Among them, [one] name that Americans always cite, and is in all the history books, was a man named Ataman Semyonov, Grigorii Semyonov. ("Ataman" means the Cossack leader, equivalent basically to about a general's rank, a senior Cossack officer. Ataman goes back to probably Tatar origin, because it's not a Russian word, but I've always heard of Cossacks having "atamans," rather than colonels or generals.)

Semyonov was apparently a pretty rough character, even though there was a photograph of me sitting in his lap, because he was a friend of my father's. Americans who have read Soviet books say, "How could your father be friends with Ataman Semyonov, when he was apparently an inhuman beast?" Well, what my family knew of him, he was a very nice gentleman, and an officer. But the point is, supposedly -- I was told in the Soviet Union -- that he tortured Reds when they caught them. And I said, "Well, I don't know, my father did not tell me about that." But I'd say at the same time, think of what the Soviets did to White officers when they caught them, including some -- again I'll deviate for just a moment: have you ever read Ivan Bunin?

LW: Yes.

AS: He was a Nobel Prize winner at one time, Bunin. He has a book, which I don't think has been translated into English, called *Okayannye dni* and the closest translation is "Cursed Days." And these are his diaries during and right after the revolution. He escaped from the Crimea to Europe, with the last wave of the Whites who were able to escape after the Soviets took over the city [of Odessa], after the Red Army. There were two commissars, a man and a woman, who were brutes, total brutes. They did the things that the Soviets say the Ataman did, and that is: they offered surrender to the Russian officer corps (the soldiers already had changed sides), but the officer corps was fighting the Reds still, at the tip of the Crimea. So when these two appeared on the scene, they offered them pardon, if they laid down their arms and surrendered. And then they would be taken and possibly, there would be some court [proceedings], but anyway, it would be an honorable situation.

LW: Right.

AS: So the officer corps surrendered. Whereupon, I was told -- of course it adds to the nastiness of the situation when you tell it, I suppose -- [that] in particular, of the two commissars, the the woman, whose name I don't remember, delighted in having her people carve out the [pattern of the] White army's [epaulettes] and decorations -- [what on men's uniforms were] stiff gold boards with stars on them -- on men's skins who were alive.

LW: Oh, my.

AS: And these were people who had surrendered in good faith.

And then they were tied, a weight was attached to their feet, and they were taken out, in [Odessa,] one of the major Crimean ports, and dropped in the water. And Bunin was there at the time, [and] in *Okayannye dni* [describes how] there were hundreds or thousands of these cadavers who were dropped and drowned after they were bound and already tortured.

LW: Right. Had already been --

AS: And they were dropped into the salt water. And then their bodies kept on bobbing with the tide.

LW: Right.

AS: So, [there are] these horror stories like that. But again, it explains why maybe somebody like Semyonov did... -- I don't know.

[Anyway,] Semyonov was a family friend. And in 1945, it was announced that Ataman Semyonov was captured in Manchuria with a contingent of other anti-Bolshevik, anti-Soviet activists. I read it in the San Francisco *Chronicle*, but by that time I had no connections with home, with my father or my mother since long before the beginning of the war, so I only read it in the papers. And I had no details until 1951, when all of the sudden, out of the clear blue -- during the Korean War, most surprisingly -- postal communications between Communist China and the United States were re-established during the war! Now, the mail was clearly censored on both sides.

LW: Right, obviously.

AS: It may be that our side allowed [this] in order to get any "pearls" that they could, by reading the mail. That was 1950. Mother established a system, in other words, she developed a code, where I could tell (I don't remember now exactly, but let's say the third paragraph): the third paragraph will tell me what really happened

LW: Really?

AS: And I would read just a bunch of baloney, and then all of the sudden there would be, the sort of thing which didn't quite fit, and *that* would be the truth.

LW: Interesting.

AS: So she did that for a couple of years.

LW: But she was in China?

AS: She was in China.

LW: I see.

AS: When my father was arrested and taken away together with my half brother, Vladimir, my father left a paper, a legal paper signed by the local authorities, leaving her (even though they hadn't been living as man and wife for years by that time) power of attorney to run his properties, which had stores in some of them and things like that. In one of the buildings there was a barber shop called "Kiddo," Kiddo-san was the owner, a very charming Japanese gentleman who had Japanese barbers.

[But I get] these two periods mixed up, [and this must have] happened earlier, when the Japanese marched into Manchuria, this had to be 1930/1932. Mr. Kiddo-san came in to see my father in a colonel's uniform. He had been working as a barber for several years, and because he was the owner of the barber shop, and out of respect to my father, he personally would cut my hair and did a very good job. He was a professional barber as far as I was concerned. Well, he was a colonel in the Japanese intelligence! All these years, working alone, in enemy territory, while they were fighting. So that was Kiddo-san.

So, [later], my father came to my mother, and said [that] they [were] taking him [Father] away, and apparently it was a very emotional scene. He got on his knees and begged, because they were already waiting for him at the door.

LW: This was 1945.

AS: '45. And he begged her forgiveness, for all the things that transpired in their marriage, and so on.

As I already said, there was an article: Ataman Semyonov and a small group -- more than ten, and less than 25 -- of the White [Guard] Russian leadership were swept up by the NKVD in Manchuria, after the Soviet invasion and the collapse of Japan. They were brought before the tribunal in Moscow, after having been incarcerated by that time for several months. The prosecuting attorney was an international figure, Bagritskii, I think was his name. He was well known, because he had been a Soviet diplomat. He was well known in Washington and everywhere else, and he was a prosecuting attorney under Stalin. He demanded the death penalty for all of these White Russian leaders. According to the account in the *San Francisco Chronicle* -- my father was not mentioned, but Semyonov was -- these people publicly stated that they indeed had been traitors against their fatherland and thought that they deserved the death penalty. Presumably thereupon they were taken care of and shot. My mother did not have those details, but that was [in] the press.

[break in audio]

LW: We're recording again. You were in Moscow.



AS: Yes, at the KGB archives at No. 5 Lubyanka<sup>9</sup>, [which] were now open, and I could probably go in and find out exactly what happened to my father. But the interesting thing is, I couldn't make myself do it.

LW: Yes, that would be very difficult.

AS: Very difficult. Plus, I didn't trust that I would go in and that the records [would be] true.

LW: Yes, you go through all of that emotional upheaval, and you don't know whether what you're reading is true.

AS: Yes.

AS: Recently I just saw reference to a similar situation, in which the Soviets handed this American author a file. When he opened the file and went through, at a certain page, he found dried blood, which had been removed at one time, it was clearly blood, and there was a confession. So the confession probably was taken while a man with brass knuckles was smashing [the person's] face: "Now, do you want to confess or not?" Whack. "You want to confess or not?" Whack. "Are you a murderer or not? You're a murderer. No, you're not? Okay." Whack. "Are you a murderer?" "Yes I am."

LW: I see.

AS: You never know the truth. It's all buried.

LW: I see, yes.

AS: So anyway, that [covers] those events. Should we go back to my birth?

LW: Well, we can if you'd like. I'm curious know a little bit about the two physicians that you felt were a little bit of a role model to you when you were growing up.

AS: Oh, that's where I got [side-tracked]. Yes, one was -- I'm not even sure -- I think an older man, probably educated in one of the Russian medical universities. The other one I still remember, a much younger man who received a medical education in Belgium. His name was Ourzov.

Ourzov was a wonderfully trained internist, and he supported me when I said I wanted to be a doctor, and my father said, "Oh, no, you don't want to do pelvic examinations, and people are dripping pus or God knows what else." [laughs] And I said, "Dad, you know, that's not the only thing you do as a doctor." You do other things, you know. Of course I did have to do some of those things. But by that time, you're so well trained and inured.

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<sup>9</sup> The building that houses the KGB headquarters and its affiliated prison is located on Lubyanskaya Square in Moscow, and both the square and the KGB building are often referred to as "Lubyanka."

You're no longer -- it's nothing. You do not think of it as intimate, as somebody's private parts. They are patients.

And, you see, that to him was totally incomprehensible. It was so disgusting, and even though he had been fighting and had been in wars, he hated the sight of blood.

My mother said that, one time, [with] one of the children, she started to bleed, being delivered at home. And he walked in, and he practically fainted. Couldn't [stand] the sight of blood. She always laughed about that, "the great big hero."

Those were the two doctors. And my father did not think it was very good, but I came to America, and --

LW: So they sort of supported your interest in medicine when you still lived in China?

AS: Oh, yes. Eventually, yes.

LW: When you were in the US?

AS: There was another dramatic episode or episodes, obviously earlier, but I do remember that as one of the things that sparked my interest. When the Japanese attacked Harbin, it was the first time we saw such things as aerial bombardment. It was 1932, I guess: the Japanese attack on Harbin. The Chinese troops dropped their guns, and as I recall they were wearing gray, winter uniforms, and they were just running, actually running -- there was a stream of these [soldiers]. Three or four friends and I climbed into the bell tower of a nearby church. We were witnessing this with a great deal of interest, of course, because, you know, [we were] 12 or 13 years old. And we just thought it was a great deal of excitement to see these people gunned down or shot and so on. It was February, middle of the winter, and many of these people who were killed -- shot, and bombed -- froze to death. And our schools were suspended. We did not go to school, so we'd sneak away from our families and go around poking and looking at this. The only thing I may have picked up and brought home and then hid was a bayonet. But some of my buddies, my classmates, were walking around with firearms -- pistols, or a Browning, and so on. And I remember one of them had a big German Mauser pistol, that he picked off a dead body. But I was looking at these dead bodies, and I don't want to go into gory details, but some had half a head blown off, and I remember one had a chest opened, and it was all frozen, and there were some things hanging out. And I looked and [we] felt [that] we would like to poke around. But I didn't have the guts to poke around, plus I was afraid somebody would see me, including police or the Japanese. "They will think that I'm robbing the body, or worse." So I didn't, but then I would go home, and ask, "Dad, I saw a dead body, and he had a torn chest, and -- what is that," he said, "I don't know what it was, and I don't want to know!" So then I'd go to school, and the only person to whom I could come, and who had the answers was our school physician. I'd go to him and [talk], and he understood that I was curious there was a dead body.

Again, it probably was one of the influences, because those episodes I still remember, when the only man who knew what I was describing. I cannot remember, I assure you, exactly what my questions were, but let's just say, I'd see something hanging out. And I'd say, "There was this thing, and there was that thing. What is it?" [He'd say,] "Oh, that probably was the lung tissue."

LW: Interesting.

AS: "And the other one was the heart, which was exposed." "Heart? It looks like that?" "Yeah, you know." I'm making up the conversation.

LW: I understand.

AS: But he would have answers to these questions, and I started to really feel that these men really understand the workings of a human body, and that they have answers. And in that school, biology, which was, you know, botany and zoology and things like that -- but they understand the human body.

LW: So that was more interesting to you, for instance, than, say, the pure biology that you might have been learning as a kid? That's interesting.

AS: So anyway, this may very well have been one of the influences.

LW: Okay.

AS: Want to hear about my birth?

LW: [laughs] If you'd like, okay.

AS: Well, it's a long story. I'll make it -- [laughter]

1919, October. My father and mother separated, but nine months before my birth they had some kind of a business arrangement they had to settle, because my mother used to run his business, so I don't know, some documents or something had to be signed. The revolution already had occurred, but the revolution took at least two years to roll over from Leningrad, or St. Petersburg, and spill over. So, in 1919, the [Russian] Civil War was still on; this was the height of the Civil War, after the revolution. There were armored trains going, and the Whites were fighting the Reds. And people were changing sides, changing from the Red back to the White, from the White going to the Red. Marshal Tukhachevsky, who was an officer in the Imperial guards, became the "Red Marshal"<sup>10</sup> (And eventually was executed by Stalin.) He was a Russian aristocrat, and

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<sup>10</sup> Despite his noble background and service in the Imperial Russian guards, Mikhail Tukhachevsky joined the Bolsheviks and the Red Army soon after the October Revolution, became an officer and quickly advanced, ultimately rising to the position of Marshal of the Soviet Union in 1935. In 1937, he was arrested and removed from his position and any possibility of challenging Stalin's rule. He was charged with treason and shot in the same year as his arrest,

[yet] he became a Red Army officer, and one of the more successful. He studied strategy and was a professional officer, while the others were – shoe clerks. Some of them very talented. Like Trotsky -- you know Trotsky's story? Bronshtein?<sup>11</sup>

LW: Yes.

AS: He was a a beastly man, an incredibly cruel man, which is not in many history books. But [in any case], my father and mother got together, and then one thing led to another. They had already separated for I don't know how long. They went to a nice restaurant, had dinner, some champagne as I was told. And they wound up in bed, without planning on either side, but as you know, those things happen to people.

LW: That's right.

AS: They had been married at one time and knew each other quite well. So they wound up in bed. But my impression is that my mother had been told that she was not going to have any more children, because it was a total surprise to her. She must have been about 40 years old. And in those days, you know, [it was] generally considered [that women] lose their fertility by that time, so it was a total surprise to her when she realized that she was pregnant. And [it was] a total surprise to my father. That did not bring them together, though, during that time.

My father was traveling some place, and my mother, for whatever reason, had a very hard birth. My delivery was very hard. The hospitals were in terrible condition, because by this time -- 1919, October -- and in fact it was about that time they were still celebrating the second anniversary of the great bloody revolution. But there were shortages of all kinds. The hospital was not heated. It was freezing cold. People were in sweaters and robes and fur coats in the hospital.

LW: Whatever they had, probably.

AS: Yes. And, because mother had such a hard time, soon after the birth, the nurses said, "Look, you're in no condition to take care of him. We'll take him to the nursery." I know the details from my mother's letter, which I still have. I just found it over the last year or so. I asked her, "What was the story?" It was reinforced with what I remembered, because when I came back to China in 1938, after a year or a year and a half in America, in San Francisco, she took me to the storage area, in which there were these old legal records. I looked through them and I got some, and again later on, before her death, I wrote and I said, "Mother, tell me again. This is what I remember. How much of it is correct? What really happened? How did I get injured so badly?" And so, she said, "Well, here's what happened then."

I got these pieces from different sources. Oh yes, and also there was the "gold" piece: where my father's gold came from. I never knew until I was in San Francisco. One of the old mining engineers, the father of one of my good friends, a Georgian by birth,

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<sup>11</sup> Trotsky was born Lev Davydovich Bronshtein.

Nikoladze, said, “Alexis, you mean you do not know why your father was giving these gold bars to people? Did you know he owned gold mines?” I said, “No! My father never told me, and my mother never told me – I never knew that.” So that explained many things.

LW: [laughs] I guess it would.

AS: I mean, how could he be a millionaire selling books in the Orient? Selling Russian, English, French books, and publishing a newspaper? How can he get millions on that? I said, “Oh, the millions came from the gold mine.” And the Soviets, of course, took it over. That’s why he became so active in fighting them. It was not just that he was a monarchist and trying to save the Imperial family. He wanted to save his wealth!

LW: His business, and his wealth.

AS: Yes. And he didn’t succeed.

LW: No.

AS: It became state property, until very recently. Now a couple of former good Communists stole the whole damn thing, I understand. Like the man whom Putin has put in jail --

LW: Like Khodarkovsky.

AS: Right. Well the man in charge of the Lena gold mines had declared that his property. He created an *akstionernoe obshchestvo* [a joint-stock company], with shareholders. He gave shares to the former employees, elected himself director, and robbed them all. That’s the way he’d been working in the Soviet Union.

So anyway, back to the nursery. The nursery was freezing cold. As I understand the situation, it was cold, so she took me and another newborn baby, who was a little girl -- smaller. I was apparently quite husky, a big infant, and she was a tiny one. To keep us warm, she took us into the kitchen. Of course this was before the days of modern hospitals, and during the revolution everything had broken down and so on. So there were terrible conditions, no heat. Of course there was no central heating or anything like that operating. In the hospital, the stove and all the heating system came from either coal or wood. The walls had tile to keep the heat and dissipate the heat into the living areas [for which they were using coal], and for cooking and other purposes, they were using wood. Now this was what we would nowadays call dining kitchen but it was just a kitchen. She got a little tin tub. As I understand, she lined it with some flannel blankets, put the little girl and me side by side and covered us with another flannel blanket. Put us on top of a stove, which had burned through. The stove was completely safe.

LW: Oh.

AS: It was just warm.

LW: I see.

AS: You see, the wood had burned. And she closed the flue to keep the heat, so it would stay warm, because the room itself was freezing. No heat [was] coming out from anywhere. So, she was doing the right thing, basically. The physician or physiologists [would point out] that our temperature regulation is not very good immediately after birth. It's very poor, which they know, and so the issue is trying to keep us warm, so long as our mothers could not keep us warm. And then they went out, it was a change of shifts, and they were gone. Some hours later, a Chinese hospital orderly came in. This was before the days of laundry facilities. And he testified that he found this tin tub, and he thought that these were diapers from some of the newborns, which is constantly what they did: they put the diapers in and they boiled them.

She [my mother] said, he testified that "Stupid nurse, how can you boil the diapers on a cold stove?" So he opened the flue, opened the grill, put in a lot of wood, lit it up closed it and went off. His shift was over.

LW: Oh my goodness.

AS: In the morning, my mother wanted to see the baby. The nurse had already discovered what had happened when the morning shift came back. They went into the kitchen, probably to prepare a meal or whatever, and they found the little girl fried to death.

LW: Oh my goodness.

AS: She was grilled. And she was dead. And I was burned badly. My buttocks, one of the two buttocks very badly burned, the other one, not so bad. But I was unconscious. The eventual court records showed and my mother said the same thing: my whole left side of the body was paralyzed completely. They called in the physicians, what the Russians called from the Latin and from German "the *consilium* [advisory body]": a council of three physicians, legally constituted, who were then appointed, probably by the court or by the authorities, to investigate medically what did happen, what's the condition. They said that these are fatal burns, that one infant was dead, but the other one, myself, had a brain hemorrhage, and they felt, undoubtedly, serious brain damage. I was paralyzed and I was in a coma. They said, the injuries are such as to be irreparable, and I should be allowed to die in peace. My mother telegraphed my father, who was out of town, even though he knew it was his child. So he rushed back, and the findings were presented to him, and he was asked to confirm that [this was] the best thing to do. I don't think they were going to put me to sleep, but they were going to allow me to die in peace. He said "Yes, It's the most humane." That's what the Doctors, the consilium of three [had said]. The three consultants signed documents saying that I should be allowed to die, that it's inhumane to keep me alive.

And my mother said no. My father said that he tried to reason with her and said, “Look, you have two perfectly healthy children whom you love.” These words of course are all mine now: “Why take this cripple, with a totally negative prognosis for any success in life or anything else? Why not let him die? Just let him go in peace.” Mother said no. So she eventually checked her son out of the hospital. She did not live in this magnate’s mansion. By this time she was living in a modest suburban home that she bought just a couple of years earlier, before they had that fateful night when they begot me. And she started to work on me. She used all kind of ointments. The physicians also said in their document that probably, with this kind of a burn, I’m going to have terrible skin infections. My mother later told me that’s exactly what happened. She said, “You were covered from head to foot within a matter of days, from head to foot.” And it’s interesting: it took me years, by the time I was a professional in the field, to know exactly what it must have been. She said, “You were covered from head to foot with a golden crust.” Some of it was pus -- golden pus. Yes, it was truly golden. And then it would dry and become this... they said “your scalp, everything was covered.” They said, “not just your burned part, but [your] whole body, your eyes, everything was covered in golden pus and golden crust.” Of course, by the time I was a medical student and a professor of microbiology, I realized that the golden crust was Staph[*Staphylococcus*] aureus, the “golden” staphylococcus, which of course invaded everything. And they had no antibiotics, no chemicals of any kind. She kept on applying some kind of compresses, and nursing me, and exercising my paralyzed side. Subsequently, I asked my brother and sister about all of these things, after I came back. I said, “Hey, what really happened? Here’s what I understand.” They said, “Well, we’ll tell you the truth.” They were separate, not together. I spoke to my brother once, and then to my sister, and they both said, “We hated you, because you took away our mother.” They said, “Before that, [she] was a loving, caring mother, and when you appeared on the scene in this suburban home, we were relegated to our own bedroom. And much of it was taken over with care for you. When your bandages were being changed in the shower, the stench was awful. We were ashamed to go to school and smell like you.” And she said, “You know, we hated you. We thought that you are, you know, some kind of a punishment sent on the family.” So you can see it was a dramatic entry.

LW: Yes, very much so.

AS: Next, a good thing happened. My father did not see me at all. He refused to see me. The two of them were totally separated. Then, about two years later, as I understand it, from my mother’s letter, somebody met Father, maybe at one of these things that Father was still running, and said, “Oh, Marina Mikhailovna” -- my mother’s name and patronymic -- “apparently got remarried.” He said, “Oh, I didn’t hear that.” She said, “Oh, she has this nice little boy. Saw her in the street. She was wheeling him in a perambulator.” He said, “It can’t be. What little boy?” So he went down to see me, to see Mother.

LW: I see, because he of course believed that you had died.

AS: And so he went, and she said she brought me out and ...– these are emotionally difficult areas. He of course said, “Well, you know, I can’t believe this. That’s Alexis? (or “Alexei,” in Russian)?” Mother said, “Yes.” He was so delighted that he had her dress me in my best winter suit -- a woolen suit: a cap and mittens and little booties. And he took me, even though he was very excellent photographer himself, a superb amateur photographer, and I have some very wonderful photographic studies he had taken through the years. Instead of that (and I have many photographs he took of me subsequent to that), but this time he took me to the best European photographer in town, and posed with me, and he signed them: October 18, 1921. And I still have those, I found them someplace. So I was thrilled that my father discovered me. However, they did not get together, and they continued to live separately for a number of years. And then, I think I already have told you, that later on I just said this is ridiculous. People would ask me, “Aren’t you Aleksei Shchyolokov?” And I would say, “Yes.” “Your father is..., and your mother is... What’s going on?”

LW: People just didn’t understand your family situation?

AS: Yes. Finally, I went to them and said “Look, this whole thing is ridiculous, you know. How about getting together so I have a father and a mother?” And so they got together. And by that time, of course, Father lost his mansion and all the rest of it. He was living in an apartment in one part of town, and my mother was living in an apartment in another part of town with me. And then they got together, and got a larger apartment, and we all lived together until I left for America.

LW: I see.

AS: So that’s that part of the story. Okay, I’m just reading my old notes and answering your questions. That’s enough, all right.

LW: Right. So, if you want to go on to when you left for America and started your studies.

AS: Okay. I went to a school, which was the best *Gymnasium* in Harbin, run, interestingly enough, by the International YMCA. But it was not the same YMCA as we think of in this country today. Although it was affiliated with the American YMCA, which started in the state of Indiana or someplace originally. And they used,[the same name,] both in English, “YMCA,” and in Russian, “KhSML,” which is an exact translation, “*Khristianskii soyuz molodykh lyudei*,” or Young Men’s Christian Association. “Soyuz,” meaning union or association. It was affiliated somehow with the International YMCA, but it was really the best private school in town, run by this very efficient management. Tuition was quite high, higher than at any other school in the city. And it was private. There were others which were affiliated with the Ministry or this or that. The Russian émigrés who had their own society, but this was kept entirely separate. But because the parents had to pay plenty, they were able to pay the teachers much more than what any other school, any other European school, in the area paid. The whole school was ten years: three years of preparatory; seven years of the *Gymnasium*. And it



could be *Realgymnasium* or Classical. Classical meant Latin, Greek, and so on. *Real* had calculus... And in those days, in the thirties in America, when I told them at University of California that I had calculus, analytical and geometry, they said, "You're lying." I said, "What do you mean, I'm lying? Here's my transcript."

LW: Interesting.

AS: And they said, "Well, you can't teach calculus to high school [students]! How old were you?" I said, "Fourteen, fifteen, sixteen." They said, "That's impossible. You can't do [that]; we teach that in third year of college." And I said, "Well, what you teach has nothing to do with what we were taught." This was a Gymnasium, it was not a high school.

LW: But wasn't that probably what people were taught in Gymnasium in Western Europe?

AS: Of course.

LW: So they just had never encountered anyone with a European-style education.

AS: Exactly. This is the thirties.

LW: Okay, yes.

AS: The Registrar at the University of California refused to believe me.

[break in audio]

LW: We were talking about the Gymnasium.

AS: Right. In the Gymnasium were superb teachers. Most of them -- beginning by the fourth class of the [latter] seven, and certainly in the fifth and sixth and seventh -- were former university professors who had escaped with their lives.

LW: Really?

AS: From the Revolution. And they had no jobs. They were professors, but there were one or two schools that were built, but all these professors had odd specialties, you know. Geography: there was a Polytechnic Institute producing very good engineers, but there was no Geography Institute, or Russian History Institute.

All of these people were just out in the street, and our school picked them up and kept them alive by giving them a salary in a pleasant environment. The school was quite well equipped, and [had] a very intellectual atmosphere. I'll confess (this story I did tell in America more than once): I remember the first freshman English composition class, it went something like this. There were topics put up on the board that you can select, and

the one that I still remember was, “How I spent my last summer vacation before I went to college”; “My favorite hobby.” I can’t remember, but they were of that caliber: “My favorite hobby”; “My dog and I.”

So I started to complain. And the person administering the examination said, “What’s your problem?” And I said, “Who do you think I am?” I probably was pretty nasty, or smart alecky. And I said, “You know, I’m not in kindergarten, or I’m not in preparatory school anymore. I’m a graduate of *Realgymnasium*.” They said, “Well, what would you like to [write about]?” I said, “Well, in my senior year, graduating from the Gymnasium, I had a choice of topics, and I selected, ‘Comparison of the World Outlooks of Nietzsche and Tolstoy’.” And I said, “You know, this is what we were dealing with: philosophy and Russian writers, and comparing the religious outlook of two thinkers. I can talk about a number of cultural subjects, but I’m not interested in describing what I did my last summer.

That didn’t go over very well. I was considered a smart ass. And the rest of the class, people obviously snickered and made fun of me afterwards because they thought I was bragging about my wonderful education. They didn’t believe it, first of all. They just thought it was all just a bunch of, you know, and I’m probably a little demented.

At first, I looked at the courses, and I said, I want to register and they gave me courses.

LW: This is Stanford now, right?

AS: No, this is Cal.

LW: Oh, this is at Cal, the University of California at Berkeley.

AS: They were much more rigid than Stanford. At Stanford, if I had money at that time to go...

LW: I see.

AS: I had to pay nonresident fee, of course. The nonresident fee for undergraduates, as I remember, was \$25 per semester. I think the tuition was \$25 a semester, I think, so maybe [a total of] \$50. Stanford [charged] \$150 or \$200 per semester or per quarter -- it was much more. To get money out of China was very difficult, and I was not allowed to work, because I was a student. But finally, I had to start working. But I was scabbing, illegally. And if I got caught, they would have deported me for illegally working. But there were kind people in San Francisco, including some of the local organizations.

But anyway, I wanted to register for this or that, upper division courses. And they said “you can’t.” And I said, “Why can’t I?” They said, “Because, you have to have the prerequisite; you have to be a Junior.” I said, “I don’t have to be a Junior. Give me the exam.” Of course today, you see, they would.

LW: Yeah. I think you're right.

AS: Exactly.

AS: Anybody can ask to be examined. If I come from a family in Sacramento, and I come and I say, "My mother home-tutored me and I believe that I have [the requirements]." They say, "Okay, here's the examination which would qualify you for the requirements of the Junior year directly." I mean, the whole system has changed completely. At that time, the minds in the educational system were very closed -- except maybe at Stanford or Harvard, but not at the state schools. The state schools were run very rigidly. [There was a] feeling that children developed [at a certain pace], and you move them as they develop -- that *you're* the one who judges how they're developing, and [it's] not the kid telling you "I can do that." Or his mother, who tutored him at home.

LW: Right.

AS: Anyway, but I survived.

[When] I was at Cal, there were so many complications. For a while, I transferred to San Francisco State, because I could work nearby And I was there, probably for a semester or two, and then I went back to Cal. Then I applied for medical school, and -- I'm bragging now, but -- I made an impression with my background. It's not my brain, it's the different educational system. Now, Stanford turned out to be cheaper than Cal, because the nonresident fee was considerable at Cal for medical school. They were trying to keep out-of-state people and give them a very expensive medical education. But, whether you were a resident or a nonresident, Stanford [charged] the same flat fee. So I applied and eventually was accepted at Stanford, and a couple of other schools. That was the Fall of [19]40.

Then the Japanese clamped down and wouldn't allow my father to send me money. But by this time, no money could be sent. So I had to really start working. And I was working -- in San Jose or Santa Clara? In [19]39 was the San Francisco World's Fair.<sup>12</sup> I worked in the soda fountain there, and then I became manager of the soda fountain. And finally everything was cut off.

Oh, and there was another stupid thing. I can't blame the Japanese or the Immigration Services for this. I had been accepted to medical school at Stanford, and a few buddies and I, four of us [in total], decided to go to the South Seas. I must have been eighteen or nineteen at the time, I guess, but still not very smart. I was smart in some ways, in book learning, but I wasn't very mature or very smart in other ways. And neither were these guys. We were all about the same age, and we all [had] sailed boats one place or another. We used to go and gawk at the sailboats at the Marina in San Francisco. Finally one of us, I don't know which, came up with the idea that we were going to buy this wonderful boat that somebody unloaded on us -- it was brought down from Alaska. And it was

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<sup>12</sup> The "Golden Gate International Exposition" held in San Francisco in 1939-40 is also referred to as the World's Fair.

really a seaworthy boat. Probably fishing, because I knew nothing about sea boats, you know. I sailed fresh water small yachts -- sailing boats, not really yachts, in China. I could sail passably but was certainly not a great expert. I certainly didn't know absolutely any navigation, but I went out and bought a book on navigation. And so did these guys. The four of us bought the boat. And then we sailed in the Bay. And then I was going to go back to Stanford Medical School and tell them that 'm going to be that much better as a medical student if I have a year sailing the world to Tahiti and Samoa, and I'll feel like Van Gogh or [Gauguin or] somebody else.

LW: Right.

AS: "I'll see the world in this wonderful sailboat!" Well, the sailboat did sail nicely, but none of us was very good at it. And the particularly fatal day was a beautiful day on the Bay. We actually went beyond. Do you know San Francisco Bay and the Farallon Islands?

LW: A little bit, I can imagine.

AS: Just beyond the Golden Gate.

LW: Okay, yes.

AS: You come out of the Golden Gate and then the Farallons are there. You know it's pretty open sea. But beautiful weather and we could handle it. And then we started coming back in, the weather started getting a little rough, and all of us started getting a little bit scared. And then, I was at the helm, and I was steering at the red buoy up ahead, so as not to get carried off course, because the wind was getting strong. At that time, the China Clippers [an airplane] had just been introduced. It was the summer of 1940. It was a novelty. We were still not accustomed. Everybody stopped everything and gawked.

LW: Oh.

AS: The clipper was landing. This was an amphibian ship. They landed in the water.

LW: Right.

AS: Like the one that Howard Hughes [built]. It's a seaplane, a giant seaplane. It was probably Pan American, flying from across the Pacific. It was exciting as hell. Everybody stopped. People just stopped the cars on the bridges to watch it. So, I was just watching that.

LW: Oh, no.

AS: So, I hit the buoy. It was a fresh breeze. We sprang a leak and we started to sink. We had a radio on board, but the radio didn't work. Something happened to it before,

and we hadn't fixed it yet. And so finally somebody going by realized we were sinking, We had life jackets on, but that's not very good when your boat is going under. Somebody must have radioed the Coast Guard, and the Coast Guard came in and towed us in to shore. That was the Fall of '40. But we did make some buddies -- we were just kids, people probably humored us. And they were humoring me as well. There was a couple plus a third man. And at one point, [they said], "if you really want to go to the South Seas, why don't you go with us, we could use another pair of hands." "No, no, I want to go with my own buddies and in my own boat." And these people were reasonably experienced sailors. To give you a very dramatic touch for that part of the story: our boat, my boat, was towed in and was beyond repair in the sense that I didn't have the money. It turned out that in my profound business abilities, and that's why I probably never became a good businessman, like my father: I forgot to renew the insurance.

LW: Oh, no.

AS: I don't remember now, it was very recent but nevertheless, when I went to [submit the] claim, the insurance company was not about to give me a free pass after I had the accident.

LW: No.

AS: I said, "Yeah but it was just a few more days!" They said, "Yeah, but why didn't you renew your insurance on time?" I said, "Well, I was busy: I had to earn a living." They said, "Well, tough! Tough toenails." That was the boat. Thank God all that happened, because the war broke out. The European War.

LW: Right.

AS: And there were all kinds of tragedies including this one other boat, [whose sailors] told us how they were going, so we could follow and possibly meet someplace. Something absolutely awful happened to them. I think they were French, and they were flying the [French] flag, and an account in the newspapers [said that] they were all murdered or killed. And people said, "Well, if you idiots had gone out, you'd probably be exactly there, too."

LW: Right.

AS: But I had this idea that if I come back from this adventure, the medical school would really love me, because I'd come back as this man of the world.

LW: Right.

AS: That cost me most of my savings because I sank most of it. I had still some savings and money, but my parents could no longer send me money because the Japanese clamped down on that. So my savings are gone, the boat I couldn't sell, and I started

medical school, and I very quickly ran out of money. So I started to work at night. And you know medical school was 8AM to 5PM, and then you're expected to study.

LW: Sure.

AS: Imagine medical school, it's not like college. You have to chip the anatomy book pretty thoroughly. *Grey's Anatomy* is this thick! I got jobs, and I would work nights. And...

LW: So how did you manage the homework?

AS: Not very well. Then I realized that I'm not doing very well, and I had no maturity, no sense. I was so ashamed of myself and of what has happened to me and what I've done that I just quit coming to classes before the end of the first year. I changed my address because I couldn't afford wherever I was living, and I was doing jobs here and there. Finally one day, I got a job at the Hawaiian Gardens, I think it was called. Not a very high class nightclub. No, I'm lying; it was high class enough for Stanford faculty. There was only few nightclubs on the Peninsula, except of course in the city. But if you wanted to go away from the city, there were no nightclubs in Santa Clara, because of course Santa Clara is a very Catholic town. But San Jose is a relaxed place, and they had this Hawaiian Gardens. I don't remember whether I was already waiting tables? I think I was, past the stage of being a busboy. A group of Stanford people came in, including Professor Weymouth, commonly known to us as Uncle Frank. Did I already tell you that?

LW: Well, I read about it in your [Stanford University alumni magazine] profile.

AS: He was one of my heroes, obviously. Uncle Frank was chairman of the admissions committee and was there with these couple of other guys. I was waiting, and you don't look up and gawk at your waiter. But something happened, and he looked up and he said, "You come." So, I came over, and I was shaking in my boots. He said, "Aren't you...? What's your name again?" He tried to understand what I was doing, because he realized that he was the chairman of the admissions committee. He was the one who originally admitted me. He was one of the people who interviewed me and gave me a very favorable rating. And then I disappeared, and they couldn't find me anywhere. Nobody knew where I was. He said something to the effect of, "What the hell are you doing here?" I said, "Well, I'm earning a living." He said, "Look, where do you live?" Hawaiian Gardens was reasonably famous: they had famous troupe of trained bullfrogs, because these bullfrogs smoked cigarettes. Can you imagine? They would have shows three times a night, the frog would sit there on the stage [mimics smoking, breathing, spitting]. Disgusting, actually disgusting. Low taste, low grade. But anyway, one of the few nightclubs in those days. San Jose was still a hick town. This had to be 1940, '41, summer of '41, before Pearl Harbor.

He said, "Be in my office 9 o'clock tomorrow morning." I did. And so, Frank talked. I explained honestly, confessed to all of my transgressions and all of my stupidity and so

on. He said, "Look, we have a job opening up in the Department." He said, "I can't take you into the Medical School, with your record right now." He said, "You have a bad record. You didn't show up for examinations, you didn't do this. But now," he said, "I understand. Let's see what happens. So come over. But certainly, I don't want you to work in that nightclub." So he said, "You come back and work with my department." In a job which, once upon a time I had this. The vacancy was a laboratory assistant and eventually I became a laboratory instructor in Physiology at Stanford.

And then, another long story: There was a guy who was a *stukach* [Russian for "snitch."] A "stukach" is a guy who...

LW: Rats on other people, right?

AS: How did you know?

LW: Russian.

AS: That's right, of course. I keep forgetting that you're not just a historian, you know Russian. So this "stukach," he was Igor' Stepanov, I still remember his name, and Igor' Stepanov was a *stukach* for the Japanese *gendarmerie*.

LW: Now where are we? We're in California?

AS: No. First he was in Harbin. When I came back to Harbin to change my papers, from a student visa to a permanent in '38, he was always hanging around. Finally, on my last day there, I said, "Stepanov -- or Igor' -- what the hell are you doing? Who are you working for?" He said, "You know, I work for the *gendarmerie*. I protected you." He said, "Do you remember such and such a time when you got into an argument with a Japanese policeman, and I came along?" I said, "Yeah, I remember." He said, "Well, I saved you. You would have been probably beaten the hell out of. I protected you and told them you were all right. You just don't know, you just came back." So anyway, he said, "I was your protector."

So then, '41 -- I'm at Stanford, working as a physiologist, without a degree in physiology, but learned the ropes. And I'm running a laboratory. I didn't lecture, I just ran the labs and did experimental operations and taught the other kids how to do this animal surgery. So I'm in San Francisco. The war is on, so that's after December 7, 1941. It has to be the spring of '42, and I see Stepanov on Market Street. And I recognize him, he recognizes me. I'm shocked. I'm sure he's no less shocked. And again: a conversation, "What are you doing...?" I said, "What the hell?" He said, "You told me that you were...?" He was quick on his feet, because if I remember correctly, he said, "Yes, but even then I was actually working for the United States Military Intelligence Service. Actually I was a double agent. I was working for the American Intelligence." He said, "I got myself a job with the Japanese *gendarmerie* and I was reporting to the Americans." I came back to Stanford at Palo Alto.

I had a roommate who was getting his PhD and became a very famous professor of physiology, eventually: Fred[erick A.] Fuhrman. Fred says, "Alexis, I think you need to go talk to Uncle Frank. You need some advice from some older people than we." So I went, and Uncle Frank and several people talked to me at Stanford, and they said, "Look, there's a war on. If that's his background, and you understood the situation correctly, there may be some problem. Talk to the FBI." I said, "Gee, I don't want to get..." They said, "Do it." They got the number, and they called the FBI. We met two or three times. I gave them all the information I had, and sometime later there was a newspaper article about a suspicious character being picked up by the FBI. And his name was given. And then the FBI came to me, and they said they wanted me to go to San Francisco, to federal court, to testify and to face Stepanov. And my Stanford advisors and my closest friends, again Uncle Frank and others said, "No. Don't go. They can't force you to go. He's not going to be executed. He's going to be put away for the duration of the war. But he knows that you betrayed him. And they did find evidence against him. He did have shortwave equipment in his apartment in San Francisco. He obviously was a suspicious character, and probably a spy, but working for the Japanese.

LW: But they didn't need your testimony necessarily. I mean, you certainly weren't going to risk it.

AS: The thing is, I don't know what transpired in the courtroom, but my impression was that he knew who turned him in. Somehow it became apparent, and he realized I must be the one. Because most other people did not know him. And he also told me this business about being a military intelligence officer, and so on. He got put away. And I'm still working at Stanford, but of course I went to the FBI and my information was sufficient to follow up and have some serious consequences of interest to the United States government. All of sudden, I became of interest to the United States' government.

One day, I'm at Stanford again, minding my animals, or operating, or whatever. I get a call from Uncle Frank, and he says, "There's a professor from Harvard here who needs to talk to you." So I see this professor, his name I'm pretty sure is Professor Quigley, who says, "There's a great deal of interest in you, because of your involvement with the FBI." I'm with the Office of Strategic Services, and we think that you can be very useful. So if you'll come to Washington, our office would like to interview you. Well I went to Uncle Frank, as always, and Uncle Frank said, "Alexis, the San Jose board" -- because that's where I registered for the draft -- "is trying to get you. We've been deferring you, but we no longer probably [can]." Ray Lyman Wilbur, former Secretary of the Interior, was the President of Stanford University, and had held this job also at the time when he [Weymouth] was a medical student. With the same job in the Physiology Department as I had. [Weymouth said,] "He knows about your case." He said, "I talked to him and he thinks that we no longer can protect you against your board. Your board thinks you're a draft dodger. And they've been sending Stanford [letters] saying that the deferments that we have provided for you are not going to work." And he said, "You're going to wind up someplace." This was cooking, and then this Quigley comes in and says you know, "Somebody's interested in you in Washington." So I pack up, take the train, go to Washington, to the addresses they gave me. I know exactly the building, I still remember



it, because it has a very distinguished history. The building was called Quarry, “Q Building.”

[break in audio]

AS: The Q Building is at 25<sup>th</sup> Street and E Street. Now does that ring any kind of a bell? It’s right next to where the State Department is now.

LW: Okay.

AS: It’s Foggy Bottom, heart of the Foggy Bottom [neighborhood].

LW: It’s George Washington University, probably, right now. Right?

AS: No, no, no.

LW: No?

AS: Across the street and sort of in an alley, away from the State Department Building, there still is the ancient US Marine Hospital.

LW: Okay.

AS: And the Marine Hospital was not marine: it was the United States Public Health Service. And by connection, that was the NIH Building.

LW: Of course.

AS: The NIH was in building number such-and-such, on the grounds of the old [Marine] Hospital [Service].

LW: Of course.

AS: The entire Hygienic Laboratory.

LW: Of course. I just realized it was right there. It’s right near the State Department.

AS: It’s the Hygienic Laboratory, in this little dilapidated building -- at that time probably beautifully maintained -- and it’s the Q Building. And in the Q Building is the entire Hygienic Laboratory, including the Cancer Research Lab. And then somebody gives a hunk of farmland in Bethesda, Maryland, and the President says okay. And then they go to a guy named -- another interesting historical figure -- “Wild Bill Donovan.” Did you ever hear of Wild Bill Donovan?

LW: I think I have.

AS: Wild Bill Donovan was a New York banker who at this time was the first head of the OSS. Wild Bill Donovan was given one floor in this old Marine [Hospital Service] building with the Hygienic Laboratory above it.

LW: Oh, I see. So that's how OSS came to be located in the same building as the old Hygienic Laboratory.

AS: Exactly, because it was the only space they could get. There was no building going on during the war.

LW: Right.

AS: So they were there and they were nothing. Just a bunch of former -- people who are now famous, some journalists. They were all the original OSS guys. Dulles. The Dulles brothers were in it, both brothers. After a while, Wild Bill Donovan said [that] having this Hygienic Laboratory -- with Dr. [Charles] Armstrong and some others working on choriomeningitis and something else -- is dangerous for the security of the country when our Office of Strategic Services is in the same building with these dangerous people and their dangerous bugs. Get them the hell out of here!

And that's when they moved to Bethesda.

LW: So that's part of the reason why, or the real reason [for the move to Bethesda]?

AS: As I understand, it was the real reason.

LW: I guess I believe that. Yes, I see.

AS: You see, now they [those working in the Hygienic Laboratory] were in the way.

LW: And endangering the [work of the OSS].

AS: And the much more important thing was the work of the OSS, in the old Marine Hospital [Service] building. But the Marine Hospital [Service] was the Public Health Service. But Wild Bill Donovan took it over [the building].

LW: I see.

AS: My interview with the OSS people was in that building. There was a guy, I don't remember his name, he was obviously Jewish. He had some kind of strange uniform that they especially had for civilians in these special jobs at OSS when they were in the offices. They had sort of a military style. But they didn't have the military insignia. There was a strange corps they created, sort of a like a civilian intelligence service -- I don't know. They were all government employees, but they're... Anyway, this guy was giving me my Russian examination before I could become an OSS agent, to make sure that I can really speak Russian. Of course, I knew Russian much better than he did. He

probably was the son or grandson of Russian Jewish émigrés from Kiev or Kharkov or someplace. And after a while he said, “You know, Shelokov, you know more Russian, you should be giving me the examination!” And I said, “Yes, sir, I think you’re probably correct.” But I also claimed at that time that I still knew Chinese. Actually I did not do very well in the Chinese exams, but at one time I spoke, but I’d been away from China.

LW: But you didn’t remember.

AS: I was starting to get rusty. Japanese, I could still read -- *katakana* and some *hiragana* but, of course, what Japanese I could read was from knowing Chinese writing. Before I graduated from the Gymnasium, I would imagine I probably knew over a thousand characters or over thousand hieroglyphics. But this was several years later, and I had other fish that I was frying. I no longer was fluent as I claimed that I was.

Anyway, I spent four months, maybe three and a half, being interviewed. Very soon I ran out of money. And they didn’t pay me anything. They just kept on examining me. Then I got a job at the Mayflower Coffee Shop on F Street, F and 14<sup>th</sup>, just off 14<sup>th</sup> -- I still remember the place. But because I was, compared to most soda jerks, better educated, and probably had more brains than most of them, I very rapidly progressed from washing dishes to counter clerk to something else -- assistant manager. And then they said, “Well, we can’t put you manager here. We’ve got a manager. But we’re opening another...” And I said, “I’m not interested. I want to be in Washington. I need to work. And I need to be close to 25<sup>th</sup> and E, where I can go on my lunch break.” So anyway, during this time, one of my former -- I shouldn’t call him my former student, but I did teach him something. His name was Patterson. I can’t remember his first name, but Patterson was Stanford’s pre-med student who got accepted at George Washington [University] Medical School. And, he helped me for a while. Oh, yes -- he put me up, even though I never joined any fraternities, he put me up in one of the medical fraternities, Phi Rho Sigma or something, at George Washington [University] Medical School. And then they needed the space. How did I...?

[break in audio]

AS: Okay. I’m at a fraternity open house party. They invited me, I’m still jerking sodas or whatever. And a guy comes up to me and says, “I understand you can’t afford the place where you’re living.” I said, “How do you know? What’s your proposition?” “There are four of us, and one of us had to put on a uniform and leave town. We have a nice apartment – at 1501 Massachusetts Avenue,” -- and if it’s not 1501, I can still show you the building. It’s the building facing -- is it Thomas Circle? There was a modern apartment building, just recently built, built just before the war. And so, [he said] “Move in with us.” I said, “I can’t afford a place like that.” He said, “What can you afford?” I said, “I can’t afford anything.” “Tell you what, \$10 a month.” I said, “How much are you paying?” He said, “None of your business. You want it or not? We need a roommate.” Well, I went back to Patterson, and he said, “Alexis, do it. For God’s sake, you’re starving.” So, I move in. I don’t remember whether I’m still jerking sodas or

what I'm doing. Tell you what I found out: I find out that these three guys are all FBI agents, and that the final check of me was, they put me up and then [I] lived with the FBI agents.

LW: Unbelievable. So that they could keep an eye on you.

AS: So that they could see what I'm really about. Whether I'm really working with the other side. By living with me. And they discovered that I'm a nice guy, and they gave me a clean bill of health.

LW: So all this time, you're waiting to see if OSS is going to take you?

AS: Yes. Then, they told me that I don't need to come for any more interviews or any more examinations, language or anything else. In two weeks I will receive a notice. I went off to Boston or someplace else. I guess I borrowed money, but I did get out of town. I was sick and tired, and I figured I could quit my job because now I can go back to California. No, I would get my assignment, that's what it was. I actually wound up in California, but I thought I'm going to get an assignment. I come back and I find a letter - like a le Carré story -- long envelope, this length, no return address, typed "Alexis Shelokov" and gives my address. Open it: plain sheet of white paper. No return address, no stationary, a white paper, typed. "Dear Mr. Shelokov, Upon thorough consideration of your qualifications for the position" -- I'm making up the actual words -- "for the position we discussed during the past X number of weeks," -- three and a half months or whatever -- "it has been decided that your services will not be needed. With great appreciation of the time you devoted, and so on," signed John Smith, or some completely ridiculous name. And that's all. That's the thank you from OSS.

LW: So that was probably pretty frustrating.

AS: Oh, seriously. I was thinking of going and shooting them all up but I didn't. And so I worked, must have been after three months, because I worked for quite a while then to earn enough money. And I got two jobs, I was working long hours. I telephoned Uncle Frank, who said, "Come home. Give up all this crap and just come home. We've got a job for you always." So I go back to Stanford, and now at Stanford I'm taking some courses in cell -- but, a new field. Let me add an interesting sideline: George [Wells] Beadle, [Edward] Tatum, [Lawrence R.] Blinks -- there were 3 of them. They were teaching a new course for the first time, and it was called "Biochemical and Cellular Level of Biology." It was a new course, just taught. At Stanford, just developed -- these men won the Nobel Prize eventually.

LW: That's what I thought: Beadle.

AS: Yes. He was teaching this new course, and it was the foundation of the whole goddamned molecular biology.

LW: That's exciting. So you took it.

AS: I took the course. I had never been so fascinated with anything in my life. And I learned so much from those three -- wonderful people, they were such wonderful people. And so anyway, that was that.

Then what happened? Oh, my draft board was back after me. This time I'm trying to -- I don't even remember what I'm trying to do. The war's still on. Then I get a letter.

That's right, I remember. I haven't thought of him for years. Signed by Major Paul Siple, a historical figure. Of course, I didn't know that at the time. Paul Siple's own history was interesting. He was a teenaged Eagle Boy Scout who worked with Admiral Byrd to explore and to discover Antarctica, and name some of the lands and so on -- as a teenager.

LW: I had no idea there was such a person.

AS: Paul Siple was asked by the United States Army to become a major and to create a new kind of a laboratory. Never before. And it was going to be called Climatic Research Laboratory. So, Paul Siple contacted me and said, "We can use you. We understand that when you were in the Department of Physiology, with Professor Weymouth and particularly Professor John Field and Professor Victor Hall, one of the contributions you made is a thorough review of Soviet free literature, and then some not-so-free literature that we got a hold of, on frostbite: the experience of Russian surgeons in the Finnish War. And nobody can read it, because most people don't know Russian, or, if they know Russian, they don't understand the terminology. Can you do it?" I said "Of course," and I [rattled it off]." By that time I was trying to make a living, and I started up a new "scientific translations bureau." And the stationery said "Alexis Shelokov, Director." And I got several medical students, Yuki Takahashi was my Japanese expert, and a Li was my Chinese expert, and we all were medical students, and we all knew different languages. So I organized them. But of course, we didn't have any financial support, so the whole thing eventually died, but I had lots of stationery.

Where were we?

LW: You were approached by Siple?

AS: Yes. Major Siple...

LW: He got you doing a review of things that had more to do with physiology than the biochemistry.

AS: That's right. The reason I had to do that was because I realized that I cut my throat more that, from ear to ear. At that time Stanford generally, and most medical schools were accepting people after four years, and never less than three and a half or so. Because of my unusual circumstances, and because of the interest of the admissions committee, they took me after two years. And I did not have a[n undergraduate] degree.

Maybe after two and a half years. So Uncle Frank again said, "Alexis, you've got to finish." You've got to go back, and that's why I took George Beadle's course.

LW: Now I understand.

AS: See, I took these courses, after having been in Washington and really tied up with the OSS and all the rest of it. Now, I go back and, of course, I get my Bachelor's, and at the same time Siple contacts me. Again Uncle Frank says, "Alexis, go. You can make a real contribution, because the Soviets obviously are experts. You know the literature on frostbite," -- because the Stanford people were interested -- "so you can help." So I go to a new laboratory which was in Lawrence, Massachusetts. And "Junior Physiologist," I think, was my title. Siple was the creator of the laboratory, but the actual director was a Harvard professor: John H. Talbot. John Talbot was very famous in his right, in a different way from Siple. He was one of the small handful of people who climbed K2 and he was an explorer and a mountain climber, and an expert in body temperature at Harvard, and a Harvard professor of medicine. By the way -- this is completely unrelated, but I can't help [it]. One day, Talbot confessed to me over lunch, "You know Alexis, you'll enjoy this, do you know who one of my prize patients has been through these years?" But he said, "Now this patient is gone. I do not feel bound anymore by my word of honor." And I said, "Who?" And he said, "Mary Baker Eddy." I said, "Jesus Christ Almighty, Mary Baker Eddy?!", the founder of Christian Science. Mary Baker Eddy was his secret patient, because she could not let all these poor suckers, who were contributing to Christian Science and contributing millions to her coffers --

LW: -- know that she was going to a doctor.

AS: -- know that she was a patient of Dr. Talbot's. That blew my mind at the time, and I haven't thought of that episode for years and years and years.

Talbot -- a truly delightful character, a wonderful skier, had been on the Harvard skiing team at one time and so on, mountain climber and professor of medicine, specialist in gout, one of the country's, top experts in gout. But he was also interested in temperature regulation and timing and so on and so...He was our Commanding Officer.

I spent the next two years, or year and a half, in this absolutely fantastic environment. I'll pat myself on my back: after a while, these people who never knew me...oh yes, All of our subjects were army draftees; they were all in uniform. Some of the most interesting people were Harvard, Tufts, and Boston University professors, and instructors who had been drafted. But they were not medical. They were botanists, they were geologists, and the Army had no goddamn use for them. So they dumped them as human volunteers. They would rather do that than [unintelligible] someplace. They had no military skills. They were all typical intellectual types. They didn't know how to wear uniform or...a strange outfit.

LW: Right.

AS: So they were then the subjects. I was bright enough to learn, and I did have all of this special background on frostbite and temperature regulation and things like that. I knew the literature well, and I had participated in some experiments. Aafter awhile, I emerged as the chief experimenter with these people. I was young and full of energy, and so excited to be in a place like that rather than some goddamn Army camp that I threw myself into it. I worked long hours, and I recorded and analyzed. And I was not the only one.

[break in audio]

I ran across a photograph of our entire staff at the Climatic Research Laboratory. I just saw it this morning. I probably left it in one of the racks. I'm in civvies; everybody else is in uniform. They're all Harvard doctors and so on and professors and I'm just a kid. But I was very good at it. And all this Polish, Russian and even Chinese, all was for naught because Colonel Talbot said, "Alexis, I don't give a damn whether you..." I mean sure, when they need something translated... "But let's do what you are doing. This is the *important* job. We are testing the equipment which is going to be issued to our troops all over the world."

LW: To know whether it's protective -- is that what the essence of the work was?

AS: Yes. Another funny story: Summertime, probably in the summer of '43...? Two things happened: I dropped the temperature to the lowest temperature ever recorded on Earth: 92 degrees below zero, in this chamber. I ran over to the Colonel and I said, "Colonel Talbot..." -- [He responded:] "Oh, my God." We all went in dressed with special masks and so on, which prevented frostbite of the lungs and all the other things, and we were photographed inside of this chamber. And then, "Send it to Washington." And Washington says, "Sorry to disappoint you, Gentlemen, but we just had a report from our attaché that the temperature at Yakutsk, in Siberia, Russia -- Soviet Union, not in a chamber, but outdoors, [reached] 94 below zero -- proven. And our observers confirmed it, and the birds are frozen to the telephone wires."

LW: Wow.

AS: So he said, "Don't brag about your 92 so much." But, generally, we usually operated at 40 to 50 below zero in the cold. And then we built a jungle room, in which then we had people the other way. That one I didn't run most of the time. I couldn't fit it in, because, by that time, I became really an expert on analyzing We had thermocouple readings, on every one of the fingers and every one of the toes, inside the mouth, and other parts of the body. They were being simultaneously taken by very sophisticated equipment. We we had continual printing out of their body temperatures. And, of course, we had recordings of what they were wearing, under what conditions.

Oh, another funny story: We had a wind tunnel too, which would really drop your effective temperature from just a thermometer temperature...

[brief interruption]

LW: You were talking about the wind tunnel that would really drop the temperature.

AS: Yes, the wind tunnel. I come in to the cold chamber in a parka and an air warming suit -- it wasn't 90, it was probably 40 or 50 below zero -- in the summertime. [One time] one of the thermocouples went off or something, so I go in, and just when I'm there, somebody -- not knowing that I'm not completely protected with a total face mask -- flicked the wind tunnel [on].

LW: Oh, my.

AS: And I was standing in there and believe me, I've never forgotten that particular moment, because it was perfectly still. The rest of the time, these are very quiet mechanisms that are trying to keep the temperature low. Very complicated. Room after room of this equipment to keep these conditions. And he flicked this, and all of a sudden, [there was] a blast of wind, because the fan occupied the entire wall, [it was] that big.

LW: Wow.

AS: And I'm facing it, and I screamed, so they immediately turned it off. I came out, and I had frostbite on my both cheeks, everything that was not covered was frostbitten.

LW: Unbelievable.

AS: In a manner of seconds. Badly frostbitten. So I was examined and they put something on it. Of course, I was rooming near the lab in Lawrence, Massachusetts, and there was a little German restaurant that I used to go to very often. So I go in, and all the waiters and everybody knew me, and they knew that I'm some kind of a medical worker, some kind of defense medical work. So I come in and I have this terrible frostbite, the this middle of July, maybe June. I sit down and one of the waitresses comes over and says, "Hey you, is that Shelokov? My God, what's happened to you?" Well, without thinking, I said "Oh, I was frostbitten." She says, "Ha ha ha! Why are you frostbitten?"

LW: That's right. They got a rise out of that.

AS: "101 outside. 101 degrees and you're frostbitten!" I said, "Really!" She said, "Oh, come on." I gave up. They wouldn't believe me because, of course, how can you get frostbitten?

LW: So this must be simultaneous with interest in Soviet...Something I read by Michael Shimkin about this period [about how] the Soviets were interested in the US findings on body temperature ...

AS: Sure!



LW: But it sounds like, not surprisingly, both sides were interested in the medical knowledge of either side.

AS: Yes, of course. And probably trying to spy on each other.

LW: Right, probably. I guess it's not surprising.

AS: Because it's physically important, you see, and in the meantime we also had the jungle [room].

[break in audio]

LW: So we're still talking about the physiology lab in Lawrence, and we're looking at --

AS: Climatic Research Laboratory.

LW: Climatic laboratory, sorry. In Massachusetts and we're looking at a photograph.

AS: What does it say on the back? This is Official Signal Corps, "CRL," as it was generally known in Washington. "Climatic Research Laboratory, Quartermaster Corps, United States Army, Lawrence, Massachusetts, 1943-44. Colonel Talbot, Medical Corps, Commanding; Harvard Medical School Professor. Major Allers, Medical Corps University of Chicago Professor. Marvin Van Dillard, professional physicist from MIT. Richard L. Day, professor of pediatrics at Columbia" -- (and head of pediatrics eventually), -- "and Marshall Clinton" -- I told you about him. "Bill Christiansen, Salt Lake." Oh yes, both of these two, Clinton and Christiansen, were trained at Mass[achusetts] General [Hospital] as residents.

LW: Is that later where you did your residency?

AS: No.

LW: That's not a connection you were trying to note there.

AS: I did my internship [unintelligible] --

LW: Oh, at Haynes.

AS: Haynes, which was part of the Mass[achusetts] Memorial hospital system, and the reason for that was: my professor at Stanford, Professor [Arthur L.] Bloomfield -- very famous, one of the really strongest Stanford medical professors ever. Bloomfield was, once upon a time, resident at Johns Hopkins, he was a graduate of Johns Hopkins, and trained at Johns Hopkins. In those days, Johns Hopkins residency was eight years. That is, they didn't let them out to practice medicine -- they basically made professors. People then went directly [to become] professors of medicine someplace or professors of surgery. They were all were trained to a point where they were pros. But, Day, I have to

tell you about Richard Day. He was a most unusual character. One day I came in, to bring my lunch into the lunch room. Early in the game, Professor Day is already at the table. And he takes out of a bag a box of milk bones. So I look at that and I think --

LW: "Where's the dog?"

AS: "Where's the dog?" And then he brings out a bottle of milk, and then he eats dog biscuits.

LW: [laughs]

AS: And he's a professor, a full professor of pediatrics from Columbia [University] and one of the most famous people on body temperature regulation in the world, because he was working on babies and preemies, so he knows all about body temperature.

LW: I see.

AS: And he also was professor of nutrition at one time. So I said to him, swallowing hard, finally I say, "Dr. Day, are you really eating these dog biscuits?" And he said, "Yes. Is something wrong with that Mr. Shelokov?" I said, "Well, they're for dogs." He said, "Why? Because it says so on the box?" I said, "Well, yes. And they probably --" He said, "You read the box. They're better than the crackers you're eating. They have much more nutritional value, and much better for your teeth than what you're eating and they're bought in a local grocery store." I said, "Yes sir. I'm sure you are right."

LW: [laughs]

AS: Then, the other thing was: he invites me to come to his home for dinner, some Sunday. So I come over. Believe me, it's too hard to believe this is true, but I swear to you this is true. I come to his door. It's a beautiful house that he is renting in the suburbs of Lawrence, Massachusetts. I ring the bell at the appointed time. The door opens, there is a little tiny tot, and I know his daughter's about five. She said, "Hi." I say, "Hello, sweetie." And I look, and she's stark naked, not a stitch.

LW: [laughs]

AS: So and she said, "Dada, Dada." Then at this point, another girl arrives. She's about eight or nine, and she's stark naked, not a stitch. Believe it or not, at this point the third daughter arrives, and she's stark naked, and she's about 11.

LW: Okay.

AS: And she says, "Mommy!" Honest to God, at this point I'm ready to run. I think, now Mrs. Day is going to come out stark --

LW: Oh, right!

[laughter]

AS: I'm just standing there petrified. Of course she comes over, says "Excuse the girls. We believe..." -- you know, they have some kind of a system of psychology, of child raising. You know, "our children are totally uninhibited, but of course, I realize that you are not accustomed to that. Forgive us. So I meant to dress them, but you came a little early." Then we had dinner and they all were properly dressed. No, still one more thing happened before that. Then they showed me in, and offered me a drink or a glass of wine or something. I sit down, then the oldest of the girls, sits down behind a harp, and plays the harp, [laughter] still stark naked. As you can see, sixty years later, I still visualize it. This story, by the way, I don't tell very often, because it sounds like I might be a little bit of a pervert, now thinking about all these young girls stark naked. It didn't bother him in the slightest!

LW: Yes, I understand. He was completely --

AS: Completely above it.

There was another wonderful episode with him. We had a very high-level French military delegation, who wanted to see American research facilities. Somebody told me that one of them must have been Duval, I don't think so. But it was a person who looked very much like Duval. They all came in, originally, in these French caps, total French uniforms. Also, I'll never forget, the guy who looked like Duval,-- people thought he might be -- he sits down, crosses his legs, and here you have this immaculate French uniform. But then all of a sudden, I glance and he has argyle socks in fifteen different colors, you know? They don't have GI-issued socks, you see?

LW: Really?

AS: They have these old uniforms from France -- the French army's non-existent! There's no French army!

LW: Of course. I forgot.

AS: They are free French -- they are basically a few French nobodys, that were desperately trying -- there's no French army. The French army's fighting for the Germans.

LW: Of course.

AS: These are the French generals who escaped, living in London and in America, and trying to raise funds to fight the Germans. But I'll never forget: he is in an immaculate uniform, but he doesn't have GI-issued socks, while all of our people are wearing khaki socks.

LW: Right. So the work at that climatic research lab...

AS: Fascinating.

LW: It was fascinating to you. At this point, you've had a little bit of medical school. Not even that much, because you really just had that first year...

AS: That's right. Incomplete first year.

LW: You've had some classes, like the Beadle class...

AS: No, no, that was after. That was not part of the medical curriculum

LW: Okay, so this is what I'm wondering: what you were thinking, how does this experience...?

AS: Well, you see, I completely adapted. I had worked in the physiology department, where was the one...

LW: You were in charge.

AS: And therefore I also heard all the physiology lectures. So, even though I did not have a degree...

LW: Right. You had had a lot of instruction.

AS: I had gone [to these classes], and not once, but probably two or three times. During my entire time, I attended every class, and I conducted the laboratories. I knew more physiology than an average medical student would know at that time, you see.

LW: So, did you think, 'Well, this is interesting enough. I could do this kind of thing long-term, or for my career? I like this 'research thing'?'"

AS: Of course.

LW: And you'd been doing the experimentation in the lab.

AS: Yes, of course.

LW: So this was probably where you got hooked?

AS: In the lab?

LW: Yes, on lab research.

AS: Well, I mean, I already was interested in medicine from way before. I already had been to medical school.

Yes, I was interested in research.

[break in audio].

Yes, because of doing the translations for the American physiologists in my department, I already was very well prepared in body temperature and the physiological basis of body temperature, frostbite, cold damage, cold tissue damage. As well as hot. I understood that, and I was unusually well prepared. Then, one day I get a call from Dr. Weymouth, the same Dr. Weymouth, to whom I owe probably more than anybody in my life. [It was Uncle Frank on the telephone, he called me in the lab. He said, "Alexis, we're going to have a V12, an ASTP -- Army Specialized Training Program -- corps. You can come back to medical school, because we obviously will accept you with open arms. And we'll accept you out of any other class order. If you can come. There's one catch. And we've already looked into that: you're still not a [US] citizen. And therefore, we cannot put you in -- If we don't put you in uniform, you'll get drafted anyway. Your board is after you. But we can't put you in uniform *directly*, because you're not a citizen. You cannot be appointed..."]

LW: You can't do this training program...

AS: This is a selective program for top people in colleges, who are citizens and are ready to be commissioned in the United States Army or Navy. We have the Navy program and the Army.

LW: So how'd they get around the citizenship problem?

AS: Well, they couldn't. They looked into it, and they said, "Alexis, you have to take a chance. Are you willing to take a chance?"

I said, "Yes." I went to Colonel Talbot, and I told him. He said, "You're crazy."

By that time I was writing most of their reports and their rough drafts, and they were correcting them, and then they came out and were sent to Washington. By that time -- again, I can't find them unfortunately, but -- I have these original reports going to Washington. And then you know, the kudos I [would] get: he said, "Alexis Shelokov," -- even though I'm junior member of the staff, and so on. "He has done this, he's done that. He has not been asked. He basically performed beyond what..."

LW: Above and beyond.

AS: Obviously I was enjoying my work. Obviously, I had fun. Plus, I enjoyed climbing mountains, and taking trips all over New England, testing things -- it's all fun. Actually,

it was the best job I've ever had in my life. Except that it wouldn't last, once the war was over.

But: Uncle Frank. He said, "Alexis, we cannot ask for your assignment. Because, number one, you're not in college right now. All of these kids who are coming into one of these Army or Navy programs are now in college. And there is a mechanism, set up by law, [according to] which, from the roster of people who applied to our medical school, we can ask, and they will be automatically appointed -- upon passing the physical examination, of course-- as, basically, officer candidates. This is a special program for officer candidates who will be eventually medical officers in the Army or Navy. But we cannot do it because you're not a citizen."

LW: Right. And you've gone to Talbot and he's said you're crazy to take this chance.

AS: Talbot said, "You're crazy." He took me to the Dean of Harvard Medical School. He went with me. And the dean said, "Colonel Talbot is one our dearest faculty members, and I climbed mountains with him all over the world, and so on. I trust his judgment. If he says, that you're indispensable in his laboratory right now, we will honor a commitment to him to admit you to Harvard Medical School when the war is over. But finish your job." I call Uncle Frank. Uncle Frank says, "Alexis." And he was a completely honest man. He said, "You can do that. But you know, things change. The dean may be dead."

LW: Yes.

AS: He said, "You know what's going to happen after the war?" And it's exactly what happened. "Every medical school is going to be flooded with decorated heroes. Flyers who bombed Hamburg, and so on, to whom no medical school could say no. And you are a draft evader, as far some people are concerned. These guys fought, lost their blood, killed lots of Germans. They're decorated from here to here, and they want to be doctors. What's the choice? Are they going to take this kid who'd been a draft dodger all these years?"

LW: So what were you supposed to do?

AS: So, he said, "You have to take a terrible chance. We looked into it, and Ray Lyman Wilbur" -- was still President [of Stanford University] -- "and he agrees." He says, "We're willing to make a deal on the side with you, because we also like you, and we trust you. But you have to take a chance over which we have no control. Particularly with your draft board."

LW: And what is that chance?

AS: The chance is that "you have to come, and you have to allow yourself, you have to strip yourself of the protection that Colonel Talbot gives you. You're totally deferred until the end of the war." I had official letters.

LW: Because that's what I understood. I mean, you're in civilian clothes in that picture and you're not a...

AS: I'm totally deferred.

LW: But you're -- I see, you're a civilian.

AS: I'm indispensable to the war effort.

LW: Okay. So, "Take the chance. Step away from Talbot or no."

AS: Actually, the Navy at one time was so interested, they were going to take a bill to Congress, to give me a commission in the Navy, even though I was not a citizen. And the United States government said no. "He cannot do that. Get him citizenship first." They said, "We can't do that. We cannot commission him as a second lieutenant, lieutenant junior grade, lieutenant JG in the navy if he is not a citizen. That would be breaking the law. We cannot do that!" You see, I was caught.

LW: Yes, you are caught.

AS: Finally, Uncle Frank says, "The draft board, when we went to visit them, they said, 'The moment Shelokov does not have [the deferment], he is going to be drafted.' Now, are you willing to take a risk? Come back to California, strip yourself of all the deferments that we gave you, that the Army gave you. Allow yourself to be drafted."

LW: Okay. So did you do it?

AS: Yes. "Allow yourself to be drafted." Go in the regular draftee army camp, and then we'll try to salvage you, and bring you back to medical school. So I went to Colonel Talbot, who said, "You're crazy." The guys at Harvard said, "You're crazy. A terrible chance."

So I go down, see my draft board in San Jose. My draft board looks at me, and the chairman of the board knew me, because of all these deferments and they always hated my guts. Didn't like Russians, they thought I was some kind of draft dodger. And also: San Jose had no use for Stanford. By an accident, I was registered at the San Jose board rather than the Palo Alto Board.

LW: I see, it would have been different.

AS: Entirely different. It just so happened, I was staying [there], because I worked in this goddamn nightclub (There was one more story about the draft though. It was also a good one. How things happened at one point, somewhere in between.) One of my best friends was Kazi Takahashi, in medical school. We were classmates the first time I was in medical school. I used to borrow his car when I went out on dates in Palo Alto. I

didn't have a car. He had a beautiful little convertible roadster. One day, Kaz and I were talking – at that time I was working for the physiology department. I had registered with the draft board. And as you know, there is a classification called “4F.” Do you know what that means?

LW: No.

AS: 4F is what all of the physically unfit people have. 4F meant “unable to serve for medical reasons”: crazy, missing leg...

LW: Blind, yeah.

AS: Blind. I mean, really, you had to have a severe disability. But you see Ray Lyman Wilbur, the chancellor at Stanford University went to bat for me. Then after he intervenes, I get this card saying, “re-registered from 1A to 4F.” So I'm very happy; I think I'm completely immune. So, I'm with Kaz Takahashi, and Kaz says, “Alexis, did you have to register for the draft?” I said, “Yeah, sure.” And I said, “Well, did you? You're the son of the president of [unintelligible] and you refused to go back to Japan, because you are a democrat and you believe in liberties, and although your father is a high-placed official in Japan, you refused to go, and you're facing deportation to a concentration [internment] camp in America.” He said, “That's right. I have my papers. I will be leaving in two weeks for the duration of the war.”

LW: Oh, my goodness.

AS: His ship [had been] the Gripsholm, a very famous ship that's been recently decommissioned, which was taking [repatriating] people [with] diplomatic immunities all over the world during the war. Gripsholm, a Swedish ship. And he said, “You know, I'm supposed to go on the Gripsholm, but I didn't.” I said, “Well, Kaz that takes tremendous guts.” He was really busy with democracy. He said, “Yes, I'm against Imperial Japan. I'd rather be in an American concentration camp than sit in Japan and pretend that I'm supporting the war effort.” But he said, “The funny thing is, they made me register for the draft.” I said, “Kaz, that's ridiculous! They told you they're going to put you in a concentration camp up in ...” Something Meadows, or [Tule] Lake, the most infamous of all Japanese concentration camps.” That's where he was supposed to go. I said, “What kind of classification they give you?” He said, “4E.” I said, “That's what I have. I was told it's as good as 4F.” He said, “No, E is for Enemy Alien.” I said, “I'm not an enemy alien!” He said, “Alexis, you better look into that.”

The next morning I called Uncle Frank. Uncle Frank: “Alexis, you better get down [there].” He didn't see it; I didn't go to him with it. He said, “You better go to the draft board.” So I go to my draft board, I borrow somebody's car or take a bus -- whatever. I go to San Jose. “Ahh! You made a mistake! You called me 4E! Enemy alien!” The key person on the draft board, who was familiar with my case says, “What do you think you are?” He said, “Show me your passport. You're a subject of the Manchurian Emperor, Emperor PuYi. You're a subject. The Manchurian Empire declared war on the



United States on the eighth of December, on Monday morning.” He said, “Your country declared war, and they’re killing our children, killing our sons.” He said, “That’s your country. You belong in a concentration camp, young man.”

Anyway, I take my chance. I go and ask to be drafted. The draft board in San Jose says, “Delighted. And we hope to hell they shoot you the first time you’re out” or something really nasty, hateful. They said, “You’re a draft dodger.” They accused me -- they dealt me as if I were dirt. Really, like I cheat while their sons are fighting the war. I’m evading: Ray Lyman Wilbur, president of Stanford, gets me off. Well, enough. “You’re going!” So, I go. I had no choice by that time. I quit the job there. I didn’t agree to the Harvard deal. I said, “Okay, draft me.” So they draft me. Put me on a bus, and send me to Monterey, Fort Ord. And I know from Uncle Frank that medical school had started. And I’m in Basic Training. I’m marching: “Hup, two, three, four; hup, two, three, four. About face!” “Here’s how you hold your rifle!” And so on. I don’t remember how many weeks of training, but I’m going right along!

LW: And you’re missing medical school.

AS: Of course. Finally -- I don’t want to manufacture details, but somehow, somebody comes in, and says “We don’t understand it, some kind of special orders are cut for you.” So I go in to see the commanding officer of my battalion or company. He says, “Can’t understand it. You’re being transferred to an ASTP program. United States Army, Stanford Medical School. What the hell’s going on?” I said, “Don’t ask me.” By this time I don’t want to talk to them, I’m scared I’m going to say something wrong. They say, “Well, pack up immediately. Get your gear, and report immediately to so and so in North[ern] California.” So I report and say, “I have orders: Report to [whatever] Unit, Stanford Medical School.”

LW: So that’s how you landed there, finally back at Stanford and this time enrolled as a medical student.

AS: Yes, even though it was many weeks after the medical school had started, but some years earlier I did go through it.

LW: True, even though you had been working nights and not able to do the work.

AS: I didn’t do very well, but the point is: those first weeks, you’re just learning and I’d been through the ropes by that time, and in physiology and everywhere else. I stepped right in, and I dissected the body as well as anyone. And did very, very well.

Then, I met a girl over a bottle of wine I was opening in my uniform. One of my closest friends in San Francisco had an apartment up on Nob Hill, with a beautiful view. I’m opening a bottle, because I was, even then, always interested in wines. We always had wines in China, unlike Americans. American youngsters in those days, their parents kept them away. Even in California, children or not. I was started on wine when I was four years old by my father. And we had wine regularly in China. Wines from anywhere in

Europe, and sometimes there were some local wineries producing something fairly decent. But mostly we drank imported wine. So I knew quite a bit about wine.

Lester Anderson, my friend, had married a girl whom I also knew. They invited me for dinner with my girlfriend from Palo Alto. But she couldn't make it -- something was happening. She was a Stanford student. They invited the girl whose portrait you saw, my eventual wife, Paula, who was engaged, going very heavily with a band leader in San Francisco. He was a singer, a band leader, in one of the big cabarets or nightclubs in San Francisco. And I had seen or heard of him. A lot handsomer guy than I ever was. Tall, handsome, blond. He was her boyfriend and her date. But she called in and said "I can't come because he had an engagement, or he had to go to Los Angeles and so I can't come," and they said, "Oh, come on." And she said, "Oh, I don't want to be the fifth wheel." But they were trying to pair us. I did not know -- only later. Neither one of us knew that. --

The two of them: Paula, who was a designer, originally an art student in college, and then during the war effort was designing Liberty ships for the shipyards in Oakland. He [Lester] also was working in the shipyards, as an accountant or something; everybody was working for the war effort. They met, and he was telling these tales about all the things I've been telling you. Because he knew them all, you see. He'd been my roommate at one time. He knew my problems, he knew my problems with girls, and so on. Eventually, he says, "Are you going to bring -- " whatever her boyfriend's name was? Alexis and his girlfriend are coming." She told me years later that she said to him, "Look, I am so sick and tired hearing about this guy and all of his adventures. I don't care to meet him. I don't like what you hear about him. I don't know what kind of adventurer he has. He's always in trouble. I'd rather not come." He said, "Well, he's going to be there with his girlfriend, etc." They already knew. Then, I'm sitting there opening a bottle of wine. He says, "Paula's here." I turn around, and there's this girl, and I say, "Hey, I understand you're -- where's your friend?" She said, "Couldn't make it." And I said, "My girl couldn't make it." So dinner went by, and then they had tickets, they were treating us to a San Francisco Opera House performance: Katherine Dunham. Did you ever hear of her?

LW: I don't think so.

AS: She was the original Black dancer. Katherine Dunham created a school of that new kind of dancing.

LW: Sort of like Alvin Ailey?

AS: Yes, they're all her pupils.

LW: I see. I didn't know that.

AS: Katherine Dunham's the one. Look her up, I'm sure she's on the internet. She was the original one. All of these dancers, these modern, American ballet, nothing classical.

They are Katherine's. And she again introduced the African beat and the Cuban beat, and all this business.

[break in audio]

LW: You were in uniform, and you went to see Katherine Dunham...

AS: I said, "I'll escort her home." Of course, I didn't have a car at that time. Lester said, "I can't take you, I get an allowance of 1.5 gallons a week, and I have to drive to work, so you better take the streetcar." So we took the streetcar. She lived up Geary, in the avenues, she lived on Seventeenth Avenue. As you walk up from Geary, some steep, steep, steep, steep hill. Now I probably couldn't make it. And up there, it's very close to the University of California Medical School. Directly across the road was the Golden Gate Park. So I walked her up to her house and said good night and said, "May I call you sometime?" She said, "Yes."

Time went by, and I thought about her again. My girl was busy someplace else, so I called her and said, "Pauline, would you like to have dinner with me and maybe go out?" And she said, "No." I said, "What do you mean, no?" She said, "No, I'm busy. I'm out with my boyfriend, etc., and he has a date. We're going to Alameda or someplace, and we're going to take his orchestra."

That went on for about two weeks, maybe longer. I would call. And finally she said, "I think you're really serious. You really are trying to get a date with me." And I said, "Yes." She said, "Well, what's happened with your girlfriend?" I said, "Well, not much, except I'd like to meet you again. I miss talking to you." So of course, you can imagine, we talked, and then time went on, and things happened.

LW: Very nice.

AS: And she wound up marrying me.

Professor Bloomfield selected from our class two students that he wanted to go to work with one his former residents at Hopkins, who by this time was a big shot in Boston. His name was Dr. Chester S. Keefer. Keefer was professor and chairman of Medicine at Mass[achusetts] Memorial [Hospitals] and the Boston School, but formerly of Harvard. He's the one who brought in the first doses and was completely in charge of all distributions of penicillin first, and then streptomycin, for the entire country. He was really a big wheel in infectious diseases. But at that time, I had absolutely no idea. In medical school, I continued in my physiological background, and I became as a medical student, one of the sub-specialists, you might say, for a medical student, I was taking special projects, special assignments, partly because I was probably a glutton for punishment and partly because I was very enthusiastic. I worked with Bloomfield himself, who was a world-class liver specialist, and I became very interested in liver diseases. And then with another one called Professor Thomas Addis, who invented, who developed the Addis count, which was the first quantitative measurement of the failing

kidney function. So my specialty became liver and kidney diseases. You could be a heart specialist, or you become a hepatologist, nephrologist. I was obviously on the road to becoming a nephrologist. I was well known in medical school, for a medical student, and I wrote my papers in nephrology and hepatology. And I had absolutely not the slightest idea of going into infectious diseases.

Then I came to Boston, and we had to rotate through the Haynes Memorial Hospital. That year, the diphtheria epidemic hit. A polio epidemic hit the following year. But that year, diphtheria hit. By the time I was rotating as an assistant resident, by that time Paula and I were married and living in Cambridge. I would commute -- we were working so hard. I would find it absolutely fascinating. All of a sudden, when I rotated through infectious service under a man who eventually became internationally famous, his name was Louis Weinstein. He was of course Jewish, some Polish or Russian refugee or descendant. Brilliant, one of the best infectious diseases people I have ever worked with, anywhere in the world. And he was Chester Keefer's protégé, even though Chester Keefer had a nationwide reputation as an anti-Semite. I certainly didn't see it, because he supported Weinstein to the hilt. But Weinstein, again, was one of those people who worked like a dog. Brilliant mind, brilliant. Ran rounds: you just sit on the edge of your seat, it was so interestingly presented. He would develop a whole process of attacking a problem, and developed in front of the student class. And we'd all just sit there with our mouths open. "My God, it's so clear when he does it!"

LW: Because it was so clear, his explanation?

AS: So clear, and step after step after step. If you do these, you are bound to make the right diagnosis. But you have to remember what questions to ask, and why do you ask those? Marvelous teaching sessions. Keefer was a superb teacher too, but Weinstein was just --

It was Bloomfield who sent me and Philip [Randolph] Lee, the Medicare man, to Boston. For both of us, there was already a job waiting for us at Stanford, so Phil agreed to go back to Stanford. Keefer and Weinstein called me in and they said, "We're going to give you--" It sounds like bragging, but honest to God, it's the truth. They said, "We're going to make you an offer that we don't normally make. Well, as you can see in our catalogue, we require a year of research laboratory experience in one of our medical or school laboratories, or at Harvard or Mass Memorial, or Tufts, a year out of residency. However, we're willing to offer you directly -- skip the year." I said, "Why?" They said, "Because you've spent all these years in Physiology at Stanford and the Climatic Research Lab."

LW: Right. So that did for you what the year would have done.

AS: They said, "You've had four or five years of experience while we ask for one from these kids. You've had it." Originally, when I was at Stanford, the first time, I was the youngest in my class. By far the youngest. This time, I was the second oldest in my class. So things have completely changed.

LW: Right, you're more mature.

AS: They said, "You don't have time to fool around. Come back, call Dr. Bloomfield, ask him to defer your residency at Stanford for another year. Stay with us in Infectious Diseases." I said, "I'd love to." So I called Bloomfield, and he says, "Stay Alexis. Come back, and I guarantee you chief residency next year." Then all hell breaks loose. Diphtheria. I learn how to do all kinds of things I never thought I would.

LW: Like what?

[break in audio]

AS: Emergency tracheotomies: I'm not a surgeon. The other residents would be scared. I've operated on animals so much; I've done tracheotomies on animals. I did it.

LW: You had the experience and the peace of mind and the confidence...

AS: No, not peace of mind. I was probably wetting my pants, but I did it, because nobody else was there to do it. But you see, I'd done them.

LW: You had some hands-on experience, clearly, that allowed you to do it

AS: I'd done them on animals; I'd never done it on human beings. But I knew how to cut through the skin safely with a scalpel. I was not afraid of a scalpel, even though I was a medical resident, or an assistant resident: I was not a surgeon. I didn't have any surgical [training], except rotations through a surgical service as a medical student. But I had no fear of surgery, of *emergency* surgery at least. Things happen. It was so damned, absolutely, incredibly exciting.

I'll share one with you. Haynes Memorial Hospital, Infectious Disease service. A girl is brought in – diphtheria. She has a pharyngeal membrane. The membrane is sticking out of her mouth. She can no longer swallow. She has this mass sticking out of her mouth...

LW: This is what kind of membrane?

AS: Membranous -- membrane of diphtheria; diphtheric membrane, and it's leathery. Diphtheria means "leather." It's a leathery -- it's like leather sticking out of her mouth in a clump. A beautiful youngster. I don't think I did a tracheotomy that time. I called, and a surgeon told me I was allowed to call in an emergency; he dropped everything, rushed over, and did a tracheotomy on her. Then, maybe the next night, her sister was brought in. Another membrane. I said, "Who is allowing them to stay at home in this condition?" They should have been in the hospital a week, two weeks ago. By now they have so much toxin, their hearts were giving out. They're paralyzed from diphtheria toxin. They're crippled for life! Number one, it was a preventable disease. Number two, when they first started, I said, "Who the hell is the father?" I think there were three girls

brought in, and a wife. Finally, I was beside myself. The husband turned out to be a very prominent dentist, who did not believe in subjecting his beautiful girls to the ugly vaccinations. And so nobody in his family had been vaccinated against *anything*. I don't even remember now, whether of the three girls, whether two died and one remained a cripple, or whether one died and two remained crippled. And the wife also had it, but the wife survived. Then, I came in, because of my colleagues, one of my house officers screamed for me, and they called for me. I rushed in, and I found him kissing and biting the membrane in one his daughters or maybe his wife. We pulled him off, and I said, "What are you doing?" He said, "I'm trying to commit suicide." He went off his rocker, because he's realized, he's killed his family. And his guilt was such. Now I've become upset.

LW: Yes, well, it's very upsetting, clearly. A very upsetting experience.

AS: Very dramatic. So that was one. It was like that every day, something was going on.

LW: That year, during that epidemic.

AS: And then with polio also. The next year we had polio, and that was the worst epidemic, in Boston. And I became a polio expert and a respirator expert. That's again where I had to do tracheotomies.

My assistant resident was originally was my fellow intern, but he took the special year when they were grooming him for residency, in a research lab, but they excused me. As a result, I became his chief. He came in as my assistant resident and I was chief resident. Ray[mond] Seltser, was his name.

By this time, we had the polio epidemic. One day, I realized that Ray dropped something. He picks it up like this [demonstrates a gesture]. I said, "Ray, you have a stiff neck." "No, I don't!" I said, "Yes, you do." I said, "Ray, I will not let you on the floor anymore." Anyway, I insisted -- I demanded -- to examine him. I examined him, and I said, "Ray, you have polio. I'll do a lumbar puncture." A lumbar puncture proves it, because there's an elevated white [blood cell] count in the spinal fluid. That's how you establish the laboratory diagnosis. That, combined with the muscular weakness and so on. There's no membrane, of course. But he had a terribly stiff neck. So I examined him, and I said, "Ray, you've got polio." I told the nurse, "Go get the lumbar puncture -- the 'L. P.' tray." She brings it in, and he says, "I do not give you permission. I forbid you to do a lumbar puncture on me. And you cannot do it when I refuse it. And I have witnesses: our nurses, our head nurse. I will not allow it." I said, "You're out of your mind. You're crazy!" He said, "Leave me alone with Shelokov." Everyone leaves. I said, "Ray, what are you trying to do? Commit suicide?" He said, "No. Our place has been declared, in the entire Massachusetts area, the pest house. We are where everybody dumps their diphtherias and their polios, because everybody is scared to death. Only one surgeon, only one consultant in the whole city of Boston and environs is not afraid to cross the threshold. We cannot get any help from anybody. If I do a lumbar puncture, by

law, you have to put me to bed.” By that time I had one of my interns in bed; I had a nurse on a respirator. He said, “Nobody’s going to come help you, or me.” He said, “If I am put to bed, you’re left alone.”

LW: So what did he do though? Was he able to continue to work?

AS: Yes. He got over it eventually, maybe two weeks. He retained a limp for many years. But again, [pause]. As you can see, exciting days. So many of those little different things happened. –

Two other cases, I recorded them recently someplace. I dictated them -- my son wanted to hear them. There were two interesting stories during that year in the polio ward other than diphtheria. I mean, we were completely polio. One was a young man -- a young lawyer, with a young family. Probably one, maybe two young, very young children. Very successful man, who developed paralytic polio. He asked me to kill him. I said “I can’t do it.” He said, “Look. Lovely young wife and kids.” He said, “I’m a quadriplegic. I’ll never practice law again. I’m going to be crippled the rest of my life, and she’ll have to take care of me. If I’m out of the picture, she can remarry. So just let me die.” [Pauses]

The other one was a very attractive young woman, also a young mother. Came in. By that time we’d run out of respirators, even though we had respirators flown in from all over the country to Boston. And we were the central hospital. I did not have a respirator for her. I couldn’t take people out of them, because they would die! So, I don’t remember her name again, but: same thing, almost identical as with that young man. When she came in, she was barely diagnosed, a young, beautifully dressed, beautifully groomed young woman. And by this time, she was totally wasted. [unintelligible] I never could get a respirator for her, so we put her in a cuirass respirator, that -- instead of a Drinker, where they are in an iron lung with just their neck sticking out, and you can change them and bathe them and so on inside -- she was in this cuirass thing, which was not nearly as effective. And I just could not get her another one until somebody died.... And so she just sort of gave up, and she said the same thing again, and said, “Look, I have a young husband, whatever -- ” again, some kind of professional man -- and a child or two. She said, “There’s no point. Disconnect me. Pretend that the machine failed.” I haven’t thought of those for a while.

What she did -- she committed suicide. She would show me how she was going to stop breathing. And I said, “Can’t do it. Don’t do it.” But finally the nurses called me over, and she just would not let the respirator pull her chest. She just held her breath and she died.

LW: It sounds like this was a really powerful experience.

AS: The horrible part was, it all could have been [prevented] -- well, polio couldn’t... Diphtheria we could. Polio we couldn’t prevent.

LW: But it maybe spurred you to thinking, another disease --

AS: Yes. That's why I went into polio research, exactly. And before that, it was liver and kidney, and so on. I thought, "This is more important." More interesting.

Now, this is a funny one. The United States Navy assigned me a doctor. They were rotating them through my service at that time. I remember his name: Gordon Wallace. Gordie. It's during the polio season, during a polio epidemic. The telephone rings, and he says, "It's Gordie. Come down to the emergency admission room. I want to show you something." I come down, and there's this lovely young girl, probably in her late teens, and a young man. He's trembling -- his lip is trembling -- and he's like this... And she's lying on the gurney, like this. Have you ever seen that? Stiff as a board, her toes are turned in, her hands are like that, and this is called [Coucherer's [??]] spasm. So I came in -- diagnostically, we immediately know what it is, and he needed to know. He said, "Before anything happens, I want you to see it." I said, "Yes, I see what you mean." And the boyfriend said, "Please, save her! She's dying! She's dying!" Gordie says, "Just relax, just relax." He says, "Nurse, get me a brown bag." She brings him the brown bag, he crumples it up, puts it on her mouth, and says, "Breathe. Breathe deeply." So she breathes deeply and after a while... If you have a good sense of humor and you remember your Bible, your New Testament, Gordie then says, "Woman, get off your bed and walk." She says, "I can't!" "Yes, you can." The girl sits up, stands up, walks, and the boyfriend says, "It's a miracle! It's a miracle!" Of course, you know what it was? We'll look into it later -- he made the diagnosis. Hyperventilation.

LW: Oh, is that all it was?

AS: She blew off the CO<sub>2</sub>. He built up her CO<sub>2</sub>.

LW: With the bag, I understand.

AS: And he understood, when he found out that they were in a movie theater, and she was paralyzed and everything. He started to scream, and they stopped the movie and called the ambulance. They brought her over by ambulance, as "acute paralytic polio." But he saw that, and he knew that it was hypoxia due to hyperventilation.

[break in audio]

LW: We are taping, on our second day, December 13, 2005. This is Lisa Walker with Dr. Alexis Shelokov and we are in Dallas, Texas. So yesterday we finished our taping by talking about how you were at Haynes Memorial [Hospital], and you were involved in the clinical treatment of polio patients, right?

AS: Yes.

LW: You were explaining how you asked these questions of [Louis] Weinstein, and others.



AS: Keefer, Wesselhoft.

LW: And there was a puzzle [you were trying to solve].

AS: Sometimes there are second cases of polio in the same patient. You develop poliomyelitis and I would say "They became infected by it from other patients." This person, this teenager had polio. Everybody agreed. Spinal fluid positive. He's now ready to go home. I examine him, he has weakness. Two days later he has polio. Three days later he's on the respirator.

He has polio. Nobody questions that. How can he have polio twice? I'm told by the authorities that he has a relapse, and I say could it be that there's more than one virus?

It was -- whatever reasons at the time, more and more, that became an obsession with me. "What if there is more?" And I start to realize that it was probably not an original thought with me. There's some other people in the country who also thought there might be more than one, but of course, that was not the Boston teaching. The Boston teaching was: there's only one type. There is *the* polio virus.

LW: We don't talk about more than one type, more than one sort.

AS: That's right. There's one polio virus.

LW: Okay.

AS: Then I started to doubt it. I asked questions, and I said, "Well, where can I learn more about polio?" There were two places, but there was one place that was mentioned, and it became particularly attractive because I would have to serve. The Korean War was on. I would have to serve a military obligation. And then Ray Seltser, went into the Army and was sent to Korea. So are my other house officers and former students. They were all in Korea, and they were learning all kinds of things, but I did not think that that was what I wanted to do. It was not the fear of Korea. They were safe. They were not particularly discommoded by being in Korea, but the point was that -- I couldn't get the answer. I thought, where could I get the answer? Well, I could go: here and there and there, but I had to have a military obligation. So I said, who knows? Well, Weinstein -- no, Wesselhoft told me about John [Franklin] Enders, and so I went to Enders and I said something like, "I have been commissioned as an Officer in the United States Public Health Service."

LW: You had at that time?

AS: I'm being commissioned. I'm going to activate on such-and-such a date, at the end of that summer. "Can I come and spend time in your laboratory, because I understand that you have the foremost laboratory in this area in Boston?" He was gracious, and he said "Of course." That's when I came in, that's where I met [Thomas Huckle] Weller,

[Frederick Chapman] Robbins, and [Daniel Carleton] Gajdusek. Gajdusek left for the Army.

[At] one time we were quite good friends, and he was an interesting character who had not yet gone to New Guinea and so on. But he already had all kinds of unusual ideas. Already he was a fascinating character. Unlike Weller and Robbins, who are both steady, serious medical scientists.

LW: And these guys were based in the lab , too.

AS: Well, they all were trained as residents in pediatrics. They all had been clinicians, perfectly capable of taking care of patients and running services.

LW: But not doing field epidemiology, either. Never any aspirations to be out in the field?

AS: No. Absolutely not.

LW: That's kind of what I meant. Gajdusek is this kind of adventurer who has this impetus to go out into the field.

AS: Absolutely. You're absolutely right.

LW: Okay.

AS: The other two were strictly laboratory and academic.

LW: With good clinical training and experience.

AS: But now wanted to do laboratory research and teaching. They eventually had professorships, and so on.

LW: Was it the NIH's suggestion as well that you do that [work in Enders's lab] before being posted to Bethesda?

AS: Well, I had to serve out a military obligation, uniformed obligation. I don't remember now who, maybe even Weinstein. No, it must have been Keefer who said, "Why not go to NIH?" and maybe even called some people. Then I learned, because of my interest in polio, I was going to be assigned directly to the poliomyelitis unit which was just being created.

LW: It was?

AS: Yes, just being created at the National Institute of Health.

LW: In about 1951?

AS: No. In the fall of '50.

LW: Okay.

AS: Dr. Armstrong, the old, world-wide expert on polio, who also became a virologist, originally was a clinician, of course, an epidemiologist, a typical old-style magnificent public health service officer. [He] traveled all over the world, investigating outbreaks and worked with pellagra and so on. He knew all these [older generation US Public Health Service officers, such as Joseph] Goldberger, and all these other giants of American medicine and public health.

LW: The old model of the U.S. Public Health Service?

AS: -- and NIH. They all eventually were the founders -- the idols -- of NIH and their portraits are hanging all over the hallways. So, the suggestion was made that I go and spend my two years. At that time Arthur Bloomfield, professor and chairman of Medicine at Stanford, wanted me to come back, but I now became interested [in infectious disease]. I had to [have] Bloomfield's permission and blessings then.

LW: Yes.

AS: And he was a close friend of [Chester] Keefer, because Keefer had been his assistant resident, and took [Bloomfield's] job over at Hopkins when [Bloomfield] left for Stanford to be the head of the department of Stanford. Keefer was trained by Bloomfield, and Bloomfield sent me to Keefer, and then Keefer sent me to NIH, basically.

LW: Yes.

AS: They called people, and they said "Well, this kid is interested in polio. He's doing very good clinical work. He knows nothing about viruses, except what little he's picking up from Enders right now."

LW: I see.

AS: "And [he's studying] polio virus with Enders. Where can he go?" Well, he can go with Armstrong, who has just retired, but Karl Habel is taking over and is also creating this new poliomyelitis laboratory. And they have no knowledge of tissue culture, and then Shelokov can bring that to [what was at that time] the National Microbiological Institute. Shelokov brings it, it will be valuable. So I was being trained, even though they did not pay me. This was interesting. I realize now: nobody paid me. My wife supported me during that time with her job.

LW: Really?

AS: Yes. During the [period of time spent] training I spent with Enders. I left my residency, so I had no more salary from Massachusetts Memorial Hospitals --

LW: And you had not yet begun your active PHS service.

AS: So my wife just supported me, and I would go to work in Enders's lab. And this would take care of my military application. Bloomfield agreed with Keefer that, "Okay. I can come back to Stanford and set up a modern infectious disease service at Stanford. But it will be good for me to spend some time first with Enders and then at the NIH one or two years, and then come back to Stanford.

AS: Always --

LW: -- the idea was --

AS: -- coming home, coming home. And then again just as before, I become involved in absolutely incredible projects.

LW: At NIH?

AS: At NIH. I mean, things, which I couldn't sleep nights thinking about what I'm going to be doing tomorrow, it was so exciting. So again, I responded. Again, I told Bloomfield, well, my two years are going to be up two months from now, but I'm in the middle of something.

LW: Tell me a little bit about what those fascinating projects were then those first two years.

AS: I brought with me the first tissue culture technique that NIH ever had, except for [what Dr. Wilton] Earle [was doing at NCI, {the Cancer Institute}].

LW: Right. At NCI.

AS: He was working with this L strain which could not grow viruses. There was not a single soul in Bethesda or nearby who knew anything about the work of Enders. Papers were probably coming out, but Enders did not rush to print, just as Habel. They came from a generation where you didn't publish until you knew what you were talking about, until you checked and double-checked and put it to the field test. Anyway, then I came in. In fact, last night I found [something] -- I'll say it on tape, but don't quote me. [I found evidence of] lies about the development [of tissue culture practices]. That shocked me. In this book called "Polio" --

LW: Which one, the Oshinsky [book, *Polio: An American Story* (Oxford Univ. Press, 2005)]?

AS: Yes, correct. [Julius S.] Youngner's been interviewed [here]. They never interviewed me, but Youngner was interviewed, and I guess [Jonas] Salk was, too. And Youngner takes complete credit. It is absolutely a lie. What he introduced was trypsinization, and he says that. But more than that, he says, "I first used monkey testicles." That is a lie. He came into my laboratory, and in *my laboratory* he used monkey testicles. And then I taught him the new development of [using] fragments of monkey kidney, and he learned how to do that. And he went back to Jonas [Salk's lab]. And then he trypsinized, and then I learned about it. He told me, and then I started trypsinizing. But he takes full credit for everything.

LW: Interesting.

AS: I'm not even mentioned. His visits to my laboratory at NIH are never mentioned.

LW: Interesting.

AS: As if he did it all.

LW: Right.

AS: And he may now even believe it, but if I confronted him I'm sure I could remind him. When I met Youngner later, he never made these claims when I was around.

LW: I see.

AS: Everybody knew that he got his training originally in my lab.

LW: In any case, though, these practices were coming into use, you having brought them to NIH, and Youngner coming there.

AS: Yes. Nobody grew viruses. That's why -- Habel knew about it. They wanted me, even though they didn't pay me to go. They said "Look, your residency finished on July 1. We cannot put you on the payroll at NIH until August such-and-such," -- or maybe September 1<sup>st</sup> or maybe on the new fiscal year. I'm not sure, but there was a period of at least two months, maybe three months, when I went to Enders' lab on my own. I took a streetcar and went to Children's Hospital, where he was, and so on and spent all that time working with these fascinating people.

And then I came to NIH, and my job was to set up tissue culture á la Enders, using human preputial tissue, which I could not get in good sufficient quantities -- unlike at Children's Hospital, where they were doing circumcisions all the time. I had to find a substitute. Karl Habel was regularly sacrificing monkeys, which were intercerebrally inoculated, and then autopsies were performed. I would surgically operate and take out one kidney at a time -- and Youngner takes credit for that, too. As if he did it. He did not do it. I took out the kidney, and I made these fragments that the Enders group taught me how to do, and studied viruses. And then Youngner came along, learned that, did that,

taught Salk to do it, and then he came up with the idea of trypsinization. He explains how he did, and I believe that, because I did not know how. This was the enzyme which took a tiny piece of kidney, and it would disperse and dissolve or whatever -- homogenize it into a mixture of living kidney cells and connective tissue. And you could get rid of the connective tissue -- I don't remember how we did it, probably you could spin it, [using] some kind of differential centrifugation or something. We would get rid of it, and then we had more or less pure kidney cells, which -- instead of having these clumps, fragments of kidney tissue, embedded in chicken plasma clots -- we now would have a suspension which would seed into tubes, let them settle for a while, and then put them into a roller drum and they would spread. I can't remember, I think the roller drum may have come from Katherine Sanford.

LW: Who was Katherine Sanford?

AS: Katherine Sanford was the right hand of [Wilton] Earle. His close friend was this fellow named [George O.] Gey, who was one of the earliest people to do tissue culture. And they were doing truly tissue culture. You see, the term then was "tissue culture," and they were doing that, and not *cell* culture. Then some of us said, "Why are we calling it 'tissue'? We're no longer working with tissues. We're working with dispersed cells, for God's sake, let's get rid of the term 'TC'."

LW: Yes, this has been a little bit confusing to me. That's an interesting comment.

AS: Let them get rid of the term TC and have it be CC if necessary, but just call it "cell culture." We're culturing viruses and animal cells. The "tissue culture" term was coined by my namesake, the very great American scientist called Alexis Carrel, who was the first person who ever cultivated tissue. Living tissue in culture. No, I am remembering that wrong: he was interested in culturing organs first, and a technically inclined fellow whom he respected said, "This guy can help you build this organ culture apparatus, because he's an engineer and a clever guy." The "clever boy" was Charles Lindbergh. He actually had already flown and came back. It was Charles Lindbergh who came to the Rockefeller [Institute for Medical Research].

LW: Really?

AS: Yes.

LW: I had no idea.

AS: Very few people pay attention to these things, but I was, in a way, [a part of the] creation [of this]. It was a few years later, but I knew about these things going on. Alexis Carrel published a book, which I have some place in my archives, called the *Culture of Organs*. Not the culture of tissues.

LW: Right. For what purpose was Carrel working on organ culture?

AS: I can't remember, but --

LW: I can look it up.

AS: I'm sure the reason was the fascination of keeping a piece of heart tissue  
--

LW: Alive.

AS: That's right. He was the one, and somebody else took over the work. It was a heart, and they keep on trimming it. I remember, in one of the books or articles, before we got into cell culture, there was a statement [to the effect] that, if the original culture, I guess in the Rockefeller, were allowed to grow, by now it would cover the surface of the Earth. It was so many generations and, of course, this probably was naïve thoughts, but that's the way they were thinking in those days: "unlimited growth." They had no idea, but eventually [this idea was challenged with the discovery that there is a limit to the number of times a normal human cell population will divide until cell division stops; the Hayflick phenomenon]. You probably know this name, a very controversial figure at one time, at one time a good friend, and then we went different ways: Leonard Hayflick.

LW: Yes.

AS: Lenny.

LW: [At the] Wistar [Institute].

AS: Where did I meet him first? Was he already at Wistar? He spent some time in Boston also.

LW: He did?

AS: Yes. He knew Enders. He probably went through that whole thing. And then Hilary Koprowski, and Herald -- not Harold, but *Herald* -- Cox. Koprowski and Cox got the first vaccine.

LW: Yes. They were also working with attenuated strains of poliomyelitis virus.

AS: Yes. Now I'm starting to get hazy, but at one time I knew the whole controversy. A lot of hates developed. Koprowski... and Sabin and Salk. And still another player in that powerful game, when each of them had very wealthy sponsors, whether it was Basil O'Connor [president and co-founder of the National Foundation for Infantile Paralysis] or a millionaire, or Wistar. Each one of them had a very powerful sponsor, and each one of them was trying in essence to destroy the other guy that they thought was stealing his work, and so on.

LW: Right. In the process of the search for an effective vaccine against polio.

AS: And they all were competing, and they all had very important contributions. And they all were -- just as you mention now with Youngner -- there were people who were stealing their work, or technicians who would change sides and run with a procedure. -- And then the other man says, "I have just discovered..." and you said, "wait a minute, that was *my* technician!"

LW: Yes.

AS: And that was going on all the time. Science was in some ways a much simpler thing, but therefore personal glorification seemed to be more common then than it is in some ways now.

LW: Right. Can I ask you to come back to what you were working on when you got to NIH? You came to Habel's unit, this new poliomyelitis unit, and you brought this cell culture technique --

AS: Well, Armstrong was put on the shelf. Even though I had a great admiration for him and every day I had lunch with Armstrong, trying to sit at the feet of the giant --

LW: And learn from him?

AS: He by that time -- oh yes, okay. Now it's starting to come back. There was a place: Building 7 was built as a brand new building, and there was a fellow named [Constantin P.] Yaglou, from Harvard. He was the world's greatest expert in microbiological safety (except he wasn't), and he built building 7.

LW: Okay.

AS: And there were lots of mistakes --

LW: I've heard about some of the mistakes in Building 7.

AS: Probably from Bob [Robert M.] Chanock.

LW: Yes.

AS: But [Yaglou] guaranteed the government that there will be -- and then there were some outbreaks of [unintelligible] encephalitis, Q fever and something else, and there were deaths. And it was all very embarrassing.

LW: I'm sure.

AS: By the time I got there, they were really clamped down. We had these isolation cubicles which supposedly had the air, and supposedly [it was] going to go up, and [it] didn't. [It] went into other units.



LW: Crazy.

AS: Part of it was [Yaglou's] fault, part of it was the architects', part of it was the construction people, who cheated and took shortcuts and then caused deaths, eventually. But again, this is like this other story with [J. Anthony] Morris [at Division of Biological Standards (DBS) and later the Food and Drug Administration (FDA), (which is discussed later in the interview)]. The Government buries a lot of these things because there are too many [law]suits.

LW: Okay.

AS: They pay off people to shut up and not to talk about it anymore.

LW: Right. But you were there and you were eating lunch with Armstrong and so on. What kinds of exciting work were you doing? This was before, for instance, Vogel and the hemadsorption stuff. So, between about 1951 and 1960, what happened?

AS: Yes. I come in bringing this tissue culture technique which nobody had -- grown viruses. I'm growing viruses.

LW: Okay.

AS: Harry Eagle comes over to learn how to do it, goes up and sets up his own shop. Somebody else comes in, and I provide [for him], with the complete support of Habel and Armstrong -- oh, that's where I got off-topic: Armstrong was being pushed to the side, for whatever reason. He was senior, and he was hurt badly, because he felt they shelved him, and they did. And in the meantime, one of his people was Karl Habel. Karl was devoted to him because he was a very loyal guy. And the other one was Victor [H.] Haas. I knew Victor very, very well, and Victor was not a good scientist but a good administrator. So they created the Division of Infectious Diseases, and Armstrong was the head of this division. There were no institutes yet except Cancer, the National Cancer Institute.

LW: We're at National Microbiological Institute?

AS: There wasn't such a thing.

LW: Okay.

AS: No, it was the Division of Infectious Diseases.

LW: Okay.

AS: Under Armstrong.

LW: Okay.

AS: Then they created, with an act of Congress, the National Microbiological Institute, and that consisted of several laboratories, specifically the Laboratory of Infectious Diseases; the Laboratory of Tropical Diseases, under a fellow named Willard [H.] Wright. Armstrong basically was asked to retire. He probably was not near the age, but he was put on the shelf. They gave him a private lab with one technician, so he could “play.”

He abandoned polio work completely, which then Habel took over, and something else, which Haas had taken on before. Everybody took pieces of things from him, and he wound up working on something that he believed in, and he did some very important studies on: Cat scratch fever, and he really contributed a great deal. He defined it, and I'm pretty sure that he isolated the organism, but nobody knew what it was. I think it may have been pleuronema or may have been one of the intermediates in that group that was neither a virus nor a Rickettsia. I can't remember, but he was working with these impossible -- the means were not yet available until much later. He was working on Cat scratch fever with one technician, and that's all.

LW: And in the poliomyelitis unit --

AS: -- it was Karl Habel, who had been trained by Armstrong. Armstrong discovered the virus which then was *the* virus of polio. Then somebody else discovered another type: Brunhilde -- maybe it was again Armstrong?

LW: Okay.

AS: The second one was Lansing (Michigan). Sent to us -- each one had a prototype which then we used to make the sera, and then we typed everything else in the country against those.

LW: I see.

AS: So Brunhilde was the prototype 1, Lansing was prototype 2, and Leon was prototype 3. Leon was the name of a child from whose stool I think probably Armstrong isolated the virus which was neither type 1 or type 2, and so they called it type 3. So by the time I come on the scene, the Boston people really didn't know yet about all this. But they had these other things going on, and of course exchanges.

They asked me what I wanted to do. I come in with these new techniques. “What do you want to do with them?”

LW: And you're new to virological research...

AS: Well, yes, but I'm bringing in tools nobody else has. I'm new, but I can screw them all, because I'm the only guy who can do it. Not one of them --

LW: Right. I understand, but then to go the next step and to say what you want to do with it may have been difficult.

AS: They put it into monkeys' brains and into mice with type 2, because Armstrong adapted type 2 to mice. And somebody else adapted type 3 to rats, more or less. Big science. But they can't work with those. Here I come in, and I say, "Oh yeah, maybe I can do all of this." And I was not that aggressive; I was enthusiastic. So I go ahead, and one of the first things I did, I said "Look, I don't think the type 3 --," all types were not really defined, or named. So I said, "Are there more types?" Yes, of course, that was it. I started to ask that in Boston, and I was told no. I come to NIH, and they say "Maybe." I said, "How can I find out? Tell you what I can do. I can go and set up -- can you give me a car, a government vehicle?"

[break in audio]

LW: We're in Loudon County [Virginia], and you're asking for a government car.

AS: I remember now. I was supposed to become a lab rat. But there was a guy named Carl [F. "Ted"] Mattern, and he was a little older than I and in the [Public Health] Service maybe a year longer. He had the car, and he was going to Loudon County, to do work for someone else -- it's the first time I've thought of it in fifty years. I think he was doing histoplasmosis and a tuberculosis survey, by doing skin tests. But he had a population -- addresses, people,. And I said, "Can I team up with you? Get these names and addresses, and collect, and give them jars -- "

LW: OK, to get specimens.

AS: And ask them to save a little bit -- we'll pay for them. For the trouble -- we'll give them tongue blades to go into the privy. Because many people in Loudon County did not have --

LW: -- they probably had outhouses, right, out in Loudon County?

AS: -- to pick up some paper, and put a little bit in the jar. And I'll come over, three times a week or twice a week and pick them up. And so that's why I needed the government car.

LW: Okay. So you started a collection of specimens.

AS: And there was another absolutely fabulous character. Nobody knows this anymore, it was all suppressed. His name was Leon [T.] Atlas. He was the darling of the National Microbiological Institute. They told me, "Alexis, watch this guy. He's going to get a Nobel Prize. He's going to bring glory to the NIH," and so on. And then he did something and he destroyed himself, and I can't [remember], but that goes in an entirely different direction. But when I first came, I was told to emulate him; that this was the

ideal young Public Health Service officer. And then, instead of that, he destroyed himself. And he wound up in Houston, Texas, and eventually in Pasadena, Texas, as a petitioner of medicine, completely dishonored. They accused him and charged him with serious crimes; they charged him with misappropriation of funds.<sup>13</sup> And these are all things where the government just covers them up.

LW: I see, so a scandal of some sort.

AS: Yes, scandals. And I still don't know if he really was guilty. And whether he was not sacrificed. Because he had enemies, and he had done something, again, but we all were doing things which were not necessarily approved, because you couldn't do your work –

LW: You had to kind of go out on a limb sometimes.

AS: That's right, you had to. We all had to, everybody. In fact everybody in experimental medicine did it all the time.

LW: Can I ask you then about Atlas? What was it about what he was doing that –

AS: I don't remember.

LW: Okay, it wasn't necessarily the sample collection or anything, it was in general?

AS: There was something he did. And he was the fair-headed boy of a very important person at NIH, whose name -- I haven't thought of any of these things, literally, for fifty years. And that man -- that's why he went to Houston. He became president, or whatever, of the Houston medical operation, together with [Michael E.] DeBakey, who was a former Assistant Surgeon General, but then also was involved in some kind of a scandal. And it was a scandal, and he involved Leon. And Leon Atlas then was dishonored, and basically dropped out of the Public Health Service, or whatever. It was dirty stuff, all covered up. And so -- why am I saying this: I inherited again some of his population.

LW: I see. So, kind of like when you tagged along with Mattern, you got names and addresses of people where you could collect specimens.

AS: That's right. Yes. And then I brought back all of these specimens, and I had freezers upon freezers. I would buy these reach-in [freezers], which eventually Bob [Chanock] inherited. Because when I went to Panama, I had more freezers than anybody at NIH. And then I came back and I said, "I had some untypables, and I want now to look at them in Panama." And Bob [Chanock] looked at me and said, "Alexis..." And I said, "Well, where are my freezers? They were under lock! Where are my freezers?!"

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<sup>13</sup> There is discussion of Leon T. Atlas's research in the "common cold" unit within the Laboratory of Infectious Diseases in Edward A. Beeman, *Robert J. Huebner, M.D.: A Virologist's Odyssey* (2005), 273-280.

LW: What happened to them?

AS: Bob said, "Alexis, I have a story to tell you. I had permission from the director of the Institute to throw your specimens away." I said, "Those were *priceless* specimens -- there were brains, there were spinal cords. [For] each one of them I have complete history. I spent months of my life -- "

LW: Oh, my goodness. What a tragedy.

AS: And he said, "Well, but we had more important things to do." [They made the] decision. And I was in Panama, so I would never miss them.

LW: Wow. That's really unfortunate.

AS: And, this is the kind of thing that people don't talk about, but it's the truth. And Bob probably was the beneficiary. It's not that he -- he had no power, he was just a kid. But Huebner had all the power --

LW: Oh, you meant Bob *Chanock*<sup>14</sup> was the beneficiary of the fact that these freezers were freed up? It was simply over freezer space?

AS: Yes. They were freed up. Yes. But in order to have these great big, I've forgotten the names. They were special, [reached] from here to there -- grey boxes, [you'd] open, reach in this way, rather than stand-up. They were superbly efficient, and they were introduced by somebody at NIH at about that time, when I first came. They became [all] the rage for saving stuff, because we could drop them down to 70 below zero. You could keep them efficiently at 40, but there were some viruses that you didn't dare to -- whose longevity in a frozen state at 40, on glass particularly, eventually they gradually become inactivated. But at minus 70, their life is tremendously prolonged, viruses can live for many, many years at minus 70. And if you can drop them to minus 90, it's even better, but you know, it costs so much.

LW: Yes, you have to start thinking about cost-benefit analysis.

AS: And you can keep them in liquid nitrogen almost indefinitely, but that costs an incredible amount of money, because liquid nitrogen evaporates. You can't just plug it into the wall. We had a permanent collection in liquid nitrogen, and the working collections in these minus 70 freezers. Sera, typing sera, not viruses, we kept at minus 40. So we had minus 40, minus 70 and liquid nitrogen. It's on the way to 257, or absolute zero -- true deep-freezing.

LW: So, again, before you went to Panama...? Or, again, let's come back to the poliomyelitis unit.

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<sup>14</sup> It is apparent from the conversation that in two earlier references to Robert Huebner in the sound recording, the speaker meant to say Robert Chanock's name.

AS: I'm collecting all these specimens. And I'm starting to run them through monkey kidney. And I'm coming up with all kinds of isolations: type 1, type 2, type 3; I can type them. But that I can't type -- and we talked about untypables. In the meantime, Joseph Melnick, working with John [R.] Paul and Dorothy Horstmann and John Enders; Melnick called them "orphans." And John Enders said, "No, let's call them ECHOs -- Enteric Cytopathogenic Human Orphan viruses, ECHOs." So we all took over "ECHOs" and we started isolating all kinds. I remember that many of them led to nothing. But then gradually, and I was in the original group of pioneers who started to say, "Wait a minute, ECHO number --" I can't remember now, which number, but I think it was number 7 -- "I think I know its pathology. I think I can pick it up from people with sore throats, and so on."

Oh! I forgot, that's an interesting story. Bob was involved with that, too.

LW: Which Bob?

AS: Chanock. But Huebner of course, over them all. Huebner says, "I have a new -- a Naval officer, coming over from across the street, Naval Hospital, and he'd like to do virus research. He knows nothing about anything, but he's a very bright guy. Will you take him in your lab and show him tissue culture?" And his name was Wally Rowe, Wallace [P.] Rowe. And so Wally comes in, and learns, and I teach him how to do monkey kidney. He said, "Bob Huebner wants me to study, at Children's Hospital, the runny noses and upper respiratory infections." I said, "Is that really the best?" He said, "I don't know." He said, "What other tissues?" And they had no tissue culture lab in Huebner's unit. They were still working on Rickettsiae and so on; Huebner was just trying to get into viruses now really. He was a Q fever world expert. And something --

LW: Rickettsialpox?

AS: That's right. He'd done Rickettsialpox, and we're doing Q -- in Texas, in fact. And Bob Huebner spent a great deal of time, and used to tell tales about it. He would come in and say, "I'm just back from Telephone, Texas."

LW: Oh, yes, of course, I've read about this.

AS: And, he said, "The important thing about Telephone, Texas, was that there was no telephone."

LW: Right. It was this backwater place...

AS: He said, "I have to go to such-and-such place to make the telephone call, because in Telephone, Texas, you have no telephone."

So, he told Rowe that he has to try to cultivate specimens from Children's Hospital. Somehow then, he came up with the idea: adenoids.

LW: Oh, this was Wally Rowe's idea?

AS: No, no, no -- [first,] tonsils. "Let's try tonsils." Because tonsils are a big organ. And we tried it. Then it was Wally who said, "Well, how about adenoids?" And then, while working still in my laboratory, but on completely his own project --

LW: And something that Huebner had kind of made him do.

AS: Of course, yes. But Huebner was directing everything. And Wally just did what Huebner told him, but at the same time he was a bright guy and had his own operations, and so on. He was really an apprentice, but he was teaching Huebner, because Huebner did not know about tissue culture. Huebner never learned how to do tissue culture, really. It was always Wally, or later, when Chanock appeared on the scene, he brought in tissue culture. And Vogel teaching them, and so on. But he was a superb, imaginative leader. I mean, absolutely. The craziest ideas. And he would say, "I have another crazy idea." And then you'd think about it, and say "My God, he's right! Except of course you can't do it that way. That's impractical. But, I think, Bob, if we tried this -- no, it doesn't work... Let's try --" But the idea was his. He was by far the most imaginative person around. He was so far ahead of the Vic Haases and Karl Habels and all the rest of us. I mean, he was, I think probably, one of the few true geniuses. But disorganized, diffuse. Unable to stay with a project. He would just say, "Screw it." I would say, "How can you waste your life on this? I mean, at least do something exciting."

LW: So, you were talking about Wally Rowe, and first tonsils and then adenoids.

[break in audio]

AS: Okay, we got up to that yesterday. And my direct contribution to the whole business that became a breakthrough in that. Wally learned how to tripsinize tissue and how to disperse and start to put adenoids. And the way I told people years ago: I almost prevented all that important work that Wally Rowe received national and international prizes for, but fortunately Wally didn't listen to me. Wally comes to me, as the more experienced culturer and his mentor. He says, "Alexis, using your technique, I grew out adenoid cells and tonsils. And not the tonsils, but the adenoids degenerated. Have you ever seen anything like that?" And I said, "Let me see it." So he brings it down, and they are degenerating. And I said, "Yeah, I see it all the time." "You see it all the time in what?" "In monkey kidney -- happens all the time. 'Nonspecific degeneration.' Pay no attention to it, Wally. You'd be wasting your time. I spent two years on those side issues, trying to pursue it." But I missed the boat. Whatever I used, I never realized the importance. I thought it was nonspecific degeneration. Natural. Because, when you become the high priest, you believe your own teachings. And I was the high priest of tissue culture. And I explain it to somebody, and then I believe my own explanation, and I never question it again.

LW: Which is dangerous.

AS: [I believed] it is nonspecific degeneration. I said, "I see it all the time in monkey kidney, I've seen it in human tissues." I call it "nonspec. deg." So he goes around and calls it "nonspec. deg." And then he comes in and he says, "Alexis, I don't agree with you. And I no longer am going to call it 'nonspec. deg.' I'm going to call it something else." "What?" "Because I think you are wrong. In working with tonsil and adenoids -- particularly adenoids -- I'm seeing spontaneous degeneration, just as what you show me -- but I'm sure it is specific to that tissue." He wanted to show me something, and he showed me how he recorded it. I had worked out a system from Enders, from 1+ to 4+, rating the amount of cytopathic effect. We used the same one for nonspecific degeneration, from 1+ to 4+. So I'm looking at his readings, he's asking me to check his results. And I see in his record: "in. deg." It's not my term. "What the hell is 'in. deg.'?" He said, "Intrinsic degeneration." "What intrinsic degeneration?" You know, basically, I am the high priest of this; "who are you to come around and tell me that there is something else?" And he said, "Well, I don't believe that you are right, I think that you are wrong." And I said, "You can believe anything you want, of course. It's your hide, not mine. I've got my own fish to fry." Of course, he was right. And then Huebner believed him. And that was the beginning of the adenoviruses. Then of course they discovered that these were adenoviruses which were latent in these adenoid tissues, but that then they could take the monkey kidney and others, and inoculate specimens from children, and show that those viruses are not just in the adenoid, but that they are the same viruses that they isolated from indigenous degeneration, "in. deg": adenoid viruses. But in fact they were prevalent in throat tissues of kids, without taking them out. You could isolate them from nasal swabs, you could isolate them from throat swabs. Which you see, whenever I isolated them from throat swabs of people when I was looking for poliovirus, I called them -- missing the boat -- and discarded them. He said, "Alexis, you taught me that you had to passage a virus and establish it on passage. Can you passage non-specific degeneration?" I said, "I tried." You're making me remember something which nobody knows, and it happened 50 years ago. At that time it was a revolutionary observation in my lab, and that is: I did what was right, supposedly. That is, what none of us understood: you can take a virus, and put it into a system. It will grow once, one cycle, and will not propagate again. And therefore you cannot passage it. That's what happened to me.

LW: What does that mean?

AS: I therefore thought it was nonspecific degeneration.

LW: I see. Because you couldn't passage the virus, the agent.

AS: Enders established a principle: You have to passage the virus, and establish it in culture, to have an isolate and be able to report to the community. If you can't passage it, you don't have it. Maybe there was something, maybe there wasn't. And you can call it nonspecific, whatever you want to call it. And I could not passage. Wally said, "You are wrong. I've passaged it!" And the difference was: it was a human virus, which was passaged -- there was a trick to it. It would go through one reproduction cycle, and then



you had to put it into a different cell system, after the first passage. And I never did that. If I was doing a first batch, then I couldn't. I did not have other systems. I had monkey kidney. I isolated something, and I passaged it in fresh monkey kidney, and I couldn't do it. Therefore: nonspecific. Wally isolated it and put it in a different [system] -- he put it into human cells, not monkey.

LW: So he just tried it, he just figured, "Why not try." And he had a human cell system. I see, so again, it's about what you have at hand, what you have in your lab.

AS: And he did it. [This was an] embarrassing moment in my life, when he said, "Alexis, could you come up to the third floor? I want to show you something, because I think you are wrong." "All right." I go up. He says, "You see? I passaged it. And you didn't." I said, "How? Why?" He said, "You passaged it in monkey kidney, and I passaged it in another system. And I have it. And I've isolated a new virus."

LW: And that was the beginning of adenovirus. But, when we started to talk about your "nonspec. deg" last night [over dinner, not during taping], I understood you to mean simian [immunodeficiency] virus[, or SV40].

AS: Yes, that's another story there.

LW: But that's a different story. What you were finding you think was adenovirus, or it's just sort of the principle?

AS: No, no, no. The principle. But more than that. I was also isolating others, the simian ones. They eventually turned out to be -- and that's how Koprowski got into the act, I think. I think it was Cox and Koprowski -- anyway, not me, and not Salk. Somebody else got into the act.

LW: Well, but if you're talking about simian [virus], it was Hayflick, right?

AS: Yes, but that was later. But that's what it was. I think it was Koprowski -- I'm pretty sure it was the Lederle [Laboratories] group.

LW: Okay. And what were they doing?

AS: They were realizing that there is this whole family of simian viruses.

LW: Okay. That are inherent in that kidney tissue.

AS: That's right. They were latent viruses. The only latent virus that at that time any of us even dreamt about was herpes. We had no idea that there could be other viruses.

LW: And [Maurice R.] Hilleman, too, right? Wasn't he instrumental in a lot of this stuff?

AS: Sure. That's right. Lots of things. The whole field exploded.

LW: It really exploded at this time. Because people were trying new things, like what Wally Rowe did, and what you did.

AS: Well, here it is again: Youngner learned monkey kidney culture, took it to --

LW: Right, tried out this tripsinization --

AS: That's right, and then they had that. And then they got off on the whole thing of vaccine. They developed vaccines, because they tried new things. And then, Tommy [Thomas] Francis [Jr.] thought that it will work. And it worked.

LW: Okay, so if we bring up vaccines, what was the [NIH] poliomyelitis unit doing? We know what Salk was doing, we know what Sabin was doing at this time, and even Koprowski, but was the Laboratory of Infectious Diseases working on vaccine? My hunch is, no, but can you tell me what were the aims of the work that you were doing?

AS: No, but, we were the ones who, starting with Armstrong, broke the field.

LW: So, really this basic research on the viruses.

AS: Basic research, exactly. It was not just viruses, but the systems. The whole business of tissue culture systems. Earle saying, "We're killing viruses." Guy saying, "We're up the wrong track." But we were fumbling around: I'm fumbling, Wally Rowe is fumbling, and discovering adenoviruses. And then everybody moves in, and takes over and runs off to his own lab and does all kinds of exciting things. But somebody has a breakthrough. And he may not have either the imagination, brains, or facilities, or the money.

LW: Right. It takes all those things together, right?

AS: But then all kinds of people -- somebody has the money, somebody has the lab, somebody has the trained people. Everybody runs and starts doing things. That's the way science advances.

In the old days also, we did tell everybody. Everybody who came into my laboratory.

LW: You shared this information.

AS: Absolutely. And if I didn't, I'd probably get fired. I surely would be called in by Vic Haas or by Karl Habel. Melnick came [to my lab], but also one of his girls -- the woman he eventually married -- came over and spent time in my lab. They would come, but it was for free.

LW: So there was a lot of this kind of thing.

AS: I mean, I went to Enders. And Enders was proud of the fact that we were all doing things --

LW: -- exciting new things.

AS: I remember, I came back to Boston, to give a lecture or something. And he came in, and we sat down -- and again, it was typical Enders. We were having cold sandwiches at his lab table. And I'm telling him about all these things that are going on in Washington, and about all these people who are really coming up. And he of course knows; he reads the literature. But he listens, and I tell him about how this all came about: how so-and-so came in, and Habel made arrangements, and so-and-so, and Huebner did this and that, and Wally Rowe -- and how it all started. Basically, because that technique [tissue culture], in spite of Earle, was brought in, because somebody said, "Well, send the kid, Shelokov, he's in Boston, --" think of that, again -- "We don't have a salary to pay him until August. He has an apartment in Brighton. Tell the stupid kid, 'Go learn something from Enders.' Maybe we can use it." You see?

LW: Right. "We can't pay him, but"... It was just taking a chance and letting somebody --

AS: They had no idea it was going to happen. It was just to keep me busy! "Enders is a good guy, so have this kid go over." And Smadel had a high opinion of Enders. "Have him go over and play there, and maybe -- *maybe* -- he'll learn something." That was the attitude.

LW: But was Smadel at NIH at that point?

AS: No, Walter Reed, but he had a reputation.

LW: No, he was at Walter Reed, but there was the connection.

AS: They all knew each other. Smadel was highly respected, and I knew Smadel's name.

LW: Right, of course. And he respected Enders, and so he sort of seconded the idea, "Yeah, let him go there."

AS: Yes, they were the same generation. All of those guys. They were the original -- again, as I told you, there was the Tom Rivers school, and the Zinsser school.

LW: The Rockefeller school and Zinsser-Harvard school.

AS: They all came from one or the other, all of those guys. Basically they were competing all over the country, but they were -- the ones within the group still remained friends, or became enemies, and so on. But there were two camps, for many years.

But, Enders. That was typical Enders. I was telling him all of these things at lunch. By this time Fred Robbins already was gone and Tom Weller already was doing something else. But he still had a whole new generation of kids that he was teaching things. And I told him all of these things that happened, whether it's Huebner or Rowe. And told him about my encounter with Earle. And he laughed. I've been trying [here in the interview] to find different ways to say it, it's an important thing, I don't know if anybody quotes it. But it's typical Enders. He said, "Alexis, you know, just imagine that with my little tiny lab..."

[break in audio]

LW: [Enders] was expressing his total amazement and delight --

AS: He said, "My little tiny lab with a handful of just kids working with me, and I'm just playing." He said, "I don't really consider my work, --" the message was, "I'm not even really a scientist, you know. I'm just, I'm a playboy."

LW: I see: "I'm playing in the lab."

AS: "I'm playing at something I like, I just like to play. I don't want these big projects, you know, 'solve the problems of the world.' I became interested, I said, 'Wouldn't it be fun to see if such-and-such --' ." He said, -- what's the word: not 'amateur,' there's another word...

LW: Dilettante?

AS: 'Dilettante,' yes. "I'm a dilettante. I'm playing. I'm having a wonderful time -- and, 'Gee I've had all these good things happen!'" And he said, "Can you imagine: this little lab at Children's Hospital, given to me just for me to play, and all these things you tell me, that all these people in Washington and in Bethesda -- they're doing all these fantastic things!"

LW: So he was delighted.

AS: Oh, yes. But he didn't hear some of the kinds of things we were talking about: the backgrounds of these rivalries and the cutthroat competition and so on. He said, "No, I couldn't do any of that." And he couldn't. He was a gentleman.

LW: He couldn't lower himself into the kind of snake pit of those kinds of interactions.

AS: I asked somebody, maybe it was Tom [Weller], sometime *after* I was in the laboratory, and after other experiences. It was one of his people: it was not Gajdusek, that I know. It was either Tom Weller or Fred Robbins.

By the way, I have to tell you: later on Fred and I had a real falling out. I could not understand it. All of a sudden. Fred had been my real mentor, even closer than Tom.

We used to have wonderful discussions about all kinds of things: music, the world, philosophy. He was interested in Russian affairs. All kinds of things! And then all of a sudden – boom! And it happened -- years later, after years of friendship -- when I took Smadel's place.

LW: Oh, at DBS.

AS: And I couldn't understand. It took months -- and finally I found out. It turns out that Betsy [Elizabeth Moore – the pathologist who became Smadel's wife] worked for him [Fred Robbins] when he was a young Army officer or something, in a lab in Tokyo. But [Joseph E.] Smadel also was involved. So he had hired a guy for Smadel [???], but more than that for Betsy.

LW: I see.

AS: And by this time Betsy had aligned herself with Tony Morris ...

LW: I see, and so...

AS: And hated my guts! All of a sudden then, there was this wall [between me and Fred]. One time at a meeting someplace, I said, "Fred, can I see you privately?" "Yeah, what do you want to talk about?" I said, "I'd rather not talk here." I said, "Fred, what's happened? I cannot have your ear? I want to share some things with you." He said, "Alexis, have you looked at yourself in the mirror?" "What do you mean?" He said, "You know, Betsy tells me that you are a different person than the Alexis Shelokov that I knew and liked and admired." He said, "You're a cutthroat bastard," or whatever. And he said, "And I've known Betsy for years, and Betsy tells me that I shouldn't dirty my hands by shaking your hand."

LW: So he took all of what Betsy told him without any critical eye.

AS: Absolutely. He never again, never was a friend again.

LW: I see, so you got an explanation, but you never were able to patch it up.

AS: Later on he sort of apologized. He [Fred Robbins] was called to testify, and then he started to understand that Tony Morris is crazy.

LW: I see, when he really took a closer look at the Morris affair.

AS: He was on the committee, in these papers, and a committee of distinguished scientists that was appointed by [Robert Q.] Marston, director of NIH.

LW: In 1972.

AS: Yes. [It was] when I took Smadel's job, so that must have been '63, '64.

LW: Let's see. '63, I think I have in my records, at least looking at what your background was.

AS: So you see again, there was a period of years, when all of these people...

LW: Yeah, nine years or so.

AS: Probably less. At some point around that time, all of these people who at one time had been friends, and who had trained [together], they all -- because Tony Morris was part of their group in Tokyo --

LW: I see, and through the Army research --

AS: -- Yes, even before they came to Enders. But they trusted Betsy, who came from a very good family...

LW: Yeah, I see, she was from Boston as well.

AS: Boston aristocracy.

LW: I see, so there are these alliances that just can't be split up.

AS: [Betsy Moore Smadel was born into the] Boston aristocracy, from the Bowditch family, an important medical family. She was an aristocrat, who then gave [that] up. Instead of being a lady in Boston society, she became a lab technician.

LW: A scientist.

AS: Because she loved the lab, and because she loved Smadel.

LW: You were starting to say something before, you were talking about Enders observing from what you said about this sort of snake pit of rivalries but never really being able himself to lower into all of that.

AS: Absolutely.

LW: And how Robbins and Weller also confirmed that to you in conversation. Was there some kind of an incident that you were going to remember?

AS: I cannot remember, but it was my impression. Fred Robbins one time said -- my relations with Fred were still close, before the trouble with Betsy. So Fred and I would open up. "How can this man be so filled with good will, never a bad thought? There are people who have tried to hurt him. There're people who take things away from him. There are people who steal things from him. Steal his credit that is due him, all over the world. And it doesn't bother him. He is the same, relaxed, wonderful -- almost like a

man above it all, you know, like a priest. He forgives everybody. How can he do it?" And Fred said, "Alexis, don't you understand? He said, "I can't tell you all the answers." He said, "Do you know his background?" "No, not really." He said, "He was a millionaire." He said, "While he was training us, his secretary was clipping coupons." And at this time, this was the 1950s -- we're talking now about the 1950s. The figure at that time -- was absolutely astounding to him and to me -- he said, "His financial worth is \$8 million, cash." Yeah, because he said, "His family owns the Boston First Bank" or something. And said, "He is the major stockholder in his family. But he gave up all of that because -- Zinsser!"

LW: -- talked him into playing in the lab.

AS: Zinsser asked him to play in the lab, and he'd been playing ever since. But he [Fred Robbins] said, "I have to go out and get a job. You have to go get a job."

LW: I see, so it was that cushion of the fortune that really allowed him [Enders] to not care.

AS: He didn't care. Nobody could touch him. They got on their knees and kissed his behind. He was old Boston, you know, he's accepted in the highest society. He can give a party that Keefer or others can't touch. He lives in this magnificent home. He is aristocracy. Wealthy aristocracy, a millionaire! And so," he said, "He has complete self-confidence..."

LW: And it gives him kind of an emotional immunity, I guess, from these things.

AS: Sure, he's above all that crap. And besides, his personality -- he's a wonderful human being who, however, cannot be crushed by ugly people or by cheaters and so on, because they don't dare. He's too powerful. He's got connections. He's got name. He's got money. He's got banks. I said, "How could he do that?" He [Enders] said one time, "I don't want a big lab, you know." He used to wash his own laboratory dishes.

LW: This is Enders?

AS: Yes. He taught me how to wash the dishes properly. And for a while I always washed them, until I finally got talked with Vogel to wash them for me, and then got somebody else to wash them. But the point was, you see: he did it because that's the only way can be sure that everything's done exactly the way he wants it. And then, he probably loosened up. But the point is, when I first came, he still was doing it, and he made each one of them wash their own lab before they sterilized it. Because just he felt, it's good for you. He felt, number one, you've done it, it's yours, you know how it was done. Plus again, it's good for you. "It's good for your soul. Don't get so goddamn big in your britches that you've got to go to get some black boy to do it for you. Do it yourself." He himself, as I say, would go over, have his sandwich, and go over and rinse out things. It was absolutely incredible. But he said, "I don't want all this. I don't want

a big lab. I just want a family of a few people that I work with.” He’s a remarkable man, as you can see, and in different ways my admiration for him keeps on growing.

[break in audio]

LW: I wanted to ask you about your transition [from the work in the poliomyelitis unit at the Laboratory of Infectious Diseases] into your Panama work. Because I see that in 1955 you went to Uruguay. This is my attempt at reproducing your CV.

AS: Okay, very good.

LW: I see in 1955 you went to Uruguay to investigate a poliomyelitis epidemic. I wanted to ask: Is what you’re doing now in the middle ’50s sort of combining this lab research with field epidemiologic activity?

AS: I wasn’t planning on it. What happened was, the President of Uruguay called the President of the United States and said, “We need help.” The President of the United States or the Vice President -- whatever, down the line -- called the Director of the NIH and says, “We need to extend a gesture. We understand that some Americans went down there and made a very bad impression.” It was a consultant from one of the universities, a polio expert invited by the government. There was something that happened, they don’t want to ask him [to go] again. They now want an official government [representative], they want the United States government to send them a polio expert.

So [Director James A.] Shannon calls me in and sorted the cards, the punch cards with the needle.<sup>15</sup> Basically, we asked the Embassy what they wanted, and they said they didn’t know! The President just said they needed help in everything about polio. So we said, “Well, let’s take these three areas: Let’s punch in for a Public Health Service officer who is a *specialist in clinical poliomyelitis*,” -- and we couldn’t have had many [at NIH], because they didn’t have a clinical center. (Well we did, but there were no patients, there were no specialists. Eventually Jack Hughes got trained, but at that time there was nobody.) “What about an *epidemiologist* to investigate? And what about a *laboratory man* who can help set up a laboratory?” These were the three requests they made. So they punched [the needles in], and on all three requests, “Shelokov” came out, because I was the only who had been a clinician before I came to the lab. Even Chanock; none of them really.

LW: That’s right, I guess he really had never worked as a clinician.

AS: Well, he worked as an intern someplace. But he never worked in polio; he never worked investigating epidemics, specifically. Certainly Wally [Wallace P. Rowe] did not. The only one who did was [Robert J.] Huebner. Huebner’s been in all of these things. But Huebner was beyond that stage. But in the new generation, [for] a guy who be can

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<sup>15</sup> Shelokov is referring to edge-notched needle cards used for data storage. Prepunched holes in the cards made it possible to sort the cards into certain categories. By threading a long needle into certain holes and shaking the set, it was possible to select out for particular types of criteria, as Shelokov describes here.



dislodged an order to be going, Shelokov was the only one in all three categories. So they called me in. They said, "We don't have the slightest idea what's happening there. We don't have the slightest idea what you will find. We're giving you an introduction to a Mr. Macintyre, the American ambassador to Montevideo, Uruguay." This was Friday afternoon. "You're going to leave on Sunday, to be there maybe Monday morning." Very little time. They asked, "What do you know about Uruguay?" I said, "Nothing. Where is it? How far down?" This was before [my experience in] Panama, so I knew nothing. I've never been to Latin America in my life. I didn't know one word of Spanish. I said, "Well what language do they speak?" They said, "I don't know, probably Spanish." I said, "Well, are they Indians?" I was thinking, is it like the jungles of Brazil or Paraguay...? I didn't know.

So I go to the Encyclopedia Britannica the night before I leave, and I read some absolute garbage. History, something about Bolivar. I mean it didn't make any sense to me at all. I said, "Well, I'm totally unprepared." I sit down and fly -- a forty-hour flight in the old days, forty hours. I arrive completely exhausted after forty hours at the airports. I arrive at the airport, get off, and there's a crowd. There are movie cameras, which are then for the news chronicle. I see half a dozen cameras, a crowd, journalists taking notes with notebooks, and they say, "Would you please proceed now into the VIP reception room of the airport?" "Huh? VIP?" I haven't washed and I haven't shaved for a couple days, after forty hours, and I'm in bad shape and completely exhausted. And they start asking me questions! They said, "Professor Shelokov, what are your plans?" I mean, I can't even imagine what was my answer. They said, "Well, how well are you prepared for the task ahead?"

I said, "The task? Nobody told me anything!" So I sit there and I've see then both the movies and I still have the stills from the newspapers, where I sit like this.

[laughter]

I'm trying to give these answers...

LW: Of course, you're trying to be knowledgeable.

AS: And then the ambassador says, "Shelokov did a good job." I said, "What's going on? Tell me." He said, "I don't know..."

[break in audio]

LW: You were talking about how you arrived in Uruguay and you saw yourself on the newsreel later.

AS: Basically I had no idea what I am supposed to do. Eventually I was a hero in Uruguay, and I received all kinds of commendations. But that's not what happened to me on arrival. The ambassador said, they'll pick you up and so on. So cameras were there. Next morning the newspapers were covered. It was everywhere. Pictures, and I was told

the television and radio had an interview. An official car picks me up and they take me to a place called *El filtro*. A *filtro* means “filter,” but it was a screening diagnostic hospital. It was a very good system, actually. They have a hospital that has superbly trained physicians, and at that time Uruguay had incredibly high level of medical [care] -- basically much better than the United States for the common people. And of course I had no idea, I thought that Uruguay is sort of like Brazil. But it’s not. Completely European country; Montevideo is Paris! With people who spoke French, Italian, German, Spanish of course; who spend their summers in Paris; who drove European cars; who dressed in Milan-cut suits.

LW: Really. So very cosmopolitan.

AS: Completely cosmopolitan. They all spoke beautiful English. Little bit of a British accent. But beautiful English. Completely unlike anything I imagined. Buenos Aires is much like that, but not the rest of Argentina. But Uruguay’s so small, you see: at that time, it was 2 million total population in the country. One million in Montevideo, and one million in the countryside.

It has a tradition of gaucho music -- beautiful gaucho music, all extremely well educated people and so on. They don’t know what to expect of me. The American government dumped me on them. It turns out it was all arranged at a very high level. Basically what happened: they expected me to be like the last American consultant, who had spent time in the cabarets, nightclubs, drank a lot of champagne, had dates with a few girls, visited the hospital. Eventually a Dr. Juan Eristosa, a French-trained Uruguayan, but actually a Basque. Eristosa is a Basque name. A wonderful person, one of the most intelligent people I’ve ever met. We became very close friends, I highly respected him. He was younger, but much smarter than I ever was or will be. Eristosa was a pediatrician. In fact eventually I arranged for him a fellowship through the NIH for six months in the United States. He worked with Louis Weinstein in Infectious Diseases at Haynes Hospital. He had a wonderful time in Boston. I went up to see him and we went to all my favorite restaurants.

Funny story. We were good friends. At that time he was like Ray Seltser, who in another situation was like my brother. I mean I trusted him -- basically he saved my life at some time and certainly saved my reputation. And vice versa; I helped him in very difficult situations.

I said, “We’ve got to go to my favorite Boston restaurant. You’ll be my guest.” It was Locke-Ober. It’s probably gone now. It was absolutely superb. Much of Boston cuisine at that time was terrible. But Locke-Ober was a Parisian restaurant at its top. The food was superb. Prices were superb, too. And the clientele was quite exclusive because of the prices. Small, beautiful. Wonderful wines. I thought, I’m really going to impress him. He did not have too much of an impression [of the United States], having seen this and that. He had visited New York. He was a world traveler. His impression was not all that great of American culture, certainly not of American cuisine. I said, “You will enjoy it.” We go in, we have superb service, superb meals, superb wine, and then when we

leave and go to the hotels, Juan says, “Alexis, I have a confession to make.” “What?” He said, “When you said, ‘I’m going to take you to my favorite restaurant, “Locke-Ober,” I heard it as *La cobra*.” He said, “I’ll tell you honestly, I thought, ‘I’m shocked. I expected better of Alexis. He’s going to take me to one of these joints like in New York. These pseudo-South American restaurants where they have a thing on a stick, and terrible food, and is being passed as a gaucho or something else’.” And he said, “*La cobra* sounds to me like God-knows-what, like some idea of a South American cobra, very romantic South American spot, maybe with artificial palm trees waving. I was really prepared for the worst, and I was shocked that you would take me to a place like that. Instead of that, we had this wonderful meal. The best meal I’ve had in the United States.”

LW: That’s funny. So, you initially met him when you were there [in Uruguay during] the poliomyelitis [epidemic].

AS: He was assigned to me, and he’s the one who confessed to me that the last guy they had sent from the American government [had just been a lay-about].

LW: He was there for a vacation, clearly.

AS: That’s what he did. It’s like he had a wonderful paid vacation. “After a while,” he said, “we gave up, and we gave him a vacation.” He said thank you and he disappeared. He made an appearance in the wards, but he didn’t know what he was doing. He was frightened by polio. And so again, remember the pictures in the book?

LW: Of all the iron lungs.

AS: They had these Drinker respirators, they also had columns; and they also had some German[ respirator]s. But it so happens, because of our emergency in Boston, I had experience with all three types of respirators.

LW: Interesting: because you had had such shortages, you had had to deal with all of them.

AS: Yes, anything. People would give us -- firms would just bring them in and say, “My God, I just heard about you guys in the newspaper. We have a model that we’re trying to push in our display room. Take it!” “How do you operate it?” “Well, we don’t know, but try it.” And so we’d learn how to operate it. And of course there were instruction books and so on, but I learned to operate all these various systems from the cuirass to the big tanker, a Drinker model, which is the best one still, American. Then there were a couple of other models, which I don’t remember the names of.

LW: And they had a wide variety there, too, in Montevideo.

AS: They were all donated. The country was also not that rich.

And so, first of all, they expected nothing from me. They expect that I'm going to come in and -- I still have someplace a beautiful golden keepsake [from a] Uruguayan Jewish family -- not "Shapiro," but "Sapiero," clearly Jewish. He was the captain of their polo team, which had been in the running for the world championship, world famous. His parents showed me his photographs. All the fans knew this guy.

He was among the first people I saw in the ward in a respirator, dying. I came in, and I immediately knew what's wrong, because the people there, including Eristosa, hadn't the slightest idea what it's all about. They've never taken care of mortally ill polio patients before. And they've used these respirators from the books, but they really didn't know what they were doing. The respirator was improperly adjusted. He was fighting the respirator, he was bloated, he had a stomach --

In Boston[, among our polio patients,] we had many of these marathon runners. They were people who exerted more than the average person. And they're more susceptible. At that time we didn't understand anything about cortisone; it was not yet discovered. It was stress, but we did not understand any of that. But so much stress was put on their immune system by this extreme exercise or this extreme physical effort; they were more susceptible.

LW: Interesting, I didn't realize that.

AS: And so we had all these beautiful physical specimens who were paralyzed from the head, from the neck down.

LW: So this was a similar kind of case.

AS: The poor guy was completely helpless. Again, if you'd dealt with it, I knew exactly at one glance...

LW: What was wrong.

AS: And I said, get me a rubber glove. And they said, "What?" I said, "A rubber glove!" So they give me a rubber glove. So I say open the [port]. And they say "What are you going to do?" And I said "This patient is dying because -- when was his last bowel movement?" They said "We don't know." I said, "He's impacted. He has to be disimpacted." "How do you do that?" I said, "You do that with your finger."

LW: They didn't know?

AS: No, nobody knew. They said, "Oh, we'll get one of the nurses." I said, "Oh no, you're not going to get one of the nurses." "Doctors don't do things like that," says the chief of service. I said "Maybe doctors don't do that in Uruguay, but in the United States we do it if we know how to do it." And I was nasty by this time; I was very firm. So I disimpacted him, for I don't know how long, but I kept digging.

[break in audio]

I disimpacted the obstruction, and he started to pass gas with complete relief, and then the respirator could work, and he came alive again. And of course they all looked at that and thought it was a miracle. It was not a miracle; we did it every day at Haynes Memorial.

[break in audio]

LW: So it was really similar to what you had seen.

AS: Then I continued, and another interesting incident -- I can't resist telling you. They had the men's ward, the boys' ward, and they had the women's ward, girls' ward, and then they had infants, mixed sexes. So I would examine the men and disimpact them, this guy Sapiero...and then I'd go in the girls' ward, and there are some desperately ill girls. So I would examine them, give suggestions, and then as we were leaving, you know they sort of were pleased; I think they were [clapping], because they realized they sent somebody who was not afraid of them, not afraid -- it was the same as at Haynes, the doctors in the community were afraid of coming down with polio or of taking it home to their families, so they wouldn't come in. And here was a doctor who was examining them, talking to them -- with a translator, I didn't know any Spanish. But Eristosa would do the translation. -- [This doctor was] interested and asking them questions, asking direct questions. They understood that I knew what I was asking about. I conveyed to them my confidence that I know what I'm doing, and so there was a whole new attitude. So then there was this particularly nice girl, I examined her, and she was so pleased, and she said, "Gracias, gracias, señor." And of course I don't know any Spanish, and so I say, "Okay, okay, okay." She's asking how's her prognosis, how's she doing. And so I said "She will be okay," and I did this [makes the American sign for "Okay": forefinger to thumb in a circle gesture, three fingers extended].

LW: Okay, and that's not all right. You're making a gesture like an American "okay." I'm just saying it for the tape. This is probably not a good sign in...

AS: [There was] dead silence.

LW: Oh, no.

AS: I knew something was wrong, but it didn't really occur to me. And this is a teenage girl. I said, "Dr. Eristosa, what went wrong?" He said, "I can't talk about it here. We have to go outside."

So I said, "Adios, bye-bye!" Silence. I said, "What happened?"

He said, "It is a whorehouse sign."

LW: Oh. I knew it was a vulgar gesture in many cultures, but I didn't know it was connected to that.

AS: Vulgar, of course. He said, "They were shocked, they didn't expect that from you. They thought you were a nice young doctor."

LW: You must have patched that up, though. You must have repaired that, because their impression of you remained positive.

AS: Eventually. It took a while. I continued trying, healing like I am mixture of Jesus Christ, a healer, God knows what else, and a magician. A person from whom too much is expected, and I'm supposed to deliver God knows what. But at the same time, there was also some satisfaction. On the whole it felt good. With Eristosa, we were working very, very late. We had a nice dinner, and he said, "You gotta get some rest." I said, "I agree," so I went to the hotel, satisfied. In the morning, he picks me up, I don't remember, in his car or an official vehicle, and we come to *El filtro*. He's sort of subdued. I thought, he's tired and didn't get enough sleep. We walk in, and from the doorman on, there is dead silence. Before that everyone would say, "Ah, Señor! Bienvenidos a Montevideo!" Dead silence. We come to the men's ward: dead silence. I go to examine patients; they would rather not be examined. So, it went on for a while. I went to the women's ward. Eristosa said, "I can't talk about it."

So after a while I said, "Jesus Christ, I can't take it anymore. Out. Let's get out. I want to go someplace where we can talk. You better explain to me what the hell is going on." He said, "All right. Your job is finished here." "What are you talking about?" He said, "Did you read this morning's papers?" I said, "Of course not. I don't read the papers. I don't understand Spanish. How can I read your morning newspaper? What did the newspaper say?" There is an article, in each one of the morning papers, there are two or three of them, showing that you are a salesman for the Drinker respirator company of America; you're not a physician. You're an imposter, sent by the State Department for propaganda purposes, and that you are basically a cheat, and a fraud."

LW: That's horrible.

AS: "And so you're finished." Nobody wants you here; you'd better leave. You know, I didn't know what to do, and finally, I don't remember exactly how, but I thought about it for a while, and I said, "I will not accept this. I cannot go back to the States with my tail between my legs saying, 'I was accused of this and that, and I can't fight it.' I'm going to fight it."

He says, "How are you going to fight it?"

I said, "Well, first of all, where did this come from? Who in the newspapers? Why?" He said, "I don't know." I said, "Look, something like that does not happen. Somebody does not want me here. It couldn't be the companies, because I'm accused of working for those who make the respirators. There's somebody. Who is it?" Anyways, I said, "You find out. I'm going back to work. You find out. You go to the Minister of Health. You go to the President's office, if necessary. You find out who made this happen during the

night and this morning. Who put these stories in the newspaper, that I'm an incompetent, commercial agent?" Well, he came back. He said, "We now know. We have a completely free system here, and all the parties are free. This is the Communist Party worldwide." He was from a very prominent, influential family, so he had access to everybody. He said, "You arrived yesterday; you got all this publicity. But then during the night, they spread the word that actually you're a fraud, you're part of American capitalist propaganda. The Communist Party of Uruguay made this release proving that you are a fraud."

LW: Strange.

AS: "And that you are a nobody, and that you are nothing. Not a medical doctor who's had experience in polio. And you're here just to sell more respirators." They were starting to buy European respirators.

LW: I see.

AS: And so they used that. And then because of the Drinker company and because the "American capitalist system" sent me, [they accused me]. I said, "I'm not going to accept that; I'll fight it," and they said "How?" I said, "I'll go back and work with patients." And so I went back and I worked with patients. Of course everything quieted down.

LW: So you stayed there for a week or so, or...?

AS: My assignment from NIH was two weeks. I stayed four months.

LW: Four months? Wow! You stayed through the outbreak, essentially.

AS: Yes. Then, before I left, I set up a laboratory. I ordered equipment; I set up a respirator center, really -- the way we set it up in the United States. Instead of just haphazard, it had trained personnel. I gave it to [my son] Alexis, it's on his wall in his office. I have several actually -- in Russian, it's called *gramota* -- an honorary certificate[, a commendation]. I have a [commendation] from the government of Uruguay and another one from the Medical Association and so on. They also gave me the title of "Gaucho Shelokov."

LW: Really? I didn't know that was actually an official title.

AS: Well, it's not really a title, but the point is -- it's like "our honorary cowboy," basically. It's a national symbol, the gaucho. And so I became a gaucho, and they gave me, and upstairs I have a dagger, and that dagger is a gaucho dagger.

LW: Oh my, so they gave you equipment to be a gaucho.

AS: Same one, you remember they had that drawing from South Capurro. And in back he has a special dagger which only gauchos use, and I have that same kind of a dagger with a silver portrait of a gaucho, and my initials, "A.S." and then the date. With Montevideo and the date, and they gave it to me. And many other things; they gave me a medal and something else: all in all, they gave me so much. Very, very expensive. The kind of watch I could never afford, engraved with the gratitude of the people of Uruguay. Wonderful time. But again, nothing could be done in two weeks.

LW: Yeah, it wasn't realistic.

AS: No. I had to stay all in all for four months.

LW: And you created a clinical respirator center and a diagnostic lab?

AS: That's right. I set up a laboratory, ordered supplies for them, talked to clinicians, because I did the polio diagnostic work at NIH.

LW: Exactly, so you did both, like you said.

AS: And I set up an epidemiology center. I set up an epidemiology center, in which then there were people I introduced. I ordered from the States books on epidemiology, textbooks of virology, so we gave them and showed them. After the first few days, I had a daily teaching session. Basically, I took my notes from everything I learned at Haynes during three years of epidemics, and then my work at NIH, and I would give to them: what's polio about, how do we take care [of patients], how do we operate respirators, and so on.

LW: So like a beginning course in all of the aspects.

AS: Yes, all aspects. And I taught it, and that of course took longer; and so we just continued doing it. And I set up a laboratory, and I set up an epidemiology survey -- just polio, so we find out where the cases come from. Basic epidemiology. [It was] a lot of fun for me, to provide a] useful service for them, and for that, they were grateful. And I was respected for the fact that I did not go to the warehouses or the cabarets. I worked.

LW: You really worked.

AS: And I worked because, number one, I wanted to, number two, it needed to be done, and number three, I wanted the people to think that somebody cares in the United States, and that I didn't come down there [to have a good time]. There was a famous beach, they called it *la playa*, "the Beach," a very famous beach on both sides in Uruguay, of Rio de la plata and the ocean. Apparently my predecessor spent his time on the beach. So, purposefully, I never went to the beach.

LW: You avoided all kinds of unseemly activity.



AS: I avoided every possible thing that the last guy [did]. Between us, that guy was thrown in an impossible situation. They got the wrong guy. And I think he was frightened. He was frightened that he'll get polio. He didn't want to bring polio to his family. He hung around for two weeks, had a good time, and got the hell out before he got sick. He did not know what to do. When Eristosa told me what he was doing, I realized he did not know what he was doing. He was a pediatrician, but had published a case of polio in his life.

LW: So then you came back to NIH and continued to do what you had been doing at the unit under Habel, because this was 1955.

AS: Yes, and what happened next... Yes, still summer of 1955, because it was that fall when something else happened. I got telegrams, cards, and all kinds of wonderful, deeply touching personal communications from Uruguay. And the reason was that I became desperately ill and almost died. And the reason was, by this time, I was starting to get information -- again, I hate, excuse me if I sound like I'm self-advertising. The point is, at this time I'd been at the NIH for five years. I'd been in all kinds of unusual situations, and I had been troubleshooting for NIH in different situations. Was I already with the Russians?

LW: No, because I wanted to ask you about that too.

AS: No, the Russians were the next thing. Because by that time, I *really* had a reputation as a troubleshooter.

In the meantime, I came back from Uruguay, and I get a call; Shannon calls me in. The only explanation as to why I was involved: I had to have top-secret clearance. And therefore they had given me top-secret clearance in preparation. The official [Soviet] delegation hadn't come, but there had been relations with the Embassy [of the Soviet Union]. And in order for me to talk to Soviet government officials, I had to have top secret clearance; otherwise they didn't trust you. You know what it involves: they go all over the country --

LW: Talk to everybody you know.

AS: -- talk to people you went to college with, your roommates, and then they all call me and say, "What did you do? I had the FBI here, and then the CIA called. What's going on? What are you trying to do? Are you in serious trouble?" Herb Rubin for instance. They grilled him about [all kinds of private information about me] and God knows what else. Anyway, I get a call, and it's Dr. Shannon. There was an outbreak of an undiagnosable disease in a secret CIA training camp. Did I tell you that?

LW: I don't think so, actually. I don't remember that.

AS: It's where we now know Camp David is, the presidential secret retreat, in the Catoctin Mountains. Roosevelt built it in the middle of a CIA training camp in World

War II, in the middle of it, because what can be safer than a CIA camp? In fact, Henry Kissinger, for example, was being trained there; Dulles was there. And they were a highly, highly armed group of people, who were learning how to shoot to kill across the table, or across the room, or across the firing range, and so on. They're training killers. Originally in wartime. And at the same time, it was a top secret installation. In which armed guards, radar systems -- and president's secret hideout was there, you see, in the middle of all this very secret activity. So, in order to get there, you had to have top-secret clearance.

LW: And there was some mysterious outbreak?

AS: Yes, so they called me in. They told me, "We've got an outbreak in the Catoctin Mountains, what the hell can they have?" "Oh, can't tell you. We don't know." Long story: a brief version. They take me there, they try to confuse me as to where it is so I wouldn't know. But we get there, and I find young men, my age or younger, living under filthy conditions in tents because they were being trained for hard times on the secret assignments. They were training them to be prepared for these hardships, living off the land and learning to eat roots.

LW: Right, this kind of Outward Bound type of thing. I mean, for the CIA.

AS: Absolutely. Exactly, it's very similar. Later I learned more about Outward Bound. My son went through Outward Bound. That's very much what they did, and then since they were doing it, I was doing it. So Outward Bound kind of program, and these guys were desperately ill. They were vomiting, they have diarrhea and they have terrible stiff necks and so on. Many of them also had chest pain. By this time, Huebner had investigated an outbreak of "devil's grip" disease someplace else. I think he isolated the virus in animals, and I isolated the virus in tissue culture. And it was one of the coxsackie group of viruses. And it was "devil's grip," or "epidemic pleurodynia." With an attack of painful, painful pleura [pain in the lining around the lungs]. And "devil's grip" because the pain is so severe that people, when they get an attack -- [gestures].

LW: So they grab their side like you're doing... with a grimace of pain.

AS: They grip it, because they feel like somebody is squeezing the life out of them. And "devil's grip" was the common name for it. And it's an old disease, and it has been known in the medical literature for a couple of hundred years as "devil's grip." And then Huebner, in fact, worked on it, and I don't think he coined the term, but he investigated it, and he published under the name of "epidemic pleurodynia." So I knew about it.

LW: And Edward Beeman was involved in this, too, right? Dr. Beeman?<sup>16</sup>

AS: I think so.

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<sup>16</sup> For Beeman's discussion of this investigation with Huebner, see Edward A. Beeman, *Robert J. Huebner, M.D.: A Virologist's Odyssey* (2005), 120-131.

So, I was pretty sure that it was epidemic pleurodynia, but I needed to find out which virus was it caused by and so on. I collected – I worked on and off probably for a couple of weeks. I went there a number of times. Not every day, because I had to process the specimens, put them in the animals, put them into tissue culture; prepare new tissue culture. I converted my whole operation to doing that and also to whatever it was my boss discussed. They had their research program, which was suffering, and they would say, “You always are interested in other things besides your work. You want to play.” Well, yes, I think it’s fun; yes, I am enjoying this. I enjoy fieldwork.

I think, I was there eight times -- maybe on my second visit, on a Sunday, I brought them [the specimens] to the lab. On Monday, I inoculated more, and so on.

I had lunch with Dr. Li in a Chinese restaurant, Pekin Restaurant, on Connecticut Avenue, and I said, “I don’t feel well.” I said it started a little bit yesterday, and Dr. Lee asked why. I said, “I think I picked up the virus I was investigating.” I couldn’t tell him about the CIA training ground. I said, “You know, I went off to investigate an outbreak in some mountains.” And that’s the symptoms they had. I’m starting to have the symptoms they had, starting to running a fever

On Thursday, I went to see Jack Hughes. By this time the Clinical Center was in full operation, and Jack Hughes was chief of Infectious Diseases. I said, “Jack, I picked up what probably is coxsackie B virus infection. The animals are coming down from something in tissue culture. I think I’ve isolated the agent.”

He examines me, and he says, “Alexis, you and I have known each other from Boston days. From what I gather, it’s a very dramatic situation in the Catoctin Mountains, and I think you’re getting hysterical.” I said, “Jack, I don’t think so.” And he said, “Alexis, tell Paula that I think you’ll be all right, not to worry.” But he said, “However, you claimed you have temperature. Just check your temperature, it’s nothing to be alarmed about.” I said, “Well it was raised.” He said, “I don’t doubt it. You’re in a very traumatic situation. I understand it. It can be excused that you are getting a little antsy. Not to worry.” He said, “I’ll tell you what, when your temperature reaches 103.5 or 104, you call me and I’ll admit you to the Clinical Center.” I’m furious, but I go.

[Afterward,] I go home. I collapse, basically, I’m in terrible pain. My wife says, “I’m going to call the Clinical Center.” I said, “Absolutely not. I forbid you to call the Clinical Center.” Of course, I was out of my head. “What do you mean you ‘forbid me’? I’m going to call...” “No, you’re not going to call the doctor. You’ll call the Clinical Center when I tell you to, and you give me a thermometer.” And I continued taking my temperature, and I started to keep a written record: “11:35. Temperature: 101.6. Twenty minutes later, etc.” -- the record was crazy. I was obviously out of my gourd.

Friday morning it continues. My wife finds me hitting my head against the wall. And she asked me what am I doing. I said, “I am trying to relieve the headache.” And she asked me, “What is it?” By this time, I’m out of my gourd. I said, “I don’t know.” What she recorded, she said, “You told me that you have pain in the back of your eyes as if you

have two red-hot poker pushed through your eyeballs and they meet in the middle of your head.” The interesting thing is, I put that into the description and people confirmed it.

LW: Really? Interesting.

AS: Yeah. It was basically a diagnostic sign of coxsackie B encephalomenengitis, or meningoencephalitis: I had both meningitis and encephalitis. Meningoencephalitis is the proper term, “not myelitis. Myelitis is the spinal cord. The spinal cord was not involved. Brain and its coverings. So I wouldn’t let my wife call Jack. (Jack Hughes, Ray Seltser, they all trained with Keefer. By this time, Ray was professor of Epidemiology at Johns Hopkins. He had been in Army intelligence, in Korea and served as an epidemic control officer, but also working for the intelligence. He came back, and they had assigned a daughter of the famous Bowditch family of Boston, who was the head of medical intelligence. She got pregnant and was having a baby, and there was therefore a vacancy, and so they asked him. He stepped in and became Chief of Medical Intelligence in the United States Army, with an office in the Navy Building, not the Pentagon. They had offices downtown.) Ray lived not too far away from us in Wheaton. We lived in Kensington at that time. At that time we did not live on the Navy grounds. We lived on the NIH grounds later on.) Ray came out, and made a diagnosis: of course, “call Jack Hughes.”

LW: So you finally let -- or you weren’t in the position to...

AS: No, I wouldn’t let my wife -- I insisted it be Ray. I didn’t trust Jack Hughes anymore. I thought Jack is incompetent. But he just couldn’t believe the severity; I probably did not present it right. But Ray immediately [understood], and by that time it was far more advanced. Ray just put me in the car, drove me over, and then put me directly on the critical list. I spent quite a bit of time at the Clinical Center, and eventually I recovered. But of course, I had collected specimens from myself before. When I came out, I came back and processed them all, and I proved that I had coxsackie B2, and it was the first [recorded] case of coxsackie B2. Then Eddie Beeman got a mild case of coxsackie B3, a very mild case unlike mine, because he was exposed to just a small dose. I immediately diagnosed him, and I worked him up. When I was in the Catocin Mountains, I was exposed undoubtedly to [a much more concentrated dose of the virus]. I didn’t want to appear to be a sissy among those guys. They had terrible hygienic conditions, so their hands were filthy and probably contaminated with stools. We were all smoking, and they would shake out packets of cigarettes, and say “Want a cigarette?” I didn’t have the guts to tell them that I was afraid. So I would smoke and drink from their vessels. Because these were tough guys.

LW: I understand. [laughs] To be taken seriously....

AS: I was chicken to tell them, “Well, you know, I’m sorry. I’m a doctor. I can’t do that. I can’t share.”

[break in audio]

LW: So Shannon came to you with the assignment of the [Soviet delegation at some point in 1956?].

AS: With the Russians: Professor Chumakov is coming here... You know Russian. Plus you know, you get along with all these strange people [laughter], so you do it!

LW: Okay.

AS: He did say, "Alexis, I want you to understand, we are asking you to do something as a scientist and as an NIH staffer and a Public Health Service officer. You are not in the intelligence service. We don't you expect you to spy on these people. We don't expect you to do anything you feel you shouldn't. We respect you, we expect you to act responsibly, but at the same time, under no circumstances to feel that you have things you shouldn't be doing, as an honorable person, and as a doctor and as a scientist.

LW: I see. That's good. Right? You felt that was a good message of support?

AS: Yeah, absolutely. Of course, the FBI and the CIA did not share those feelings, and they said, "Would you ask some questions?" And I said, "No."

LW: Right.

AS: Later on, when I went to Russia, again the same thing, they said -- FBI, CIA -- , "Will you do us a favor? We're interested in you meeting certain people." I said, "I'm sorry."

They wanted to me to do an assignment for them, and I said, "I'm sorry, you can't ask me." I said, "Long ago I made up my mind, and my mind has not changed, and the NIH and the Surgeon General support my position: I don't accept any assignments from anybody except the NIH and the Public Health Service. They tell me what my behavior is to be. It involves nothing to do with intelligence. So that, if I am arrested -- because I knew that probably my father has been shot and so on -- if the questions come up, and if they pick me out, because from their standpoint, I am a suspect, I am a very good candidate to hate the Soviet Union. If I am then arrested and put under a bright light and a few other things, that I can say without any hesitation, "I have been offered or asked, but I have refused. My government, my director, my commanding officer at the Public Health Service, Surgeon General, support my position. I have absolutely no assignment from any intelligence -- I know *nothing* about the interests of the United States intelligence services." And I maintained that, and a couple times I used it. I was never arrested or tortured or anything else, but I had to tell people [in the Soviet Union] -- there were several who said, "Well, you really do have [ties to the intelligence community]." And I said, "Absolutely not."

So, where were we?

LW: Just [talking] about that Soviet visit in 1956.

AS: Yes, then they asked me to go with Chumakov and Voroshilova. And again the conditions, Shannon made clear: I'm not expected to do anything dishonorable, I don't expect to behave in any other way. They, of course, as he told me later when we became very close friends, and in fact, their son, you know is at NIH.

LW: Yes, Konstantin [Chumakov, at FDA].

AS: He's a good friend, and I liked him, at one time I loved him, I thought he was just a wonderful child. Of course, now, he's a very good scientist, and he knows that I love his father, and loved his mother. We're very, very – we had very good relations when he first came to the States, he used to come over to see us in Columbia and so on.

LW: So, [the Soviet scientists] told you later what their impressions of you were in 1956.

AS: Oh, of course! The Soviet embassy undoubtedly told them that Shelokov is a CIA...-- probably working for both the FBI and the CIA. He's undoubtedly assigned to you. Be very careful; don't tell him anything, or in fact, tell him lies." That's one of the things they told them [the members of the 1956 Soviet delegation], "Feed him false information, and see how far [it travels]; whether you get it back again."

LW: Really?

AS: Yes.

LW: So were they then [feeding you such information] -- was some of the information, for instance, in that report [false]?<sup>17</sup>

AS: No.

LW: So they didn't do that [falsify what they told you, what became the contents of report].

AS: No, but they said that they tried me out. Lukin was very careful, because he probably had to protect his own tail. Lukin was careful, but they became these good friends, and they would tell me things.

LW: I see.

AS: And they point it, they took their chances. I mean, I could have been -- how do they know? And, for instance, I knew that Lukin does have an assignment [from the KGB].

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<sup>17</sup> Shelokov, Alexis, *The Visit of the Soviet Poliomyelitis Team to the United States (Jan. 18-Feb. 22, 1956)*. Typed manuscript; Bethesda, MD, National Institutes of Health, 1956.

Another interesting thing at that time: before I went [on the travels with the Soviet delegation], I realized that I had a right to demand help in that very difficult time. I surprised them that I had that kind of insistence, but I got absolutely firm, and I said, I guess probably to Shannon, "I will absolutely refuse to go and do this job for you as a host. I am a virologist, but I am not going to run around, get their tickets for them."

LW: Yes, you mentioned this on the phone, that you were not going to be the administrative person.

AS: "I'm not going to be the administrator. If you don't want to spend the money or the time, then don't count on me. I'm not going to do it."

LW: Yes.

AS: And they [NIH superiors] reacted [at first with some prevarication]. I said, "I'm sorry, I just won't do it. I'm not going to make telephone calls. I'm not going to arrange for railway tickets. I'm not going to get clearances on the airplanes. Get somebody who knows how to do it." And so they assigned one of the NIH administrators, and eventually we became very good friends. He was a very nice -- he's not a scientist, he was an administrator, a businessperson, but he knew how to do all of these things. He arranged travel, paid off people, he settled our bills. I think I was right. [I would have had] to run around -- we were paying their [the Soviet scientists'] expenses, much of it, some they paid. The point is, I refused to worry, "Who's paying what bill? Who's going to be responsible for getting the taxicabs?" And I'm very glad I did.

LW: It sounds like a good decision.

AS: In retrospect, especially. At that time, people thought I was little too forward or something.

LW: I see. That makes sense. So, they [the Soviet virologists] were coming to the US [in 1956] partly because the new Institute of Poliomyelitis was being formed in Moscow, partly because of outbreaks in Moscow -- I mean, this is all interrelated.

AS: The natural history of polio is: living conditions in the Soviet Union, finally, after the [Second World] War had really improved. (Actually, they were pretty good before the War, that's also true, people would not admit it, but actually things were picking up.) They really were living pretty well, and then the War came and wiped out everything. They were just almost to animal existence level, in some parts of Russia. And the public health structure was nonexistent. And then Stalin and his [government] created these [institutions], including the polio institute [the Institute of Poliomyelitis and Viral Encephalitides in Moscow], and I think the grippe [influenza] institute [Research Institute for Influenza and Influenza-like Diseases in Leningrad/St. Petersburg]. Originally they [the Soviets] had the Gamaleya Institute [of Epidemiology and Microbiology in Moscow] and the Ivanovsky Institute [of Virology in Moscow], they were already there.

LW: Yes.

AS: Then they established the Institute of Biological Control, or whatever they call it.

LW: The Tarasevich Institute [of Standardization and Control of Medical Biological Products in Moscow].

AS: “*Institut biologicheskikh preparatov*,” basically, the [Soviet version of what in the U.S. was called] D[ivision of] B[iological] S[tandards].

LW: Yes, exactly.

AS: They followed it, this pattern.

LW: But you’re saying this happened after or around 1955?

AS: I don’t remember.

LW: Okay, but they had all of these institutes.

AS: Yes.

LW: And then they also had [Anatolii Aleksandrovich] Smorodintsev’s institute, which was long lived?

AS: It was called “Grippe” [influenza].

LW: Oh, I thought he was from the Institute of Experimental Medicine.

AS: Originally.

LW: Oh, I see, but then he was at the [Institute of] Influenza?

AS: [Originally] Experimental Medicine, and then [the Institute of Influenza was created] for him, again --

LW: Okay.

AS: He [Smorodintsev] was a much smaller man than Chumakov. And if Chumakov got something, he wanted it too.

LW: I see. So, what were the impressions of them [the Soviet delegation] when they came? I mean, I know everyone held Chumakov in such high respect.

AS: But -- what do you mean? You already know the answer: that’s right. Everybody did.



LW: Yes.

AS: He was okay, he was a nice person, and Smorodintsev, again, people felt that he was a very competent neurologist, but a small man.

LW: I see.

AS: Chumakov gave you *that feeling*. Basically would say, “screw it! We’re going to do what’s right. People want an answer, they’re asking a question: answer it! Don’t screw around.” I mean, “It may not be pretty. We may have to say something that somebody’s not going to like in the headquarters, or in the Party, but give an answer.” He would tell that to his wife, himself and he’s say, “Well, I’m not proud of this, but I’m going tell you.”

LW: He was straight, you could tell: a straight talker.

AS: That’s right. And our people frequently weren’t. They were playing games.

LW: With the Soviets.

AS: With the Soviets, and I would try to explain the game without betraying any American secrets or without calling-- But I would say, “You know, when Syverton tells you this and that, well, you know, what he really means is --” [laughs]. I would help with these bridges. This is important to say: I did not need to do that with either Salk or Sabin. They both were completely open. And really made these people feel welcome, and those were the most important feelings. The other visits, to New York labs, to someplace else, to [Jerome] Syverton in Minnesota -- they were not very successful, because those people somehow didn’t know -- I don’t know. Maybe they were just too small themselves to extend [a welcome], maybe they were worried about political repercussions.

LW: Right.

AS: Maybe they were worried somebody will think they’re too nice to the Soviets. Who knows? I don’t know. But [those visits] were not very satisfactory.

LW: I see. They weren’t very open.

AS: Yes, they were not open, and the visits were not that satisfactory. They were all right. But at Salk’s lab at the Pittsburgh School of Medicine, they just rolled out the carpet, and completely opening to them. Any question they would answer. It was a complete scientific openness, the same with Sabin. Between the two, they loved Sabin, of course; you know that. They absolutely loved him.

LW: Well, I know that -- but at the time, it was '56, so at that point in the US, Salk's vaccine was out and working -- I mean, there had been the Cutter incident, but when they went home, I mean I know they took strains --

AS: They built a killed virus vaccine, too.

LW: Right, that's what I thought. That I guess is my point: when they went home, they said, "Okay, now we're going to ramp up [production of the] Salk [vaccine]."

AS: But they understood the Cutter incident.<sup>18</sup> Now, do you know what really happened at Cutter? I think I put it in one of the papers, but most people, even then -- do you know the real story of Cutter?

LW: Well, you told me a little bit on the phone one time, but maybe we should go over that first.

AS: Tell me what you understood.

LW: Well.

AS: I'll give you a condensed version, the review version. For the tape, what made the Cutter incident? I believe I know the answer, and that is: the original Salk field trial, and I think that he had something in the book which --

LW: Oshinsky?

AS: The *Polio* book, something about it, but I haven't read the book yet, so I can't tell you. I don't know what he is saying, but I'll tell you what I know. I know most of it for a fact, others -- reasonable conjecture, on the basis of facts available to me at the time, and my thoughts about it now, and I've thought about many, many times, and I've described it under different circumstances.

The field trials conducted by Jonas [Salk] with the originally killed virus vaccine were successful, no question about it. Do you know why he did it? And do you know why he was selected, why did Tommy Francis select Jonas? Number one, Jonas was his pupil, his protégé. Number two, Francis taught Jonas, who had a large contract with the United States Army to produce killed influenza virus vaccine. He said, "Why don't we do the same thing with polio? You have a contract, let's compete for a contract. We'll do the same thing, use exactly the methods you have."

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<sup>18</sup> Cutter Laboratories, in Berkeley, California, was one of several companies licensed to produce Salk's polio vaccine. Live virus was mistakenly contained in over 100,000 doses of the vaccine, exposing several thousand children to live polio virus and either directly or indirectly causing over 100 cases of paralytic poliomyelitis and at least 10 deaths. Cutter withdrew its vaccine from the market and an NIH investigation found nothing wrong with its methods of production. In civil lawsuits, Cutter was found liable. The details and background of the Cutter incident are well presented in David M. Oshinsky's *Polio: An American Story* (2005).

LW: Right. "You've already got the methods, let's just apply it to polio."

AS: "You know how do it, and you what the endpoints are, when it's safe. You know when the virus is killed. So let's do it." Salk was happy to do it. They applied; they got a multi-million dollar contract; he produced the vaccine, exactly the same method; they gave it to -- I no longer remember, there were several thousand children -- and nothing ever happened. The vaccine was perfectly safe.

Then, they submitted it for commercial production. All the manufacturers sent representatives -- in fact I know that, I met them, because I also went over the Salk's lab, and I also went to Michigan, and I knew exactly how they were doing it, the system. And I met with, not only with Jonas, but with his right hand, his left hand.

LW: [Julius] Youngner?

AS: Yes, Youngner, and the other guy was -- started with a B -- he was a retired Army officer Boteker or something.

AS: They used the same method, and everything was safe. But what was the change that Cutter [Laboratories] introduced? Cutter changed the process which everybody thought was perfectly fine. It was completely agreed by the polio committee, [by] everybody. Absolutely nobody expected any trouble. I haven't thought about it for years, and it's probably in the book. The point is: with everybody's agreement, Cutter changed the procedure.

I think I remember. There was an inactivation curve. And the inactivation curve seemed to flatten out. But they could not actually physically get the curve to zero. The virus seemed to disappear at a certain point, after so many days. and the line was like that, maybe slightly curved.

So they said, "If we prolong the curve to the Y-axis, it's going to cross." That *theoretically* is the safe point, however "to be on the safe side" -- I think it was eight days. "To be on the safe side, we'll *triple* it. Certainly that's safe." And everybody on the committee said, "Of course it's safe."

LW: And who was saying this?

AS: Everybody.

LW: No, but who was saying, "We'll do this." This was Salk saying this?

AS: Yes, but there was a committee of high-powered people [coming to an agreement about this].

LW: Okay, and everybody was agreeing.

AS: Everybody agreed. I was not high enough up the ladder to be on that committee.

LW: Right, but you were there as an NIH poliomyelitis unit representative.

AS: Yes. But this decision was made, and nobody -- not Karl Habel, or Joe Melnick, or Bernice Eddy -- nobody disagreed with that. They all agreed that that should do it.

If you prolong it for three periods, certainly that should do it.

LW: Right.

AS: Eventually we realized, in the aftermath [of the Cutter incident], that none of us, because we are not physical chemists, understood the simple principle, which every physical chemist knew. I first heard it given by a man named Caspar W. Hiatt. I was at the meeting when Caspar said, "God Almighty, don't you people understand what it is? You think that it [the inactivation curve] crossed the [axis and, by being equivalent to zero, eventually demonstrated the absolute absence of the virus]. It never does. It straightens out and [runs] parallel to the axis indefinitely. God knows for how long. There's a certain irreducible amount [of the virus] which -- And we said, "Can't be." It was all after this had happened. And he said, "If you would have asked me I would have told you that."

LW: And he's a physical chemist?

AS: Physical chemist. He was at Division of Biological Standards, in charge of the Laboratory of Physical Chemistry or something.

LW: I see, but nobody ever thought to ask...

AS: Nobody knew, nobody asked him. And he was -- again, he didn't give any thought, he had other things. You know, it's only when you're faced with it. "What happened?" Well, if you had asked a physical chemist: "Can this happen?," he would have said, "Yes." But the point is, nobody asked the question. Nobody thought that anything was going to happen, because Jonas -- who freely admitted at the same meeting -- didn't have the slightest idea that there's such a thing. Then again, Jonas or somebody said, "That's nonsense. How can it be?" And then Hiatt again explained. Hiatt said, "I've done work on this. What happens is, the inactivated virus particles change their electrostatic charge. When the virus is inactivated, the electrostatic charges on it change, and they clump. And when they clump, they clump around the one that has the charges of still not inactivated virus. So the reaction particles coat the remaining fuel-like particles, and prevent any further inactivation. There's an irreducible minimum; they have to be physically removed. You cannot inactivate them. And then if you take this slop, this mixture of this killed virus, some of which has live virus inside, and re-suspend it and do some other things with it, some of the particles are going to fall off, and you've got a live virus left. And that is going to propagate now, if you put it in the right system, such as a child's body]. You start with nothing, maybe a few particles, but you put in into a

completely susceptible system, such as an un-immunized child, and the virus is going to grow.” And nobody understood that. Nobody knew that.

LW: Was this a principle that is true of all killed-virus vaccines, or is it just polio virus?

AS: I don't know, number one. I could start guessing, but I don't know.

LW: Yeah, okay, I could try to figure it out.

AS: Okay, I can come up with a partial explanation because -- I'm not a physical chemist, I'm just a plain old doctor and virologist. I think the way it would work is -- let's take another example. Where did [Salk] get the system [and the methods]? That for years was flu and it always worked. But the point is: it's a different virus. Flu virus dies in your nostrils if you just didn't clean your nose out, and so on.

LW: Okay, a different virus with different characteristics.

AS: The paramyxoviruses died from dehydration. You can inactivate them by blowing on them. You can pass them under this lamp and you kill them. Not polio. Polio is a stool virus, and remains in stool in the ground for years, if necessary, protected by the stool and so on. The original way we used to classify it was: is it ether-resistant, or is it ether-susceptible? If you took a certain dose of the virus and mixed it with ether, what does ether do? Ether removes the coat and exposes the virus particle -- then [ether] kills. Well, polio's ether-resistant. Partially. But the point is: nobody understood the clumping [issue] until after it was too late. After it happened, then, of course, “that's obviously what happened.” But nobody thought of it -- at the same time, Caspar Hiatt knew all about polio vaccine, but didn't tell them “don't do that because there's going to be clumping.” So, that's the explanation. And Salk did not foresee, Francis did not foresee, Murray did not foresee, Hiatt did not foresee.

And why does it happen there, specifically, at Cutter? They changed the system, yes, that's the right answer. There were several manufacturers: there was Cutter, there was Wyeth, and there was -- the first paper that Henderson and I published together had all the manufacturers, and Bernice Eddy was mentioned there too. All the manufacturers are listed, who made it. Cutter was the most progressive of them all. More up to date. And so Cutter used the modern system, which Youngner developed, and which I further perfected -- namely, the monolayer cultures. The others -- Wyeth used both and then mixed the yield. All the other manufacturers did not know how to trypsinize, and how to grow this in immense flasks. They were growing it in Erlenmeyer flasks, by the original Anderson group method. And the concentration of virus in their vaccine was several logs lower, and that's the thing, which again, nobody understood. Then when you grow it in a superbly efficient system developed by Youngner and elaborated by me -- it's a beautiful system! They were the progressive ones. They spent money introducing that system, to trypsinize, to obtain flasks, to produce these incredible amounts -- millions and millions, billions of particles of live virus. And then they didn't know anything about clumping.

None of us knew. So the concentration of virus maybe was a thousand times more than other manufacturers.

LW: So the concentration of the left over live virus is going to be greater.

AS: But the point is, and then when they clumped -- the whole thing was a lethal recipe but nobody understood. Nobody knew. So Cutter was the most progressive, and they got wiped out, practically out of business altogether. And punished, and suits settled, millions of dollars worth of suits. And they were the ones who were trying to do the right thing. They took the most modern...

LW: Most efficient.

AS: ...most efficient, best: more virus, better vaccine. And they killed children. Wyeth killed some, and you will not find that in the literature. Because when I reported it, I was ordered to take it out. And Bernice Eddy had the data, and she was ordered by her chief, that it's "unpublishable information."

LW: And this was both you and Bernice Eddy who were doing testing on Wyeth lots?

AS: Yes, we were -- what happened was, again, nobody knows that. You might as well know it. Bill Workman came to me, asked to see me privately. We went somewhere for coffee off campus -- "off reservation," excuse me. [Laughs.] He said, "Bernice is very uneasy about the inactivation method. And she thinks that she doesn't believe that the virus is completely inactivated. We can't -- there may be questions about her technique, and she's the only one. I can't go to Congress or someplace else, or to the director of NIH, and say, 'Bernice says...'" And she was part of DBS -- not yet DBS; LBCL, Laboratory of Biologic Control -- and there was suspicion. She's a part [of this control institution], and manufacturers will immediately say, "Oh, sure, they're just trying to hang us."

LW: Right, one person...

AS: He said, "The only other person at NIH campus who does this work is you."

LW: Oh, that's why you were involved in this.

AS: "Can you do it unknown to anyone, not even to Karl Habel? Do it on the Q.T.? Call these specimens differently, call them stools -- whatever." So basically -- and I thought it was exciting as hell, and I was sure of course I was going to find they were negative.

LW: You were?

AS: And then we started turning up things. But that was a little too late, because things were also happening elsewhere.

LW: I see, so this is just in addition -- Cutter had already happened so this was...

AS: Cutter was happening, and then I have an explanation, but the point is, that doesn't help anybody. And Bernice also had [an explanation]. We were not really suppressed, but again people just said, you know, "Before you start talking about it, you better be sure." And then Cutter happens.

LW: And then it was sort of taken care of that way.

AS: And then, nobody... You're going to get a whistleblower who blows the whistle too late. And says "I knew, I knew, and we're going to do something." Or at least "I now know." [The response to such a person is going to be:] "Why didn't you know before?" Whatever. Anyway, the reason again for it again was that Cutter used a more efficient system, [producing] probably three logs more, a hundred thousand more virus particles per cubic milliliter...

[break in audio]

AS: ...based on a procedure which did not take into account clumping, and the covering of a live particle in a system which had a thousand times more virus. But the dose was so low, that the human organs of the kids could cope with it. But when you increase the three logs with a thousand times more virus, the leftover then was significant. Then you started to produce paralysis or deaths. And it really was not Cutter's fault.

LW: And I know you said no one expected it. But if you're talking about this kind of a serious issue, why wasn't this person Hiatt, who knew this other information about the polio virus and he was working for DBS, why wasn't he involved?

AS: Number one, I can't tell you. I don't know. I already have been quoting Hiatt on the basis on vague recollections, and also after it happened I don't know anymore.

LW: Okay, the indication is he wasn't consulted, and that's all. I understand.

AS: I just don't know. I mean, Hiatt was Hiatt and I was never inside his head. He told me after it all happened, after we became close friends, but at the time it happened, I was at that meeting at which this guy who I never met before in my life made these incredible statements. But again, he made them actually -- he did not test them before. He was a physical chemist who was doing some other things. I think he was doing basic studies of inactivation of viruses, but it was not related necessarily to the Cutter, or to the Wyeth or to anything else, you see. That is, saying that, "Well, why didn't he?" I think that's unfair, I think it's...

LW: Oh no, I wasn't blaming...

AS: I don't mean blaming, but people didn't...

LW: They just weren't thinking about this work in the same box as this work [on Cutter's vaccine production], it was not seen as related.

AS: It was different. There was research that he was doing, some basic research, on physical, conical properties of certain viruses under certain conditions. It had nothing to do with anything. And then all of a sudden it had to do with *everything*.

LW: I understand: it's only in hindsight that we see [the connections].

AS: Hindsight: so great, isn't it? And then he knows what happens, and all of us there were saying, just as you said: "Jesus Christ, if you knew..." Well, he didn't know! What he knew had nothing to do with it; he was not involved in that.

LW: I see, and people weren't brought together.

So, when Chumakov and Voroshilova et al. came, they must have known something about what had happened just six months before, and they must have had their own ideas. I mean Smorodintsev was the guy who had his own killed influenza. I guess, what were the conversations about any of this? Or was it literally just a fact-finding mission for them? I mean, did you have discussions with them?

AS: Again, I'm now not even sure of temporal relationships. Let's review. When did Cutter happen?

LW: I believe it was in fall 1955, or even summer?<sup>19</sup>

AS: The first report, I now know, I can place it exactly now. I was in Uruguay, in the spring and early summer, four months of 1955. I had a telegram from Habel telling me that he has to give a talk in Paris, and for me get the hell over. I was supposed to be gone for two weeks, and I've been gone for four months. And he's postponed his trips, because we were sharing -- I would pick up for him as chief of the laboratory. And he was also the world expert, or one of the world experts, on rabies, number one in the United States. Even Koprowski was second in rabies. Habel was the number one on rabies. And because I was his understudy, in essence, and his right hand, I could [be called upon to comment on] rabies too. So in Karl Habel's absence, all the rabies queries about: "a child was bit yesterday by a stray dog at the airport; the dog is not present, what should we do? We can't catch the dog. Should the child be given the vaccine?" -- I mean, you know it's crazy, 21 injections into the abdomen. "What is the risk? How do you want to do it?"

There was also one wonderful one -- Karl Habel and I were involved, in the sense that I was his understudy. That's worth repeating. That was long before -- this was in my early days at NIH. I get a call, Karl gets calls from all over the country about rabies. And listening to him, I was learning that many calls came in the lab rather than his office. So I learned how he was handling them. A call comes in: a woman was attacked -- I think it

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<sup>19</sup> It occurred in April 1955.



was in Washington DC -- by a dog, who had bitten her face and nose. And the question of the dog -- the dog probably had rabies. It attacked an innocent woman walking in -- whatever the park is in Washington -- Rock Creek -- with her family. Then the dog disappears. They can't find the dog. What's the chance [that she is exposed]? Well, Karl Habel says this, this, that, and he says, "Well, I'll do this..." -- I don't know; he made some very reasonable suggestions which would be criticized by nobody. Maybe, "partial treatment, and see how she does. And then if after so many days she doesn't develop" -- I think it was 11 days this, and 21 days that. "And if it doesn't [develop], then you can stop all these other painful injections, because it's past the incubation period, and so on."

Well, by the time I'm in the picture, all that had happened earlier. What I remember is: they call and said, whatever her name is, Mrs. Jones is refusing water inside her phobia -- she's refusing to drink water. And the doctor said it's impossible, because she was exposed to a dog attack one year ago, almost to the day, 12, 13 months. "Could she possibly...?" -- and Karl Habel said no. Well, anyway, she died. Karl Habel isolated the virus from her brain and spinal cord. And from her saliva. She had full blown clinical rabies, one year after a very mild exposure. That completely revolutionized the thinking, that particular incident. Because Karl Habel said, "Don't believe what they tell you, that the incubation cannot be [any longer than a certain minimum]. This is a proven case: one year and three days." The incubation period is -- God knows, and maybe longer, because it happens now when we thought it's longer possibly than three months.

LW: This completely opens it up.

AS: That's right, maybe two years, maybe 10 years... it was a really revolutionary thing. But why were we talking about this?

LW: Habel had asked you to return from Uruguay, because he was making those trips...

AS: Oh yes, because when he was out of town, the critical thing was not my work on the untypables; the critical thing was to cover for him, to be there when somebody called and says "Mrs. Jones has been bitten, what do we do?" By this time, I knew what Karl Habel would say. And I came back, and he tells me, and I said, "Yes, I'll be there." Everything is arranged, but he needs to wait until I come back. I arrive in New York (again, planes did not fly from Latin America to Washington; Washington's not important yet). I arrive in New York, I call the lab to tell the lab I'm here, and I ask to speak to Karl Habel. And our secretary says, "He's not here. He's at an outbreak." "How can that be?" Oh no, no. That's the whole point. "He's in California." "Why's he in California?" "Well, there's a Cutter laboratory..." "What Cutter laboratory? What's that got to do with anything?" Well, Cutter is hit.

LW: So he was out there investigating these cases that had come up.

AS: Yes, and then I said, "What am I supposed to do?" She said, "Well, his orders were that you take over and run the lab." And he did not come back for many, many weeks.

LW: So he was out there dealing with this whole situation.

AS: And he was a senior officer, and he was a four striper for many years. He was *the* number one neurologist, basically, at NIAID at that time. Huebner was younger. Habel was senior to Huebner. Huebner probably already had four stripes, but still was junior to Habel. Plus: epidemics -- once upon a time, Habel used to investigate them, but by this time he would not go on an epidemic, but for things like that -- but Huebner still would go out [routinely]...

LW: I see, so that was partly what we were talking about, to establish the chronology. So that was in the summer of 1955, you're saying. But I was just wondering, what were the conversations that you all had in January 1956 then, when the Soviets come? I guess my question is: is this just a fact-finding mission for them, or were there discussions? I mean, clearly, I know the race was on to find the polio vaccine, but there were thoughts -- killed [virus] vaccine, now there's Cutter, you've got Sabin, and Koprowski and Cox all doing live [virus] vaccine...

AS: All right, the point is again, exactly what you already said. Are you sure that on the first visit, not the second, that he [Chumakov] was already the director of the polio institute? I'm not sure of that. I think it may have still been at the Ivanovsky [institute of virology].

LW: Well, as far as I know -- but I mean it doesn't matter. It's your impressions. As far as I know, yes, it was being created in 1955.

AS: Where's that [report]?

LW: Here. We'll pause the tape.

[break in audio]

We're looking at the report, and we see yes, indeed, he was formerly at Ivanovsky Virology Institute, and has just been made director of a new institute of poliomyelitis.

AS: January 18, 1956 to February 22. So, he was made head in '55, undoubtedly. January '56. And it had to be '55.

LW: They're building the buildings now. The infrastructure's actually being put down, but he was made director of a new institute in late 1955. So what does that matter? I guess my question was about what discussions you were having. They were coming, my impression was in part this was a fact-finding mission for them.

AS: I don't understand what you mean by fact-finding. Let me tell you what I think. I think they were trying to understand the state of the art.

LW: That's what I mean by "fact finding."

AS: We were the leaders.

LW: "We know Salk, we know Sabin, let's go, let's look at their labs, let's learn from them."

AS: That's right, that's all it was.

LW: That's what I mean by fact finding.

AS: They came in, they went to the labs, and they said, "How do you do it, how do you inactivate? How do you do this? How do you do that?"

LW: But at the same time, the other part of my question is, they may be new to *polio* work, and the idea of creating a vaccine for *polio*, but they and their colleagues have been doing work on vaccines for virus diseases. So, do they not have any input on the fact -- or was this not even the issue? My impression was that there is some kind of issue: killed virus vaccine versus live attenuated virus vaccine, and what are the pros, what are the cons...

AS: Oh sure, there was -- I don't know if I can answer the question, but I can tell you this: many of us believed the future would be live [virus vaccines]. But nobody knew how to attenuate it for sure, and the point was, there was no attenuated poliomyelitis virus at that time. That took years.

LW: Okay, so the point was moot at that time; you weren't having any of these discussions.

AS: The only one who was pushing for live virus vaccines was Smorodintsev.

LW: He was?

AS: Yes. And nobody really believed him, that he really had a good working influenza virus vaccine that was live. If you notice, are we using live influenza virus [at that time]? No.

LW: No, and this is the thing I realized when I read [an article by] Maurice Hilleman: I didn't realize that the Soviets, and then I think he notes the Chinese, were the only ones in the world who were using live influenza vaccines. That just struck me as interesting.

AS: Well, they learned it from the Soviets of course.

LW: Right, that makes sense to me.

AS: At that time their [the People's Republic of China's] scientists all trained in Moscow.

LW: Right, that's what I assumed was the connection. But it struck me, I guess, this comment by Hilleman in a historical [article] written in the '90s or 2000 or something. In any case, my question is kind of moot. I mean, these weren't really the talks that were happening [in 1956]. The attitude was just: "Let's solve the problem of polio."

AS: No, the talks were even simpler than that. The talks were "How much formaldehyde do you put?" Everybody understood the principle. The point was: "Tell us how to do it safely."

LW: Okay.

AS: "How much virus do you expect to grow? What's the medium? What do you add? Do you add serum? If you add serum, whose serum? Can you use human serum? Can you use cat serum? Can you introduce these strange agents that you can't account for? How do you check for nonspecific degeneration? What are the contaminating -- ? How do you tell if they're there? Do you have a test? You mentioned that in passing -- what do you mean by this? How do you do this? How do you do that?" It's all "kitchen" questions. The principles we all understood. It's: how do you do it? How do you do it safely? Why do you think it's safe? How can I go back? If you remember, I believe Stalin was already dead, so whoever was in charge in the Kremlin...

LW: Well it was Khrushchev by this time, right? The Secret Speech was in 1956.

AS: Yeah, you're right. '56....<sup>20</sup>

AS: And now you remind me again -- you're a marvelous memory-shaker, because now I remember, I haven't thought of that for fifty years! We were in our last part of the trip. We were in New York City, and we may have just gone into the Rockefeller [Institute for Medical Research], and maybe we were going to the Metropolitan Museum of Art. We were in Times Square, and the word comes out that Khrushchev had just given his speech, accusing Stalin [of fostering a "cult of personality"]. We were in New York City, it was either January or February. We were in New York City, that I know. And it comes out -- *trrrrrrrrr!*

LW: On the [news ticker] screens --

AS: [That] Khrushchev has disclosed whatever. He [Chumakov] said, "What does it say?" I translate [the news into Russian]. He says, "Lies!" I said, "What do you mean, 'lies'?" He turns to Lukin and says, "Do you believe it?" He says, "No." And I said, "What do you mean?" He said, "It's your propaganda. You are manufacturing." He

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<sup>20</sup> Nikita Khrushchev's "Secret Speech" to the Twentieth Party Congress of the Communist Party of the Soviet Union was made on February 25, 1956. (Stalin's death occurred in March 1953.)

said, "This is terrible. How can you stoop so low as to try to" -- well, the kind of thing we're now being accused of in relation to torture, and so on...

LW: I see. And manufacturing stories in the Iraq war....

AS: Manufacturing. "How low can you Americans stoop? He [Khrushchev] wouldn't say anything like that."

LW: They really didn't believe -- I mean, it was unbelievable. And for them to be in the US when it happened would have probably [made it even more disorienting and difficult to believe].

AS: They said, "We don't believe it." And so they went to [the Soviet] Mission, I'm sure, right there in New York, and I guess he called the Embassy probably, and I was waiting outdoors someplace for them. I was waiting, and they came out, and said, "It really happened! We can't understand. We can't imagine Khrushchev making that speech. But we were told that yes, he did, and the Americans are not lying." So again, how different the times were. When a formal scientist from the Soviet Union can say that the American government is lying because they did not believe, they could not believe it.

And again, one of my favorite Soviet virologists -- goodness, I have so many memories that are just crowding each other, and the names are crowding each other. She traveled with us every time we were in the Soviet Union, and she was my closest friend, and I love her family. Her son eventually was killed in Vietnam -- no...

LW: Afghanistan?

AS: Afghanistan. The very first of the Soviet invasions. I guess it must have been Afghanistan. We were very good friends. She had two sons, and the oldest son was killed. She was notified at that time, and we never saw her on that trip again. How can I forget...

LW: Was there anything you can remember about her?

AS: Of course. I remember exactly what she looked like...

LW: And what institute?

AS: Yes, she was Chumakov's right hand. But she was chief of their political department. She was a superb clinician, absolutely superb. Leshchinskaia was her name.

LW: Okay, [Elena V.] Leshchinskaia.

AS: Leshchinskaia was a superb human being. Superb clinician. I've seen her work with patients like a magician. She was just incredibly competent. Diagnosis; in being able to relate to them, to make them feel that they are somebody and so on. Unlike tales

about Soviet medicine being cold and indifferent, and these superiors pushing people around. She was not like that, and I don't think very many were.

But Leshchinskaia told me on one of my subsequent visits, when we knew each other very well. We were in her house, sitting down having dinner together. And she said, "Do you know what happened at the time of Stalin's death? I broke down, and I sobbed and sobbed and sobbed.... What you've seen quoted?" She said, "[It was] exactly [like] that. [We said,] 'My God, what are we going to do now? How can we survive without his leadership? Without the guiding light of Stalin? We're nobodies. If Stalin is gone, Russia is gone.'"

LW: Right, people really did believe that? Reasonable people like Leshchinskaia?

AS: Yes, she said they all believed that. And they had been brainwashed, you see. And at this [later] time, of course, she knew all the other things. She said, "you know, you people with American propaganda machines claimed that the Soviet government was manufacturing these scenes of public hysteria: it was not [manufactured]," she said, "We all just started..."

LW: I see. It really was true.

AS: She said, "Of course, we couldn't believe it. Then we thought, 'Yes, but who killed him? Did Americans kill him? Did other people?' For instance, for a long time we believed it was Khrushchev and a gang; that there was a gang..."

LW: Right. This kind of a triumvirate afterwards that came to power.

AS: Yes, and there were rumors, and people were saying "How could it be?" His illness was concealed, people were not told about his high blood pressure.

LW: I see. So people really were not prepared at all for the death of their leader.

AS: They did not know. They didn't know much about him. Have you ever read Svetlana [Alliluyeva]'s books?

LW: [Stalin's] daughter? No.

AS: You should. It's interesting.

LW: Yes, I bet so.

AS: And not badly written.

LW: I'm wondering if we should move on to another topic.

[break in audio]

LW: Now we are talking again about the combination of lab research activity and field epidemiological investigation.

AS: Okay, let me give you [an overview] as briefly as I can, even as gabby as I'm getting. [One of] the [earliest] function[s] of the National Hygienic Laboratory was basically to examine products for safety and so on. Basically what eventually became [first the Laboratory of, and then the Division of] Biologics Control. That was the origin of the National Hygienic Lab. There was a terrible outbreak of botulism, I think it was.

LW: In an anti-diphtheria serum, or diphtheria antitoxin?<sup>21</sup>

AS: Yes, I think you're probably right. In nineteen-something; early. And they realized that they have no control [over the safety of these products]. Germany already had biologic control of some kind, and they didn't call it that; they called it something else. But Americans did not, and this terrible thing happened because nobody checked. Manufacturers made horse serum – oh, in fact, in Swiftwater, Pennsylvania, the original laboratory which became Connaught Laboratories and is now one of the world's [most renowned] labs still there. A brand-new skyscraper, as I understand, is being built. It's all on this site, when we were digging an extension to my laboratory at the Salk Institute [in its Swiftwater location], which was in a separate building, we found a cemetery of horses. Hundreds of horses, and this was from the beginning of Swiftwater's Pocono Biological Laboratories[, founded by Colonel Richard M. Slee in 1897]. Fairly recently -- 10 or 20 years ago, I knew that history. I dug it up. Nobody else would care, but I dug it up and I presented it at some kind of a local meeting. The history of where Connaught Laboratories started. [Col. Slee's Pocono Biological Laboratories provided vaccines used in] Cuba [during the Spanish-American] War -- that's interesting, but that's history, real history.

America attacks [Spanish garrisons in] Cuba, pretends -- you remember? -- the ship[, the USS *Maine*,] blowing up, you know about that...?

LW: I can't remember the details, but I know what you're talking about.

AS: The Cuban war, we attacked Cuba, because we wanted Cuban sugar or something else. It was a war [tied to United States businesses with investments in] Cuban sugar, and something else. Teddy Roosevelt's Rough Riders. It's all provocation. Never happened.

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<sup>21</sup> Because of the way it was derived in the early twentieth century, diphtheria antitoxin was extremely susceptible to contamination. In 1901, thirteen children in St. Louis died after receiving diphtheria antitoxin that was contaminated with tetanus spores. This incident led to the passage of the Biologics Control Act by the US Congress in 1902. The Act established standards for the production and safety of biological products such as serums and vaccines, and can be considered a major milestone in the history of food and drug regulation, and the eventual creation of the Food and Drug Administration, in the United States. See the FDA's "Significant Dates in U.S. Food and Drug Law History" (<http://www.fda.gov/AboutFDA/WhatWeDo/History/Milestones/default.htm>, accessed 2/20/2013) and the Office of NIH History's "Short History of the National Institutes of Health" (<http://history.nih.gov/exhibits/history/index.html>, accessed 2/20/2013)

We blew up the American ship in order to provoke -- Cuba keeps trying to convince us that they didn't do it, we don't want to hear it. We attack, we have some kind of [San Juan] hill which Teddy Roosevelt attacks with an American flag and has his Rough Riders and whatever. Purpose accomplished; okay. They wanted to protect the soldiers - - before the attack -- against tetanus, because it was a prevalent disease.

LW: Oh, I thought you were going to say yellow fever, that's funny, okay. It was tetanus.

AS: No, no, yellow fever vaccine was Max Theiler, much, much, much [later] -- there was no yellow fever vaccine until I was alive, in the 1930s.

LW: Yes, I realize that, but I guess I just got confused because I associated yellow fever with Cuba too for some reason. But the Rough Riders.

AS: Oh yes, of course. [Jesse William] Lazear and Walter Reed.

LW: Yes, Walter Reed himself. But again, it's not the vaccine, I guess.

AS: But it was really Lazear, a French-American, who inoculated himself and proved that it's a transmissible disease [and a mosquito-borne illness]. He inoculated himself and died, and he knew that he was going to die. Again, you know, it was crazy, but that's what they did.

LW: But that was something different. Okay, so [United States military leaders] wanted to protect [their troops] from tetanus...

AS: They wanted to protect them from tetanus, and so there was this old army medical colonel who had a big farm in the Pocono Mountains. At that time, I guess, he was retired, or maybe at least on inactive duty. He was back in his great estate in the Poconos, and he was a horseman, a cavalry man. He had lots of horses, and he was breeding horses. He had connections with important places in Washington. So, he says, "For a price" -- and as I understand it was a pretty good price -- "I will give you some horse serum that will protect [the troops]." Of course they didn't know about [the contamination issue] yet, [but they did know about what was called] "horse serum sickness," just an allergic reaction to horse serum was very common. But we did know about that. It was common, but not that common. Anyway, he inoculated a lot of horses, and then when they were dying they were buried there, and there were hundreds of skeletons there.

Then, you're right: the next thing was then in 1898. Then he was playing with other things, he had some kind of an antiserum -- some it was bunk, you know, popular things which didn't work out. But you're right, that's why you thought of it -- that is still the only place that produces yellow fever vaccine. It's produced at Swiftwater. All the other...



LW: Oh, but that's not the connection [I was making, actually]. Okay, I didn't realize that.

AS: They're still the only ones who produce it; they're Connaught now. The only ones. But it goes back 70 years, to the 1930s.

LW: We were talking about [Cuba and tetanus, and the history of biological production using horse serum] because you were talking a little bit about the history of PHS and investigations. So, essentially, you were continuing to fulfill that [investigatory] role when you looked at [an outbreak of poliomyelitis-like illness, termed epidemic neuromyasthenia, at] Chestnut Lodge [Hospital in Rockville, Maryland].<sup>22</sup>

AS: Yes, Karl Habel went out to investigate, and Armstrong went out to investigate... There was no CDC. The only Public Health Service officers, except the ones stationed in ports who were clinicians, who knew nothing [about this]. These were Hygienic Laboratory people, a handful of them: [Joseph] Goldberger investigated pellagra, which originally they thought was an infectious disease, and he proved [that it was not]; [Charles] Armstrong was there -- all these portraits [which hang at NIH]. Each one of them discovered something, usually infectious diseases, except pellagra.

[break in audio]

And this is why Karl Habel and [Hilary] Kropowski were closest of friends, trusted each other; they were like brothers. Very few people know, but they were. And I said, "Why?" He said, "Oh, we were the two who went out, were sent by our government, to an outbreak of yellow fever in Brazil," or someplace. He met Kropowski who was a stevedore.

LW: Oh, I read something about this! He was working in South America -- well, you just said that.

AS: He was a stevedore.

LW: Because I read about Edwin Lennette, I think, meeting him there too.

AS: That was Ed. You're right: Ed. And then Habel.

LW: Really?

AS: Yes, it was Lennette.

LW: So he was involved too.

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<sup>22</sup> See A. Shelokov, K. Habel, E. Verder, W. Welsh (1957), "Epidemic neuromyasthenia; an outbreak of poliomyelitislike illness in student nurses," *New England Journal of Medicine* 257 (8): 345-55.

AS: Yes. Ed Lennette discovered that this stevedore seemed to have an awful lot of information. He had more brains than most of the doctors who came in the delegation and knew medicine. And they discovered he was a Polish physician...

LW: So he was a physician, but he had escaped...

AS: Oh yes, he was. That's right, and he did all kinds of other things. He was, again, a real adventurer. He knew languages of all kinds. He could shift like this. And he used to, again, be like a magician at the medical meeting. Be at the medical meeting and then Hilary comes on, and it's like magic. He'll change voices, he'll change languages, he may come out in a different costume...

LW: Literally?

AS: Absolutely incredible. Because he was a superb musician.

LW: Oh, I do remember having read about that: a concert pianist.

AS: That's right, a concert pianist. I mean, a man of many, many [talents] -- languages...

LW: Again another renaissance man. Very talented.

AS: You know what the coolest thing was -- again, I haven't thought of that for years. When somebody asked me, what was he really like?" I said, are you familiar with -- it was an NPR series, and a British actor played a Russian who became the superspy of the world, and the guy who wrote Taylor...

LW: Oh, you're talking about Le Carré.

AS: Le Carré. Le Carré said that it was all copied from this guy's life. And I have his tapes, I'll tell you the name later, because I have all of his tapes. My wife and I loved him, and I did buy his tapes. They were an NPR series for a period of many, many months. And then Hollywood -- as so often happens -- he was a superb actor, with wonderful reputation in Australia and then in London. And then Hollywood brought him in for just a couple of total flops, and he disappeared.

LW: I see. So Kropowski was something like this guy. He was that kind of adventurer.

AS: An adventurer. He would play the piano; he was a womanizer; he spoke any kind of a language...

LW: So even though he wasn't a US PHS officer, it sounds to me like almost [he was embodying] the nature of public health servant work in those days, NIH work -- almost -- it was compatible with a kind of spirit of adventure.

AS: Yes, yes. Hygienic Laboratory; there was no CDC. Even when I came to NIH, still no CDC. Any one of us could get called out to an outbreak anywhere. The Loudon County outbreak came in as a call for Habel. Habel said, "Alexis, why don't you do it?" And I went in and did a good job. But first it was [Ted] Mattern, and then Mattern had something else, so they brought me on. See, every one of us in LID [the Laboratory of Infectious Diseases] was called. There was an outbreak, there's ship diarrhea, or something: one of us went. There's an outbreak of scarlet fever unexpectedly; there's a vaccine that went bad -- smallpox vaccination reaction: go investigate. It was an emergency service. But then -- and I think it was unfortunate. I loved it, and so did many of the younger officers. But the Habels -- not so much Armstrong, but Armstrong by that time was powerless. But, the Shannons, the Habels -- they hated that. By this time -- and I'm going to use some nasty language -- they fancied themselves basic scientists. They were doing some basic science, and they were looking down at this other function. And they considered that -- "We had to do it because no one else would." "But, God almighty, you know, trying to run a scientific life, you've got to go and swab some bottoms? Or stools?" -- and so on. You know, "I can do molecular biology. I can do genetics of viruses." And, you see, they were destroying -- and basically destroyed ... -- Alex Langmuir, remember that name?

LW: He's the CDC person?

AS: Yes. Alexander Langmuir, was at [Johns] Hopkins [University]. And NIH kept on refusing to investigate outbreaks, saying, "We're too busy." They were shirking their duty, basically. It was theirs; there was nobody else. There was no CDC [with responsibilities to investigate a broad range of disease outbreaks]. And Alex Langmuir started doing it, and I don't want to manufacture too many details, but he created the CDC [and the Epidemic Intelligence Service] with a couple of other people. And the reason was, there was a real need, because NIH won't do it! I was almost the only one, Ted Mattern and I, and one or two others. And then they made a physical chemist out of Ted. And he started doing some -- God knows what, some sonification of ions.

It didn't amount to anything eventually, but initially it was very promising. And more and more they wouldn't do it. Then they developed a Clinical Center, and then *those* guys wouldn't go anywhere. They wanted to take care of patients and publish papers.

LW: So the thrust of work really changed.

AS: There were a few people like myself, who actually considered this not just duties, but thought it was fun. I loved doing that work. I loved going in the field, I loved meeting people, I loved working with them, I loved solving field problems. When you solved the problem, it was fun! It was exciting, and it was important. You solved a problem which others could not solve, because of your background, because you could take it to your laboratory which were better than their laboratories. Or you had a John Vogel who could put it into cultures they never heard of, and would get the answer. And on and on. So again, I found it exciting and interesting, and I did the same thing for Panama.

LW: This is where I wanted to come next.

AS: And then the Karl Johnson thing -- whether it was in Paraguay or Uruguay, in Bolivia, in Costa Rica, we worked all over.

AS: Karl Johnson had the same...

LW: He had the same kind of almost "bug" of liking this fieldwork. So it was appropriate in that sense, that he take over [the NIH Middle America Research Unit in the Panama Canal Zone].

AS: Yes, absolutely. One thing also that you might not know that's very interesting, the relation of Karl to myself. When Shannon -- no, it was Smadel who first set it up. He called me into Shannon's office, and they talked to me and said, "We want to have you understand our position. We want you to assure us that you will carry this out and that your successors, whom you will have a chance to select, they will follow," and it was a wonderful principle, which Karl Johnson broke, and that was: "Alexis, we're sending you to Panama to create a new laboratory. We're giving you a three-year assignment. You can stay four years. You cannot stay five." Smadel said, "From my experience, it becomes a private preserve. I've seen that happen in Africa, with a South African group. It happened in Kuala Lumpur. The guy owns it, and then he makes sure that the people there have loyalty to him, and not to the laboratory, not to the government, not to the problems, not to the people where they're working. They have loyalty to this wonderful leader. They said, "We don't know what kind of leader -- you probably can do a good job. But we want a clear understanding. We'll set the date now. You can extend it by no more than X number of months, and then we'll pull the rug from under you."

LW: That's interesting. Yes, it seems like a true principle. It seems like it does turn out that way [with the tendency for a personal fiefdom to result].

AS: They gave me the examples: again Benenson in Kuala Lumpur, so and so in Tokyo, Buescher -- Ed[ward L.] Buescher, did you ever hear his name? A very important guy. He was the chief of virology at Walter Reed [Army Institute of Research].

LW: So another Walter Reed guy, Army guy. These are all examples from Smadel's Army labs around the world, you're saying.

AS: That's right.

LW: It's interesting --

AS: And then there was NAMERU 3 [Naval Medical Research Unit No. 3] with the Navy lab, which also produced some incredible work, and some incredible people. Above all Harry Hoogstraal. He was not a naval officer. He was a civilian who ran the

navy [medical research program in Egypt]. He refused to move, and eventually all the programs of NAMERU 3 rotated around him, everything. When he died, it collapsed.

LW: Tell me again, what was the acronym?

AS: NAMERU: Naval Medical Research Unit, 1, 2 and 3. NAMERU 3 was in Egypt; NAMERU 2, I think, was in Taiwan. All the others all died. NAMERU 3, because of Harry Hoogstraal, continued to be productive until his death. And some wonderful tropical medicine specialists were trained by Harry. Harry was a parasitologist, who worked in Mexico and Latin America for many years. Everybody in Latin America he knew him and respected him. Then he went to Africa. While in Mexico, he had -- in those days, we all had accidents, which we didn't cause. Our drivers killed us. Harry had three accidents, not just both legs, but both hips, pelvis was fractured at least twice, I think. And he could barely walk sometimes, in so much pain. And I remember waking up in Rostov-on-Don at 3 o'clock in the morning, and Harry is walking. I said, "Harry, for God's sake, we had a terrible day." He said, "I can't sleep, I'm in so much pain." I said, "Take something." He said, "Buddy, I'm taking morphine." He lived and died in horrible pain. But he was what we called a "pasha." He lived in Cairo in a house built especially for him, with his garden opening in the Pyramids. I was very good friends -- I was invited many, many years in succession. Finally he said, "Alexis, I'm very ill, I'm going to die, and you haven't come." I said, "I can't, I've got responsibilities. I've got family, I'm working here." By that time I was already in San Antonio or someplace else. And I never did get there. But everybody, including some of my people -- Karl [Johnson] went there. I sent all my people at his invitation, and everybody said, "God, he lives like a king." And he was first, and during the US-Egypt break -- total break in relations, it had to be in the 1950s or 60s -- I think it was in the 50s.

What I was told -- not by him, but by the State Department: Egypt asked for expulsion. And if the American ambassador and the American [diplomatic] staff does not leave, they will be physically thrown out of the country. They all left, some were arrested and deported because they were not moving fast enough, and their families were thrown out. There was only one American that was left, and that was Harry Hoogstraal, because Egypt said, "This is the one American who understands Egyptian people. The rest of you don't know what you're talking about." He spoke all the native dialects, and he lived like one of them, and they trusted him to a point then when all -- and that's not from Harry, that's from the State Department people who said "Yes, all of our relations" -- and Harry, by the way, is a very modest guy -- all these tales about him we had to drag out of somebody else. Harry would say, "Easy come, easy go." Whether it was money -- he'd spend money like water, on other people. And you'd say, "Harry, for God's sake." And he'd say, "Alexis, easy come, easy go. Give them a hundred dollars. What the hell's the difference. He wants that, goddamn, give it to him. I don't want to be bothered with it." And then he was not married, he was alone, but he had again -- he had obviously independent sources of income. He was obviously from a very rich family someplace. Who just traveled all his life, and had this incredible set-up in Egypt. They say he did more for Egyptian science than any person alive, ever. And he created their science academies, he brought in scientists for lectures. He loved Egypt, and he never was -- he

never lost his American loyalty or identity, but he loved Egypt. And as I say during the war, both sides trusted him so that all relations with the Egyptian government were through Harry.

LW: That's unbelievable. So what you're describing seems like a counter to what Smadel was arguing about leaving somebody in a place for longer than five years. That's the positive side: you can get somebody with that kind of influence...

AS: That was Navy, though, you see.

LW: Okay. Different situation.

AS: Yes, he was Navy. The point is: different principles. And different purposes. Harry was a fixture, plus he was a diplomat by this time, and everything else. His research was his hobby. He was not, again, a Shelokov or a Karl Johnson or somebody else, who's trying to solve problems and move on. He's not moving on anywhere! That was his country now. Yes, he was an American, but he was solving problems in parasitology for Egypt, and in the meantime revolutionizing some classification and so on. For instance, did you ever hear of [Evgenii Nikolaevich] Pavlovsky?

LW: No, I don't know who you mean.

AS: He created the science of [natural nidity of transmissible diseases] -- I sponsored, I insisted that his work be translated into English. It had tremendous impact. He was a physician, academician, and there is a Pavlovsky Institute in Moscow. He was a parasitologist, but more than that, he created the first understanding of the interdependence [of various species] in a different way from Darwin, because it was specifically medical. I'm sure I have his book someplace. But in a way it could be expressed in the simplest thing every child knows: big fleas have little fleas. The idea is that the whole world is a parasite. Everybody is a parasite. Everything is a parasite. Everybody is feeding off of something else. And you see this is different from Darwin. This is a specific [system] -- and they [the species and populations active within this system?] are insects, et cetera. He had this whole system of understanding of interdependence in [nature]. And at that [time], people really didn't think [much of the theory]. Harry [Hoogstraal] was among the people who brought this [into English-language research circles, and I helped have it published by the National Library of Medicine,<sup>23</sup> I'm pretty sure. It was NLM who published the translation, the first translation, and I think I have an acknowledgment someplace in the preface. And Harry had lots to do with it. And this was an understanding of this natural [set of relationships?] -- sort of like natural history but in a different way from what people [had used to explain it previously?] -- and it became part of the canon and everybody assumed that that was what had always been.

LW: It's just kind of a theory of interaction.

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<sup>23</sup> Possibly Hoogstraal, "Ticks in Relation to Human Diseases Caused by Rickettsia Species," *Annual Review of Entomology* (1967) 12, 377.

AS: Just a theory, just an observation, and an explanation of some natural events. The Soviets actually worshipped him. He was considered -- even Stalin fully respected him. He was a general by the way. He was from a good family, he was an officer at one time, and then the Soviets made him a general during the [Second World] War. He became, then, really the chief medical officer during [the war] -- because he was not just a naturalist, he was also a medical man, and a good organizer. He had a lot to do with the Soviet medical policies and practices during the war.

In that issue of *Stanford Medicine*, which my wife then gave photographs that I had collected from various trips [to the Soviet Union]. Unbeknownst to me, they selected some and published them. I knew nothing about it until the magazine came out. I came to a meeting at Stanford -- my fiftieth class reunion -- and they handed me this journal, and I'd never seen it, never knew anything about it.

LW: This profile of you in 1998? I was just getting it out, because I thought if there was a photograph here you could point to it, but... They're broken up, because they're on the middle of the page, of course.

AS: This is C. Karl Johnson, who went vaccinating; this is Henry Bye ...

LW: So he's on the left in the picture, second from the bottom.

AS: Yeah, this is Henry Bye, this is John Vogel ...

LW: John Vogel is next to him with dark hair.

AS: This is Colonel Tigert, from Fort Dietrich.

LW: And then of course, you.

AS: That's myself. This is from another photograph. This is a Czechoslovak physician whom Gajdusek tried to -- that's an interesting story. I cannot come up with his name. Gajdusek was Czechoslovakian, and he told this man, that if he can escape with his wife and child, [he'll help]. Do you remember the film, the song, with Julie Andrews singing it?

LW: Do you mean "The Sound of Music"?

AS: Yes, "The Sound of Music." If you remember how they came over, that's exactly what he did.

LW: Really? That scene of escape.

AS: The family went on a picnic, and there were guards all over the border who told them they would shoot. They'd shoot people who would try to cross the border on sight.

That's the Berlin border. But they were in Bratislava and there was the border. They went on a picnic, they went to collect flowers, it was all prearranged. They kept on walking, and bending and picking up flowers, and the guards...

LW: Just ignored it? Didn't think of anything?

AS: No, the guards watched them and paid no attention. They've got other things to do. These people had nothing. They didn't have a suitcase, they had picnic clothing on. So nothing, absolutely nothing. They had hidden passports someplace else, but that's all they had. And a little money. And they just kept walking, and by the time the guards realized that they were defecting, it was too late.

LW: And Gajdusek was there to pick them up?

AS: No, I don't think so. Gajdusek, I think had met them before. In fact, I met him also, I forgot that. I met him in Bratislava. But I did not know. I didn't have any idea of his life. Gajdusek was involved in telling him that somehow if they escaped he'll help. And then he did, and then he couldn't place them. And this man was a superb research virologist. But I brought him to DBS, gave him a job in my laboratory, and eventually he became one of the prime movers, became one of the senior.... His daughter who was a child originally, graduated. And she's in an important medical position in Bethesda.

LW: But you don't remember his name?

AS: It will come.

LW: And so these photographs, these are the other halves of them, I guess.

AS: I have the issue upstairs. Because this is Pavlovsky.

LW: Oh I see, that's the portrait up there at the top in the room.

AS: This is Telford Work.

LW: Standing above you all.

AS: Myself, Harry Hoogstraal.

LW: Hoogstraal, okay.

AS: One of the Russian scientists.

LW: In the lab coat.

AS: A Russian medical translator. And this is Telford Work.



LW: Standing above you. Ok, I guess maybe we should take a break for today. That's it for today.

[break in audio]

LW: This is the end of Side A on Tuesday, December 13<sup>th</sup>.

[break in audio]

LW: Okay, it's Wednesday, December 14, 2005, and it's again Lisa Walker and Alexis Shelokov, and we're continuing. I think the first thing today that I wanted to ask you about was: I found an interesting title. I wasn't yet able to get hold of the actual article. But you wrote an article with Nick [Nicola M.] Tauraso in 1967, called "Arboviruses: a problem in classification." Do you remember?

AS: I remember the paper, but...

LW: I'm just curious -- you don't remember much about it?

AS: I cannot right now put my finger on it. Did you have an abstract?

LW: No, there wasn't an abstract available on Pubmed unfortunately.

AS: Probably because it was a review type of article.

LW: Right.

AS: It was again, raising basically some philosophical questions.

LW: But I'm curious -- I know I mentioned to you earlier today, part of the problem for me is understanding -- I still need to learn a little about hemorrhagic fevers that you worked on in the 1960s, but clearly -- so these were tick-borne? No.

AS: Okay. Now everything comes back. The thing is, there was no classification of "arboviruses." People were just naming.

LW: But there was at least the idea of arthropod-borne viruses...?

AS: Oh yes, there was. And we were calling them arboviruses, whatever. The point was, Americans, and the Western medical literature, would just isolate another virus and give it a name, and then another one, and so on and so on. But there was no systematic classification of the agents, whether it was yellow fever, or dengue. They were just entities. And then I found the paper by [Mikhail Petrovich] Chumakov, in which he divided the arboviruses into tick-borne, mosquito-borne, and whatever else. And I guess zoonotic animal-borne, or something. And I was so impressed, I took it -- I was meeting with Chumakov sometime around that time. And then, I didn't reclassify, but I brought

his original thought, and his revolutionary idea of putting some sense into the nomenclature -- I brought it for the first time -- that was basically the review article.

LW: Okay, [you were] trying to introduce ideas that probably hadn't been thought about -- Americans hadn't read Chumakov's work...

AS: I was bringing in the Chumakov contribution. And of course, by that time Chumakov was getting old, and I was relatively young. I had fresh ideas, I was traveling all over the world, I talked to many other people, and I incorporated all of them and gave them credit for contributing newly to a further revision. A further reclassification, but it was based on Chumakov's classification. Again, there were mosquito-borne, tick-borne, and zoonotic fevers. All hemorrhagic fevers. But the point is, you could not just clump [together all] hemorrhagic fevers. They had absolutely nothing to do with each other.

LW: Yes, and maybe that's part of my confusion, is I still [don't understand fully the relationship between these different viruses and the pathologies they cause].

AS: By that time, we were starting to introduce in the States, we were introducing classification of Group A arboviruses, Group B, and Group C.

LW: And what was the distinction between each group in the US attempt at classifying?

AS: I think those were based really on the Rockefeller Foundation work of classifying by serologic relatedness. And they were classifying them not on the biological. But then, if you put the two of them together -- that's what I was doing: I was putting them together and saying, "look it so happens that the As and the Bs, the Bs and whatever..."

LW: Do they correspond in some fashion?

AS: More or less, yes. There was a correspondence.

LW: To the carrier, the vector?

AS: The vector, yes. And again, not completely. I have no idea what the good Lord intended. But we can at least try to decipher some of the sense in why things were developing that way. Or why were the mosquito-borne different from the tick-borne? And why was there another group which would directly transmit it from animal to animal, and animal to man...? It brought a system. And basically it continued that way. I haven't been following the most recent literature, but it was introduced and basically it remained that way, and Rockefeller and everybody...

LW: Adopted...

AS: ...modified, whatever, but basically that's how we started. We called them either mosquito-borne, tick-borne, and so on.

LW: It just strikes me that it's useful if there are serological distinctions. That's useful probably for testing, for diagnosis, for immunological studies...

AS: Absolutely. It also was Pavlovsky's kind of thing: you could relate them to what part of the world they were coming [from], because there were the tropical viruses -- well, everything overlaps, but at least you could put them into [categories]. Tick-borne [viruses] belong together, [etc.], and you could predict their behavior. That was the other thing. Because the biological properties of all tick-borne viruses, they cross over.

LW: Of course, because if you have a certain vector with certain kinds of generalizable behavior, [that will inform how the virus is transmitted].

AS: And the same thing with mosquito-borne.

LW: I see. And then the other thing -- beyond prediction, that's also useful for control purposes, of course? Okay.

AS: You could think of them as different entities: yellow fever in one part of the world, tick-borne encephalitis in Siberia, but they all had their reasons. Probably going back eons of time, when they were developing in a different species. And in their own way, they do not cross the border. You see, they remain -- a tick-borne virus stays tick-borne. They do not become -- at least in our lifetime, not in a short period of time -- they do not become mosquito-borne. Professor Chumakov, I have someplace a photograph of him a year or so, six months, before he came down with tick-borne encephalitis. He's this vigorous man, absolutely, he looks like a movie star. Handsome guy. And then of course, he got tick-borne encephalitis. I think I told you the story. I can't remember the exact details, but maybe, of the 17 members of the crew, 15 died. Something absolutely horrible.<sup>24</sup>

LW: Really, that many? I didn't know. I knew they were hit, but I didn't know...

AS: Oh yes, they were terribly hit, and of course they had no idea they were investigating an epidemic, of what they called tick-borne encephalitis. It was called, God knows what else -- it had some native names. I remember now, it was more than that: [Lev Aleksandrovich] Zilber was the number one man. Under him, he had three bright young guys. Smorodintsev, Chumakov, and there was a third one whose name I wrote down in my book.

LW: Solov'yov, maybe? Was it [Valentin Dmitrievich] Solov'yov?

AS: Could have been Solov'yov. Somebody like that. Three -- they were just youngsters. They went in and these -- три отряды [three {investigatory} squadrons] -- there will be some Russian words mixed in, but you understand. Они посылают три

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<sup>24</sup> One of the best English-language sources on the tick-borne encephalitis investigation in the Soviet Far East that is being discussed here is contained in Kisselev, Lev L., Gary I. Abelev, and Feodor Kissel'gov. "Lev Zilber, the Personality and the Scientist," *Advances in Cancer Research* 59 (1992): 1-40.

отряды. Зильбер был начальником всеми тремя. И три молодых вирусолога было назначены командирами этих отрядов. [They sent 3 squadrons, with Zilber heading all three. And three young virologists were named commanding officers for the three squadrons.]

They probably were more or less military, in the sense that they had soldiers with them, they were equipped, and also armed. Because they didn't know what they were getting into. Also it was a bad time, it had to be...

LW: It was the 1930s.

AS: It had to be, if not the late 1920s. It had to be -- I don't know right now. I can't remember. At one time I knew the exact dates. But it was a bad time in Soviet history.

LW: Yes, and you're right, because the military was very interested in this because the whole issue was, "we want the military posted in the Soviet Far East..."

AS: Yes, the military were interested, because they were trying to open up -- and the war with Japan was already on the horizon, and [it was] Siberia... They [the Soviets] were sending in lumberjacks, too, and they were dying like flies from tick-borne encephalitis, which of course was unknown. It was a curse.

LW: Right, because I read this stuff about Chumakov, and it was a forestry enterprise essentially -- state run, obviously -- forestry enterprise where they were based. At least Chumakov's squadron.

AS: And they had no idea of the vector. They knew nothing...

LW: They came in completely cold?

AS: Yes, people were dying, or they were paralyzed from head to foot. It was a devastating disease, completely unknown. They had no idea what it is, they had no idea how it occurred. So Zilber then assembles this group. They send them, and of the three [teams], Chumakov's group got hit, for whatever reason.

LW: Worse than the other two.

AS: Yes, and they had a lot of deaths, and he and some others were incapacitated, on the verge of death. He survived, probably because he was a very healthy specimen. And basically until the end, he was a fighter, to the very end. Have you ever seen a movie of him? I don't unfortunately -- I had someplace a movie of Chumakov. He was a big man, still sort of good looking, but of course total paralysis of the right arm. He was paralyzed from the neck down, originally. Bilateral -- total deafness. Not a sound...

LW: And this remained. Or, no, he was partially deaf later?

AS: Well, he was still very deaf. He wore the largest hearing aid I have ever seen in my life, anywhere. But he was totally deaf in both ears in normal circumstances. He had paralysis of the tongue, paralysis of the throat, paralysis of all four extremities originally, and he was, you know, just lying flat in bed, everybody else dying or dead.

LW: Yes, they thought he would too.

AS: Even when I met him, here's how he walked.

LW: Really, he really walked with that kind of stiffness in all of his limbs?

AS: Yes, like Frankenstein. He used to frighten children.

LW: Oh my, and he was aware of this?

AS: Of course he was.

LW: Well, I realize -- I mean, I had heard of course that he was that disabled by the disease, but --

AS: And his right hand -- there were times when I traveled with him, and through the years, when I helped him dress, when Marina Voroshilova[, his wife,] was not with him, I had to help him dress. Because he couldn't, he had *total* paralysis of the right arm. Here's a world famous scientist, and from the time he was 20, whatever it was, 25 years old -- by this time he's in his 60s, 50s and 60s -- and he has never had any use of his right arm.

LW: It's really amazing.

AS: I mean, it was like a rope. He couldn't have anything. He would do things like this. At first it bothered me emotionally...

LW: Yes, that would be difficult.

AS: Yes. And of course, there was no musculature, it was just the skin and the bone, and a little layer of fat, and that's all. And they specially designed for him, and built a commercially unavailable hearing aid. They built one for him, because again of his prestige, and because he was so much loved by people. People actually spent time designing, and it was a custom-built hearing aid. And when he was in the States, he asked me to help him, and privately we would go find hearing-aid places. And they couldn't do any better. They had store-bought devices -- he would try to substitute, but they were not as good as that hand-made device.

LW: This one that he wore around his neck.

AS: Yes. A handmade thing that he wore under his shirt.

And then, imagine, this guy going in and producing these wonderful children. I mean that was also his second or third wife.

LW: Is that right?

AS: Yes, Marina. I was shocked to find -- one time I met one of his sons, a prominent physician, also Chumakov.

LW: From his earlier marriage.

AS: That's right. Marina was his lab assistant at one time, you see. And then, his marriage fell through, because the woman couldn't cope with all of this business, and Marina started taking care of him.

LW: I see, I didn't know that.

AS: And that's where Marina became the love of his life.

LW: Okay, I see.

AS: A very romantic story, really. We would travel, and at that time there was a very strong, unreasonable hate of everything Soviet, everything Russian, in America. Fear and paranoia, and disgust with Stalin, disgust with the Soviets, disgust with Communism. And it was carried on a personal level. And people would say such things like, "I don't want to meet with a Commie!" And it would be a professor someplace saying, "Who do you think I am? I'm not going to meet with a Commie! Chumakov? What the hell do I have to tell him?!"

LW: And this was in 1956, or all through the 1950s and '60s? Maybe initially [when visits and exchanges first became possible between the US and the Soviet Union]?

AS: Yes, initially. Then the word spread, and people started to like them. Not everybody right away. One of the unsung heroes of arbovirology: Jordi Casals[-Ariet]. Jordi was a hero. Absolutely fantastic. He was one of the most intelligent -- clever, thorough -- of the Rockefeller [Institute] group. I thought the best of him out of all of them. I thought he was a better scientist, and a better man -- than Max Theiler, who got the Nobel Prize. And there were several other good people, and Telford [H.] Work was trained there, and of course Richard Shope was a colleague. And I liked Shope, but still... Shope was a good man, and his son was a good personal friend, Bob Shope. But none of them were in the same class of stature as scientists and human beings. He [Casals] was a wonderful human being, and it's one of those situations in which I would be willing, and maybe I have, [to] take personal risk in a situation to protect him from harm. Because I thought he was a remarkable individual.

LW: When did you first come to have contact with Jordi Casals, to work with him?

AS: When Smadel told me that I'm going to Panama [in the late 1950s]. After I went down there to serve, and when I come back, and they say, "well you're going to Panama," and I say, "I'm not going to Panama. Why should I give up everything I've built; why should I give up my shop; why should I give up my people? I'm not going to go." And they said something to the effect of, "You're a commissioned officer. We don't have to talk to you in this way."

Fifty years later I've never forgiven that kind of approach from people whom I trusted and whom I considered my idols scientifically. All of a sudden they tell me, "You don't have to like it or not like it. You're a commissioned officer." You see, after two years [of service in the US Public Health Service], I re-upped, and then -- I probably made a mistake, who knows, maybe not, but everything was affected in my life from then on -- I changed from the reserve -- I was "Senior Surgeon (R) [reserve force]," and I dropped the "R."

LW: Okay, no longer a reserve officer.

AS: I was a regular, commissioned officer. Therefore serving at the pleasure of the President and the Surgeon General. And you become a slave, in a sense, in those days.

LW: I understand -- you had more say when you were in the reserves.

AS: You could say no!

LW: I see. I didn't know that.

AS: You could say no. You can't say no when you're a regular corps officer.

LW: I see what you mean. That was why then you had no choice later, for Panama.

AS: That's right. They compel you and say you are going [without any choice]. And the only other choice is to resign your commission. And destroy your career.

LW: I see. But in preparation for going down to set up the Middle American Research Unit...?

AS: Yes, I said, "I know nothing about goddamned arbovirus," or whatever we called them in those days.

LW: And it was known that arboviruses were going to be a major issue: it's the Tropics.

AS: No, I knew nothing, I was [an expert on] respiratory [viruses], who had just discovered hemadsorption. No: polio, I was a polio expert, a clinical polio expert from my Boston days. I was a laboratory expert, I was an ECHOvirus expert. I spoke, I gave

talks about it. I was so busy I didn't have time to write papers. But I was well-recognized as an expert.

Then Dorland Davis gave me his unit, including Vogel. And I became a respiratory virus expert. And so I became an enteric- and respiratory virus specialist. I knew absolutely nothing about yellow fever, or anything else, and I couldn't care less. I had heard of hemorrhagic fevers when I was in China, but that's a whole other story. You know, that's when the Far Eastern hemorrhagic fever developed there. This is important, so I'll interrupt [myself and tell this story]. I'm one of the few people who knew what was going on, because I was there.

Under the Japanese, in the [19]30s, there were wars, which at the time, some of the – I was going to say “idiots,” but they are not idiots -- intelligent, well-informed people, who did not understand the situation, called them “pocket wars” I'll give you a personal example. The Chinese and Soviets fought on the Manchurian-Mongolian border. The losses were so high on the Japanese-Manchurian side, that on a certain day of the week, sometime in the middle of the week, the railroad lines going in that direction were closed, because they were evacuating dead and wounded Japanese soldiers. They were being killed and wounded by the thousands! I'm sure that the war that was going there was as bad as it is in Iraq is today.

Americans thought it was a border clash. I was in America, went back there during this, and came back. I went back to change my visa. This had to be '38. I come back, and the newspapers, and in the university -- they used to talk about this “pocket clash.” I said, “you people are crazy: it's a war! There are bombers bombing. There are people dying by the thousands.” They said, “Oh, Shelokov, you're exaggerating! What the hell do you know about it? Professor So-and-so...” I said, “Professor So-and-so hasn't been to China in twenty years! I was there last week! There is a war! People are dying, people are being killed!”

Eventually, we learned that, in fact, the Soviets used that as a rehearsal for the subsequent times. That's where they tested their bombing techniques. That's where the dive bombing was developed, and the two sides were applying modern warfare for the first time.

LW: And that's why there were so many casualties.

AS: That's right. There was a reason: the Soviets crossed the border, and so on and so forth. But the point is -- I'm not a military analyst, I don't remember all the details, but I remember that there was total misunderstanding. Including: there was a Colonel somebody who used to write a column in *The New York Times*, which was then reprinted nationally. He was *the* military expert from World War I. He gave a wonderful tutorial on the “insignificance,” or something (the words are mine, but this was the idea) -- the insignificance of these events in Manchuria. That no one should be paying any attention. And I was fuming and screaming, going around, and people said I was crazy. Who am I, this 18-year-old kid, saying that this military expert didn't know what the hell he was



talking about. But I was there, and I saw these trains. I saw the horror that the Japanese population felt about their losses. And how many people were being killed, at the delight of the Manchurians, who hated the Japanese. Seeing these trains come back with the dead and wounded, and so on.

There was total misunderstanding. It may be a personal and biased view, sure, but the point is: this is the reason for Pearl Harbor, total unpreparedness. That's why I think it's so profound, really. These so-called military experts did not understand that this was war! And that the Soviets had superbly trained troops.

LW: And they really underestimated.

AS: And the Japanese were beautifully prepared. They had no idea! In one article, maybe by the same guy, in the *San Francisco Chronicle* or *Examiner*, not too long before Pearl Harbor. There was already friction and so on. The reasoning is something like this: "We all know that the Soviet Army is worthless." That's the proposition. "And they are whipping the Japanese. Therefore we need not fear Japan. Because if the third-rate Soviet barbarians can beat the Imperial Japanese army, we have nothing to fear." And that was the position!

LW: That really was the assumption.

AS: And people, when I went to college, and the university, people would say "Who the hell do you think you are? I just read Colonel's article in the *Chronicle*, and he says 'Japs are nothing,' and you're saying Japs are a danger?"

It was a very interesting period, and there was a lot of emotional trauma for me. I felt misunderstood -- who am I, a teenager, being questioned, because how can I argue with the experts? And again, the experts were actually ignoramuses! It's not because they were stupid, of course they were not. They were uninformed.

LW: It makes me wonder, what was going on in American society -- they almost *wanted* not to [understand], probably for ideological reasons, they wanted to believe, for instance, that the Soviets were weak. And it all developed from there. They didn't want to understand.

AS: Right. And [that] the Japanese were nothing. Yes. But it sure changed on December 7th!

LW: But you started to talk about those years in China because of hemorrhagic fever -- did you want to say something more about what you'd seen?

AS: Yes, the Far Eastern hemorrhagic fever, which was the same one basically -- I think it was called zoonotic, rather than mosquito-borne/tick-borne. The Soviet and Chinese troops, during the clash at *something* hill -- it's a Mongolian name, a famous battle

between the Soviets and so on. The Japanese troops started to die from this horrible disease, and they were bleeding from every orifice. And they did not know that the Soviets, on the other side of the river, were dying from the same thing. They were trying to fight, but both sides were dying. The real casualties were from this terrible epidemic. And they had absolutely no idea what it might be.

So, at this point, it's long after the original Siberian expeditions [by Soviet epidemiologists, led by Zilber]. They took -- I don't think by this time Zilber, I think Zilber was in jail at that time. You know that Zilber was arrested?

LW: Of course, during... the early war years? He was arrested in '37.

AS: Yes, well, that's the time period we're talking about. These clashes on the border were in '37-38.

LW: Okay, I was not familiar enough with the chronology.

AS: So Zilber was out of the picture. And so they take -- I cannot tell you, but I'm sure that Chumakov was one of them, even though by this time he must have been already paralyzed. And I think Smorodintsev and probably Solov'yov. And this whole gang again is sent, and they find these people are dying. Smorodintsev at that time was a hemorrhagic fever expert. I don't think Chumakov gave [the disease they found] a name at that time. Smorodintsev called it "hemorrhagic nephroso-nephritis." Probably you ran across it, because I was using it in the American literature as one of the names, one of the synonyms. Nephroso-nephritis: they realized that the key lesion was, even though there were lesions on many organs, including the liver.

[break in audio]

AS: [Soviet investigators were] trying to understand the pathophysiology of that terrible disease. And so they named it "hemorrhagic nephroso-[nephritis]," which eventually I proposed that we drop, because I thought it was a misleading name. I remember, one of the journal editors called me and said, "Well, which name should we use in America?" Yes, that was my contribution. We talked, and I said, "Look, 'hemorrhagic nephroso-nephritis' is no good." "What should we call it?" "Well, Chumakov called it at one time 'hemorrhagic fever with renal syndrome.' HFRS. I said, 'that's a much better name, because it's not 'hemorrhagic nephroso-nephritis.' It's not just the kidney."

LW: I see. That's too limited.

AS: It's hemorrhagic fever, like yellow fever, like all these fevers in Africa, and all over the world. But it specifically involves the kidney in a very specific diagnostic way, which is the renal syndrome of hemorrhagic fever and that sets it apart. It's better than "hemorrhagic nephroso-nephritis." [I said to the journal editor,] "The synonym can be 'hemorrhagic nephroso-nephritis,' but for American use, let's introduce the term 'hemorrhagic fever with renal syndrome,' which is Chumakov's." And they said, "Is it

because you like Chumakov better than you like Smorodintsev?" And I said, "Maybe, but I don't think so. I think it's just a better name."

LW: But both names were based on the clinical symptomology or the clinical pathology.

AS: Yes. But the other thing, which I didn't finish: the interesting point was, the Soviets thought that the Japanese were using biologic warfare. The Japanese thought that the Soviets were using it. And that's in the literature. That's in writing on both sides, when you look for it. I cited somewhere those references. They both thought -- and Chumakov and others all been admitted that that's true. I organized the meetings, including a meeting in San Antonio, to meet hemorrhagic fever specialists. I can't remember the exact year, but it had to be during the same time when the book was published, so it had to be in the '60s.

LW: Did you make reference there to the fact that, in the '30s, both sides had thought that it was biological warfare that was causing the hemorrhaging?

AS: Along those lines. I had a side thought that I thought might be interesting. But let's get back to the main theme.

LW: Okay. Well, I don't know that we have a main theme, but I was wondering whether you have a comment -- whether anything is striking when you compare the way the US Public Health Service worked in the 1950s and '60s, and the way that your peers in the Soviet Union worked. I was thinking that on the Soviet side, obviously you have all kinds of different institutions, but you're going to have some similarities in the way that physicians and investigators work, but you're going to have a lot of differences, too. For instance, the way that Zilber and Chumakov's teams went out on this expedition to the Far East to investigate tick-borne encephalitis in the 1930s. I notice some similarities there to what I've read about Dr. Huebner going out to investigate Q fever, but there are obviously differences as well. I'm just wondering if you have any comment on that.

AS: I don't know. All I can say is that what you are talking about is a period in this country before the CDC was formed. The Public Health Service had the responsibility for looking into outbreaks. Somebody had to go and look and evaluate and tell the government -- and tell the local authorities, which would sometimes be hysterical -- what's going on. And you had to hold hands and tell people not to worry; "it will pass. It's not a God-sent catastrophe." That's what the Public Health Service was doing.

LW: But in the Soviet Union, it wasn't like a Public Health Service, or there wasn't any CDC. There was never any creation of a CDC. And neither research nor investigation functions were centralized in any institution, any Soviet version of the NIH, either. I guess it just happened to be that Zilber was somebody that could perform this work, and he was the main guy.

AS: Yes and no. In a sense: they all were working either at the Ivanovskii [Institute of Virology] or at Gamaleya [Institute of Epidemiology and Microbiology].

LW: Okay. Soviet authorities knew that if they had something unknown and if they had a hint that it was a virus disease, then they called Zilber I guess.

AS: Yes.

LW: Okay. I mean it's just an interesting issue to me, to consider the two in comparison. The next question -- you have talked about a lot of the unfortunate business at DBS, but I wonder if there's anything to discuss about the work that was published while you were there. A lot of things I have noticed in your publication list that I haven't had access to yet, but just judging from the topics that you published with Nick Tauraso, I'm interested to know more about them. For instance, immunofluorescence studies, this was with [Calvin G.] Aulisio. I don't know who that was.

AS: He was originally a technician that I inherited from somebody. May I deviate again, and tell you a philosophical observation, but a very important one.

If a person, with some incredible exceptions -- a John Vogel or somebody like that -- accepts a position as a technician -- if he remains; if the person's psychological makeup is such that after my putting him in the position of being somebody's technician, he likes it, loves it, and even though opportunities come up for advancement and for change, he does not want to take them, because he is comfortable. That person, 10 or 15 years later, psychologically and otherwise is a professional technician. Which one came first? Is that how he started?

There were many other such people who made basically the same mistake. But they worked. They come and say, I have been your technician, but I now know what's going on, and I've been going to American University at night, or Catholic University, and at one time, George Washington [University], which would give degrees in absentia. People who would work as technicians at NIH.

And Smadel was one of the people who sponsored a lot of those people. What I'm trying to say is, they really were not by their psychological makeup and by their emotional needs, people who churned things or started problems. They were comfortable using the same things over and over, and they did perfectly good work, but they were never -- what's the term? They were never starters; they did not come up with revolutionary ideas to change science. Or to question the evidence and say, "Now, I know this is what I saw or heard, and I know that's what I'm supposed to teach, but I don't know if I believe it! Because this hypothesis, this theory, this canon that I'm supposed to teach my medical students, actually, I'm uncomfortable with it." "What if?": that's the question. "What if this or that? What if, just because Max Theiler or Alexis Shelokov says it's so, is it really so?"

The other kind is: they have taken all the courses, they've gotten good grades, they have straight As, but they're willing to accept what the oracle in the lecture hall gives them. And when you say, "Wait a minute, let's question this," they become uncomfortable.

I've had that happen. People would say to me, "Why do you want to cause trouble?" "I'm not causing trouble." "Yeah, but I don't want to do that kind of work. We're doing fine work, leave me alone." You see? "I don't want to be part of that."

Tauraso was just the opposite. He wanted to start trouble, if you wish; he was never satisfied with the answers, unless... The hypothesis serves a purpose, but it does not become the testament. For some people, a hypothesis, a theory becomes what they teach, what they preach. They believe in it. Another aspect of this is: question your evidence. Whatever the thing said, question it. Don't believe anything you hear, because it was all said by another colleague, or by you, merely to explain the world around you. You don't know the answers. You do not have your finger up there, touching God.

LW: So it's critical thinking.

AS: Yes. This is what I have always felt separated the person who -- even after you helped him get the PhD in experimental science -- fundamentally was very useful, but he remained a super-technician.

LW: I understand your point.

AS: You see, not a Huebner. Huebner believed nothing. Here is another story, maybe it's a good one to record. I'm already gone [from NIH], I'm someplace else. I don't know where I was. I arrive at the airport, find the plane, find Huebner sitting somewhere. So we ask to be changed, to sit together. We sit, and I haven't seen Huebner for several years. We have a drink, and he starts talking, and I sit there, and I can't believe what I'm hearing, because it's fresh. I never heard anything like that. And he's just chatting about something that I just told him about. He just said -- "What if, what if?" This is hot stuff. I wish I had a recorder. I can't remember it, and these ideas are pouring out of him, just questions. He says "What if this, this and that?" In that particular instance, I couldn't write it down, because the memory just came up like a flash. I don't remember what it was. But whatever it was, I later realized he got off the plane and he went in and he revolutionized virology. And he was just sitting there slinging bull.

LW: Just coming up with new ideas, trying things out.

AS: No, he was not coming up with ideas: he was just chatting over a drink to pass the time! And you know what my function was? My role and contribution to that brilliant idea which then developed into a major research project at NIH; my contribution was that I was asking questions, saying, "Well, Bob, I don't understand." And he said, "I don't know, but what if...this or that?" "Gee, that's brilliant, you know. I never heard anybody say that." Well, I mean, you know, that is genius.

LW: Interesting. And that's the kind of thinking that very few of us have.

AS: Very few. Maybe occasionally I touched that spark.

LW: We can only hope.

AS: He had these sparks and he threw them off. They meant nothing to him -- In a way. There were times when he would grab an idea and run with it, and sometimes he made terrible mistakes. But you see what I'm saying is again, that is the opposite of the type of person I was describing before: the super-technician.

LW: I understand.

AS: A person like that never had an original thought, really. This type of person really is comfortable if you tell him what to do. He does marvelous work, beautiful work, but then he says, "Well...now what should I do? I can do this, I can do that?" "No, you shouldn't do this or that, because your old data showed this is what you should be doing next." I could do it, but Huebner, see, it's like that. He is different. Believe me I obviously have great respect for Bob Chanock, but Bob doesn't have that. I don't have that.

LW: Well, it's rare, -- it's not an insult to say you don't have this rare...

AS: But that's been one of my biggest mistakes in life, probably was that Huebner liked something about me, and I was being sent to Panama, and they were giving me a farewell party and they probably even served wine or something in those days. I doubt they allow alcoholic beverages on the campus now. At that time it was allowed. There was a big party in Building 7, my farewell party, when I finally was forced to go to Panama. And Bob comes along and says, "Alexis, why don't you just tell them to shove it? You shouldn't have taken that, because they're going to use you and work you like a mule. You should have stayed with me. Bob Chanock is here now. Join my team. Tell them to go to hell. I'll support you. Stay here, unless you put some things on fire." And I thought it was one of the greatest compliments I've ever had in my life, and it comes from Huebner. If it would come from Habel or from Smadel -- [that would have been different]. I think that always so many people hated his guts.

LW: Huebner's?

AS: Yes. A lot of people did.

LW: Oh, really?

AS: He was too bright. He challenged [things].

LW: I can understand that. I just haven't heard that side of it. I've only heard the admiration.

AS: Well, of course.

LW: There was a lot of that, too.

AS: Yes, when he was alive --

LW: I see. Things change in retrospect.

AS: But why did he -- I don't know all the dirt, but think of it this way. Here he was, probably one of the few true geniuses in our Institute [of Allergy and Infectious Disease] who then goes [into] cancer [research at the Cancer Institute].<sup>25</sup>

LW: Yes, this is a *really* curious thing to me.

AS: Why? I asked him, but he wouldn't tell me.

LW: Really? I mean sometimes you can't put it into...

AS: Well, no. I mean there was something there, there had to be.

LW: There really was something underneath it? Oh, I see.

AS: He just challenged a little too much. They wanted him to do something and he --

LW: And that was why he switched?

AS: Yes. I don't know, but I was shocked when I found out that Bob left the institute and went to the Cancer Institute, I was shocked. And again, he left his own people, he left Wally [Rowe], he left Bob Chanock. They stayed at the Institute, because they couldn't afford it.

LW: But Wally Rowe changed to NCI, too right? He had been at NIAID and Huebner and Rowe did kind of gradually, even at NIAID get into cancer virology. That's what's interesting to me, although there may be more underneath it.

AS: That's right. I think you're absolutely right, cancer virology... There was a guy who was an Assistant Surgeon General, very important, who used to be a big NIH chief of some kind. He and Huebner had some big fights, and I can't go any farther than that. I can't remember. I haven't thought of that man for years, I can't even remember his name. In those days, there were very few Assistant Surgeon Generals. Now, you know, they're a dime a dozen.

LW: Really?

AS: Well, in those days, you had probably three Assistant Surgeon Generals...

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<sup>25</sup> Robert Huebner's collaboration with colleagues at the National Cancer Institute in the burgeoning field of viral oncology, and the process of his formal transfer to NCI over the course of the 1960s, is discussed in Chapter 15 of Edward A. Beeman, *Robert J. Huebner, M.D.: A Virologist's Odyssey* (2005).

LW: I see, so it was really an indicator of your power.

AS: That's right. One of my favorite Surgeon Generals, a man I really liked and admired, he was an NIHer. He was doing research in the Heart Institute. Then he came in and he was the Surgeon General who had the guts to come out and say that smoking causes cancer and it's going to kill you. Oh, God, that provoked controversy at the time. The tobacco companies went out of their mind. He was vilified.

LW: Who was it? Wait, it wasn't C. Everett Koop, he wasn't at NIH.

AS: No.

LW: I know. That connection doesn't make sense.

AS: Koop was courageous but you know he was not from NIH.

LW: That's what I thought. The connection with smoking brought his name into my head.

AS: No, this was way before him.

LW: Okay, I'm confused.

AS: He was the one who had a big encounter, of course all we need to do later is look up the list of Surgeon Generals, and I'll tell you immediately who it was. It's unusual for me, but all these memories have been packed and they're pouring in, and I have trouble sorting them as we go. I can't remember where they fit into the chronology of things that we should talk about.

This man testified before Congress, and I'll never forget how hurt he was. We had a drink someplace, probably on the campus at that time, and we got together I think at the Navy. He sat down, and he was terribly hurt, He was testifying on the Hill, it could have been even McCarthy who was questioning him -- it was one of the really aggressive, nasty bastards in a powerful position in the government at the time. Had to be the 1960s I guess. And he said, "Well, sir," that part I remember pretty clearly, "Well sir, on the one hand," he was asking, "What is the evidence blah, blah, blah?" He said it was a controversial issue, a very difficult problem, hard to explain to lay people, so the Surgeon General says, "Well, sir, on the one hand, this and that, and on the other hand..." That's the way he described it to me. And the Senator said, "Jesus Christ! I'm so sick and tired of this kind of evading the question, evading the answers to simple, important questions. You know, one of these days, I hope we'll get a one-handed Surgeon General." And I've never forgotten that remark. How it must have hurt him! It was in public, with a hall packed with people and this distinguished American physician, and the Surgeon General of the United States, is being told publicly that basically "Oh, you stupid ass, I'm so tired of these people -- what we need is one-handed Surgeon General, who could not always give you two answers to a simple question which requires a simple answer!"



LW: Yes, that must have been difficult.

AS: The man was so hurt. I think he left the service soon after that, because it was a terrible blow -- and to his family. He had lovely young children, and they heard this all over Washington. That "a one-handed Surgeon General" would be preferable to "this jerk."

LW: Congress just wanted a simple answer.

AS: Yes.

LW: Where were we? I asking you about some of the things that you were writing when you were at the Division of Biological Standards (DBS). Just to understand a little bit about the work that you did do on control of vaccines. And these were like, for instance, immunoflorescence studies which I think I understand would be to detect antibodies ...?

AS: Remind me again which particular issue that was.

LW: Okay, let me read off. We've got -- well, first, 1968, "Yellow Fever Vaccine," Tauraso is the lead author, "Development of a Vaccine Seed Free From Contaminating Avian Leukosis Viruses."

AS: Yes, you see, this paper came out in publication after I already had left NIH. So therefore Nick put it together.

This is an issue which was very traumatic, and got Nick into some problems with that, because of that publication. We challenged another one of the dogmas of that time from DBS, because...read the article's title, please.

LW: It's yellow fever vaccine, one of apparently other articles -- there's a roman numeral one -- I haven't actually seen the rest in the series. "Development of a Vaccine Seed From Contaminating Avian Leukosis Viruses." Published in the Proc Soc [*Proceedings of the Society for Experimental Biology and Medicine*].

AS: I'm trying to recollect. That was a very controversial issue. It was rough on me, rough on Nick, because we challenged one of the canons. That was the clash Ruth Kirschstein. Nick Tauraso got into a fight, and I of course took Nick's side, because it was our work. And Ruth Kirschstein, who was chief pathologist at DBS, challenged that. The article produced a lot of controversy, because at that time, we didn't know what the avian leukosis virus might be doing. We found contamination, which had been missed by DBS, generally. And some people would like to have that information not published.

LW: Of course.

AS: And we published. We said earlier, “We are doing the work, even though it was suggested to us that maybe it would be better for everybody if we didn’t do it.” And somehow, that’s what originally spoiled the relations between me and Ruth Kirschstein. We were very good friends, and as I’ve told you, she’s the one who first recruited me for DBS. At that time I said I didn’t want to go, and she was the first one, “Alexis, we really need you, somebody like that -- you’re bringing fresh blood.” And then, because of other factors, it became attractive. But she was the first one who even thought the worm of an idea that I might be joining the DBS control group.

I have not talked or thought about him for so many years, I cannot come out with much more than that. It was a perfectly good study, confirmed by others eventually. I have nothing to be ashamed of. It was not a mistake. But it was not a welcome publication.

LW: I understand.

AS: By that time, yellow fever vaccine production had been taken over -- originally it was done at the Rockefeller Institute. By that time maybe it was Cutter, or in Swiftwater, Pennsylvania, at that time, before it became Connaught. Nobody wanted to make it. There was absolutely no money in yellow fever vaccine. It’s an act of public service, and then we find in this act of public service that they have a contaminant.

LW: I see, so it’s not this kind of influenza vaccine or polio vaccine where everybody’s really moved by it and really wants to produce it.

AS: That’s right, it’s a cheap vaccine which is used primarily by government workers and for people going to exotic places. Otherwise, there’s no use for yellow fever vaccine. Apparently there was a need and of course -- you remember the first yellow fever scandal -- what do you know about that? In World War II, we were shipping people...

[break in audio]

LW: You were starting to talk about yellow fever vaccine in World War II.

AS: Few people really know the story, and my memory might be faulty, but I’m pretty sure I remember well what happened. Here’s what happened. The war is on, and some probably not terribly well-informed authorities, medical, public health, tell the Army that they ought to be vaccinated against the following things. And they say, “Hey, among other these good things to take, we have this good, safe yellow fever vaccine. Let’s give them this good stuff.” They do, and the troops come down with hepatitis.

LW: It was hepatitis, okay. Serum hepatitis, hepatitis B.

AS: Right.

AS: It was serum hepatitis, because they were stabilizing yellow fever vaccine, which is a very unstable virus. You have to add protein to stabilize the solution, and they were using human serum from a University of California medical student who had donated his blood, as I understand, for free, to support the war effort. A few weeks later, he came down with jaundice, and so did the troops. Before that, when I was in medical school, remember I told you at one time I was going to be a liver specialist.

LW: Yes.

AS: At that time, I had a great deal of information, and I had unpublished manuscripts that I was presenting at meetings and so on at Stanford. I was the medical student who knew a lot about hepatitis. One of Bloomfield's interests from the time way back was hepatitis, and it was before I had any idea of ever becoming an infectious disease man. I thought I would be a liver and kidney specialist.

This medical student gave his blood, and he came down with hepatitis. This shouldn't have happened, you see. They had absolutely not the slightest idea that there's more than one type of hepatitis.

LW: Oh, I see.

AS: The fact that there were different incubation periods was totally unappreciated by the world experts.

LW: And there was no understanding that there was a danger here -- this person had given blood, that it might be related to using blood fluids?

AS: Absolutely not, nobody knew anything about that.

LW: I see.

AS: There was no malpractice, there was no misunderstanding, just lack of information.

LW: Yes.

AS: Everything was done right, except that -- what was not right -- those troops didn't need the yellow fever vaccine. -- Nobody took the trouble to remember that there's no yellow fever in the Pacific, there never has been. Yellow fever should not be given to them at all. They should have gotten smallpox, yes; they should have gotten something else, yes. There were very few vaccines at that time. They should have gotten tetanus, they should have gotten diphtheria.

LW: Okay.

AS: Not pertussis, there's no point at that time giving pertussis.

They should have had diphtheria, tetanus vaccine these days. DT plus -- nothing. There was no mumps vaccine yet -- there was nothing to give them. So for a good measure, they give them yellow fever.

And they kill them. There's tremendous mortality, because they had a massive dose. And the medical student of course is totally innocent, he just gave his blood.

LW: Yes.

AS: The virus concentration was tremendous, and partly because just his serum was used. They didn't pool serum. They also had no idea, of course, that they could use calf serum, you see, or something else. Later on we used other sera.

LW: But there would have been a potential contamination issue with anything, right?

AS: They had no concept.

LW: They weren't thinking of those things.

AS: Number one, they had no concept that you don't need yellow fever.

You see, they hurriedly produced big lots of yellow fever vaccine to cover these poor boys who are going off to war.

LW: Yeah.

AS: And they produce an epidemic. And, of course, did result in a silver lining of sorts. All of the sudden, smart people said, "Wait a minute. That shouldn't happen. How could it possibly be?"

LW: And so that was really the seed of understanding that there was another type of hepatitis.

AS: But hepatitis, as you know, is probably one of the most important viral problems in the world. The different types of hepatitis, these are serious diseases, and at that time they were called "catarrhal jaundice."

LW: Yes.

AS: The name itself reflects that you get yellow, and then catarrhal.

AS: You have a catarrh and then get over it. That was the mild form of hepatitis A, as we now call it. A mild form of hepatitis due to partially immune people who have had an infection as infants and so on, and then get another exposure, and they get it again, mild form as adults.

LW: I see.

AS: And so then, people divided it. And then Blumberg -- what do you know about Blumberg?

LW: This was Barry -- [Baruch S.] Blumberg.

AS: He was at NIH. He was an NIHer who made some accidental discovery which revolutionized medicine.

LW: Yes, this is a really interesting cluster of things.

AS: Again, it was the same kind of thing. He was not even -- you know, he was -- he was not an infectious disease man. The whole thing again was -- an accident!

LW: Yes, many people have reflected on the fact that serendipity or chance is an important factor in major milestones in scientific discovery.<sup>26</sup>

AS: That's right. By the way, I have to interrupt you. One of my favorite most inspiring professors of medicine -- ever -- was totally unrecognized outside of San Francisco at the time. Bloomfield was world famous. This man was not, and he was a smarter man, better doctor, better teacher than Bloomfield, even though I have highest respect for Bloomfield. His name was George de Forest Barnett. There's a big portrait of him, personally signed, but I never got that. George de Forest Barnett was a professor of medicine at the city hospital, not with the Stanford Lane hospitals, but at the secondary or city hospital service, and George de Forest Barnett -- you reminded me with "serendipity." When we first came in -- the first day when we transferred from Palo Alto, as second-year students, we headed to the city hospital, for the first time in our white lab coats. and all dressed -- we feel like we're really medical students, rather than working in biochemistry in an anatomy lab. We're really going to see live patients. George de Forest Barnett walked in, looked at the class, says, "I want to read to you." Some of us spread rumors that this was going to happen, but most people tried to keep it secret so it would be a surprise, so we really didn't know too much. Then he takes out a book, and starts reading about the three princesses, Persian princess. And the word "Serendip" all of the sudden comes up. It was George de Forest Barnett who introduced the whole damn thing into medical practice.

LW: Really?

AS: Yeah. He -- every class, for twenty years, every Stanford class got this as their first lecture in medicine.

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<sup>26</sup> The interviewer had in mind especially a published commentary on the importance of chance observations in the hepatitis B story: H. J. Alter, "The unexpected outcomes of medical research: serendipity and the Australia antigen. [Comment on] Blumberg BS, Alter HJ, Visnich S. 'A new antigen in leukemia sera' [J Am Med Assoc 1965;191:541-546]," *Journal of Hepatology* 39 (2003) 2, 149-152.

LW: And his point in saying that again was --

AS: That serendipity is the basis of clinical medicine.

LW: Interesting.

AS: The whole basis, what you've got to do. Then later on in the wards, you developed and say, "Look, if you learn nothing else, you learn that serendipity is the answer to success in medical practice. You've got to catch the chance, you've got to appreciate, you've got to understand that it is serendipity that is going to give you the answer. Not what you learn at -- all that is important is baggage." But serendipity is the magic.

We just worshipped that guy. He was our idol, in clinical medicine. When Phil Lee was here, just a few weeks ago, again, we sat around talking about George de Forest Barnett and serendipity. I think how much wisdom he gave us, and we felt that we were so much better off than the University of California students who never heard him.

LW: I see.

AS: And the interesting thing is that the University of California students who were also rotated through the city hospital -- used to sneak in and sit in the back row!

LW: [laughs] So they actually did get the benefit some of the time.

AS: One of them was Leon Rosen[, later of NIAID].

LW: Really?

AS: Leon confessed to me that he sneaked in to listen to Barnett.

LW: Interesting.

AS: He was at [the University of] Cal[ifornia at Berkeley].

LW: I understand. I didn't know that, okay.

AS: He sneaked in to hear Barnett, because he heard there was this fabulous professor, a man of wisdom.

LW: Well, maybe just a little bit more about the control work [at DBS].

AS: All right.

LW: I know this was a new period on work that you had done earlier at NIAID, but you were first telling me about uncovering something in the yellow fever vaccine. Let me

return to some of the other titles [from your CV] that I looked at. My assumption is that this grew out of DBS work, even though it's published after you've left.

AS: Yes, I always was slow publishing.

LW: Well, I'm just trying to put things together. "A comparison of several methods for preparing arbovirus hemagglutinating and complement-fixing antigens," 1969.

AS: That's not much fun, it was purely technical.

You had to do it, because it was -- what's the word, "workman"? No there's another word for that. You know, it's the kind of thing that we all do in order to earn a living.

LW: I see.

AS: And you cannot solve problems unless you've got -- that's what it is. It's tool-making.

LW: Okay. It sounds like you're developing methods for preparing reagents, right?

AS: Yes, and then you tell other people, because in fact it made your life easier. It's no great thing; it's not going to get you a Nobel Prize.

LW: I understand.

AS: It's not going to get you great glory, but you share because you made your research activities or your control easier, because you eliminated some steps. Or you, in playing, again, maybe Nick Tauraso or maybe I would say, "What if something else works better?" We can do the tests in half the time.

LW: Right, but it wasn't an interesting problem for you --

AS: No, no.

It's technical. These are technical advances, which, however the very fact that they were published indicates that people, editors consider them sufficient -- the paper got published.

LW: That's true.

AS: The point is that the editors also find things which they believe are going to be of use to the medical community. Otherwise they're not going to publish them.

LW: Okay. But these are just additions to the toolbox along the way.

AS: Yeah, toolbox. That's the way to understand it.

LW: And you're asking "what if?" But they're not, even on a level -- because hemadsorption, for instance, was also that kind of a question, right? When you and Vogel were working on hemadsorption but it was really more revolutionary, clearly.

AS: No, no. But hemadsorption revolutionized something.

LW: I know.

AS: We had no way of detecting whether flu virus was growing inside a culture in monkey kidney.

LW: Yes.

AS: There was no way, but you have to take off the fluids, and go into hemagglutination inhibition, and it didn't work very well with these tissue culture fluids. And it did not kill the cells, or the color of the solution did not change with the -- what was the indicating dye that we used, and it's still used...?

LW: Yeah, you were talking about this before. This is the pink?

AS: Phenol red. And if phenol red changes to yellow -- but if it doesn't change to yellow, you have no idea. And Vogel made that observation many years ago, and Dorland Davis thought it was a waste of time, and fortunately, again, my mind was sufficiently open compared to Dorland, and I said, "Let's try it."

LW: Yes.

AS: I think, probably in some ways, Vogel was a much smarter person than I. But he did not have the discipline of years in physiology, years in medical school, years again as a leader of the group. Where I had the tools -- knowing how to ask the questions. He asked fantastic questions, but he did not have, again, the toolbox.

LW: Yes.

AS: That's a very good expression. For example, Bob Huebner. Huebner also had the toolbox, and he had a group of people, like Chanock. And I always regret that I did not quit at the time. I probably could have done it when I was a commissioned officer, and Huebner would have stood up for me. "I don't want to do this [go to Panama]. I want to go with Bob Huebner," which is what he wanted me to do.

LW: You didn't really give that any thought, when he said that?

AS: No, but I didn't think I could do it.



LW: You didn't think you do it, because they'd already said you don't really have a choice.

AS: No, I thought I would be disobeying. I'd be leading a revolt, basically, against the authorities, and they would be very unhappy people, including Smadel and Shannon.

LW: You were up against powerful people.

AS: Yes, but now, at the age of 86, I realize that I was valuable to them, and that if I really put my foot down, and said, "I'm not going," And not resign my commission -- I couldn't do that -- but "I'm going to go with Bob Huebner." And Bob would have protected me.

LW: Yes.

AS: I could get away with it.

LW: Maybe, yeah.

AS: I could have stayed -- I think I could have. But at that time, I didn't have the guts -- or the scientific maturity to realize that you can do things like that.

LW: So some of these things that are adding to the toolbox are really revolutionary, and some of them are just kind of [shortcuts] -- "here you can skip a few steps," and you've introduced some efficiency.

AS: Yes. But that's the way science is.

LW: Yes. It's just a different kind of contribution.

AS: Some people, again, never do any more than these kinds of contributions, and there are others who are soaring someplace, like Huebner, you know. Okay, we were sitting, talking, and again, I must have told this to other people, I remember telling somebody about it. That's maybe on the same plane trip. Bob sits there, and he says, "This and this and that." I said, "Jesus, Bob, what are we talking about? I've never heard anything like that. What are we talking about?" And he said, "Well, I have this idea," and now he's talking, and I said, "What is this, what are you talking about?" You know, I really have trouble following him. This is again way ahead of anything. But I'm serving to stimulate his ideas.

LW: Right.

AS: And he had another cocktail, another drink whatever, he said, "Alexis, you know, this and this and that." He goes on and on and on, and then I say, "Well, Bob, what do you call it?" He said, "Well, I don't have a name for it." And I said, "You must, -- because there's this whole thing, and I'd never heard anything like this before in my life."

“What do you think it is?” He said, “I’ll tell you what. Maybe a good name would be oncogene.”

LW: Oh.

AS: Can you imagine that. He thought of it having a drink on an airplane, because I was saying, “Well, what will you call it?” And he said oncogene.

LW: So that was what he was describing to you.

AS: He was just bullshitting. And then, later, I see oncogene in print, you see. And I thought, “My God.” He had no name in mind, he was just thinking. He was a genius at work. Sitting there and entertaining himself, by talking to me, somebody who he knew and appreciated some of his thinking, and was sitting at his feet, saying, “Gee, Bob, you know, that’s fantastic. Tell me more. I’ve got to hear more. How did you come to that idea?” By that time, he was at the Cancer Institute.

LW: Okay.

AS: And the whole concept of oncogene, and how to get at it. He was working it out!

LW: Yes, you were seeing the process in action.

AS: Yes. And to me, it was absolutely -- I mean it shook me up. When he said the word, I said, “That’s fantastic.” He may have thought of the word before, but the point is it was not known; it was not in the medical literature, as far as I know. Nobody had yet heard him use the word “oncogene,” and then, sometime later, there was a paper.

He used the term, and then he revolutionized the concept. Chumakov must have had this kind of a thing -- again, a spark.

We have little sparks, but these are the guys who have big sparks. And I don’t think very many people at NIH whom I have known have anything like it. I can’t think of anybody right now.

LW: Yes, that’s a rare quality.

AS: Sometimes when would get him going like this, he’d starting me about his early years.

AS: [He had] fantastic tales about his experiences. He was a medical officer; did you know that? On a coast guard cutter.

LW: Yes.

AS: He was there as a medical officer on a cutter, some place in the North Pacific.

LW: Yes, that's what I thought, he went up to Alaska then, right?

AS: Yes, Alaska. Something happened up there that changed, and then he comes back, and he doesn't want the assignment that they were giving them, and he heard about this guy named Armstrong.

LW: He'd heard of [Charles Armstrong], okay.

AS: He had heard of him, someplace in the Public Health Service, and knew that he was doing something interesting. [Huebner has] never done research. He didn't have the slightest idea what medical research is about, but he wanted to get out of some kind of an assignment that the Coast Guard was giving him. So he went over to this Dr. Armstrong, Charles Armstrong, and said, "You know, I heard something about what you're doing" -- probably in polio or whatever or St. Louis encephalitis. He made some major breakthroughs. Yes, was it St. Louis encephalitis that Armstrong described? I think so.

LW: I think so, I don't remember very well from what I've read.

AS: It was something -- a major breakthrough, and [Huebner] said, "I'd like to do something like that." The conversation began something like this, you know, "What background [do you have]?" "I have no background at all." That story I had from both sides -- I talked about it with both of them. Armstrong saw something in Huebner. He saw a spark in him, and basically, you know, that's a contribution, too.

LW: Yes.

AS: Otherwise, Huebner would have been practicing -- he said either way he'd be probably a country doctor somewhere.

LW: Yeah, yeah. Sounds like it, probably from his background and his training, and where he was from.

AS: And then Armstrong sees a spark in this man and says, "Come on over." And he comes over, piddles around the lab, and does his little field investigations, and then the New York --

LW: Yeah, that was really the start of it...

AS: All of the sudden, he solved the problem. Did you ever read the *New Yorker* story of that?

LW: I have heard of this, and now I have a copy, but I haven't read it yet.

AS: Read it.

LW: Yes, I've been wanting to --

AS: It's a well-written story, and it's true.<sup>27</sup> All of it is true. And it puts Bob Huebner in proper light.

LW: It helps you understand him.

AS: Yes, even though I don't think he's being described as a boy genius, but just -- the point is, again, how he solved the thing.

LW: Yes, how he thought.

AS: Which, again, other people at NIH, many of them at the time thought he was crazy. "What's going on?" "What the hell is he doing? Crawling wallpaper?" . They thought he was crazy.

LW: The fact that he had listened to this exterminator guy, Mr. Pomerantz, whom nobody had listened to, right?

AS: No, nobody listened. That was the main point of the whole story.

LW: Was that he had given this man's theory an ear.

AS: Yes, and before that was ever published in the *New Yorker*, I had Bob's account of it, because you know, we talked at our luncheon meetings, with our sandwiches and Huebner -- Wally Rowe wouldn't come very often, very seldom came. Bob Chanock very seldom came -- oh yeah, because I arrived there before Bob Chanock came, and so I got into that specific group, in the little tiny library in building 7. It was Armstrong, Habel, Huebner, and occasionally some of the old timers, from the other buildings, who used to be NIAID but maybe were microbiologists, but now were in Cancer or someplace else. Huebner still was in Building 7, and so he would come in, I don't know if they do that now, but in those days, Building 7 was the isolation building, so we were forbidden to wear anything except coveralls.

LW: That's what I've heard.

AS: They don't wear them now at all? No.

LW: Oh, I don't work in a lab, but I don't think so. My impression is no.

AS: Because outside the building, you still wore coveralls, but there was a difference. There were double doors in building 7, and a shower. You couldn't go in without

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<sup>27</sup> Berton Roueché, "A Reporter At Large: The Alerting of Mr. Pomerantz," *The New Yorker* (August 30, 1947), profile of Huebner's work investigating a disease riddle in Kew Gardens, Queens, which ultimately was called rickettsialpox.

showering; you couldn't come out without showering. There were dressing rooms there. When you went in, you were not allowed to wear the same shoes on the other side.

It was an attempt at isolation, and I remember I was so fascinated when I first came in, you know, in a suit or whatever I was wearing, and they said, "Strip." "Strip?!" And then they give me two sets of coveralls, blue and brown. They had to look at my size; and there was somebody who has these stacks of these things in the room which they issue you. And then they say, "Well, you can put your name on it in indelible ink, you know, because it will be your size."

LW: Okay, they were yours.

AS: And come and get more tomorrow, now put these on, and I said, "Well, why two?" "When you go in to dress, you put the blue one on, and you go in the laboratory and you work in the blue coveralls. When you come out and you don't want to put your street clothes on because you can just zip-zip. You can put on the brown, but you cannot wear the blue out. And you cannot wear the brown."

While I was there, it all broke down. People were wearing both. We were still using it because it was much more convenient than wearing street clothes. But we wore the same one, and we no longer changed shoes.

LW: I've heard stories about the blue, and I wondered whether people were breaking the rules, but I see, it just became more lax.

AS: Yes. Because people just realized that a lot of those were unrealistic. Unlike [at the Army Medical Command installation at] Fort Detrick, we really did not have tight security. But at Fort Detrick you know, it really remained. You know, you really stripped. I remember taking one of the group of Russians, and they were amazed, because you see they did not have the same precautions as we had.

LW: They didn't do any of these kinds of things.

AS: No, they did some, but not this far. They were amazed at -- you see here, they were all virologists and so on. Did you know Zhdanov?

LW: I've heard of him, of course. Yes, he's another one of those --

AS: Remarkable person.

LW: Really?

AS: Absolutely incredible.

LW: But you don't hear about him in the --

AS: He died.

LW: Is that what had happened? So he died earlier. Was he older than Zilber?

AS: No. He was one of the youngest people.

LW: Oh, he was younger. I don't have a sense of where he fits, maybe because of this -- because he died young.

AS: Yes, he died young. I remember he was -- there are two episodes that come to mind. One is with [Lev] Zilber, before I ever went to the Soviet Union. Zilber at the Bethesda Motel on Wisconsin Avenue, in a tiny room, very early, we exchanged. We sit down and Zilber opens up, starts telling me things that I had never heard from anybody ever in my life about life in the Soviet Union. He did ask me, he said, "Are these rooms bugged?" I said, "Honestly, I don't think so." He said, "Do they know that I'm going to be in this room?"

LW: Of course, that's the thing. You can say you don't think so, but you don't really know, at that time.

AS: Trust -- it was a conversation between two human beings, "because I want to tell you a few things." And he proceeded to tell me what was happening in the Soviet Union in the 1930s.

[break in audio]

It's the first time I really heard Zilber, and he opened up and told me things I never heard.

See, in those days, when I first came, my first night, I drove in from Boston. There were some things happening; I had a flat tire or something, August 1950. Miserably hot day, it was just unbearably hot. No air conditioning in those cars yet, windows open. We were just dying from the heat. Both of us are on edge, you know, we're both upset. Probably mad at each other; my wife was mad at me for having gone through all this and so on. Come in, we tried to find a place to stay and there's no place. We finally go to Rockville and somebody puts us up out of pity. You know, there's just nothing. It was still a village. There were no accommodations for visitors or tourists or anything like that. But anyway.

Zil'ber, and then Zhdanov did a similar thing one time. Did you ever hear anything about Alla Bukrinskaia?

LW: No. It sounds like a familiar last name, but I don't know anything about the person. I think I've seen a publication list.

AS: A lovely, lovely young woman, Russian researcher. Zhdanov's wife, second or third, whatever. He divorced his wife, or left her, to marry Alla, who was his right hand

in the lab. And she was a physician and a researcher. A wonderful, beautiful person to look at, and just a wonderful person to deal with. And I never met Zhdanov's first wife, I don't think.

But Zhdanov again, on my first visit, my first or second visit, he asked to see me by myself, without others. We went in, the other people went someplace else for dinner, and I went to Zhdanov's, and Alla and he opened up about some of the things that were happening and had happened. The persecution of scientists, and so and so on. And I said are you sure? He said, yes I'm sure. He wouldn't talk here, even though in other situations people ask him to step outside and take a walk in the park. That was the only safe place. But he was from the same, again, from the Russian, from the Greek, I guess: the *Pleiady* -- Pleiades, the very visible stars.

Absolutely incredible people somehow survived the horrors of Stalinism and so on and so forth. And still did beautiful work. Zhdanov though, was disliked by many people, including some Americans, and he had very strong personality. In many ways probably closer to Huebner than any of the other people that I can think of. Somewhat sometimes maybe erratic and so on, and one of the things. He irritated people -- he was the first top level scientist who refused to wear a white lab coat. Did you ever hear that?

LW: No.

AS: It was fascinating. Because everybody had these highly starched, beautiful lab coats; in Russia they had much more elaborate coats than we wore. We wore something simple, like what doctors wore. But theirs had special cuffs and so on. Armstrong refused to wear the lab coats, and he also, in his own lab, he would not wear the brown and blue coveralls. He wore a surgical gown that tied at the back.

LW: Oh, I have seen a photograph of him, and it does have more coverage on it. I am sort of picturing what you're saying.

AS: Yes, a white surgical gown. He refused to wear the others. And because it's Armstrong...

LW: You can't say anything!

AS: You can't -- because he's like a Surgeon General. You don't argue with Armstrong.

LW: And Zhdanov had a similar thing?

AS: Zhdanov wore this blue smock. He said, "I'm not practicing. Yes, I am an MD, but that's not what I'm doing here. I'm not practicing medicine. I'm practicing science." And a blue smock -- it doesn't get dirty as quickly. And it's simpler. And it was a real smock. A working man's smock.

LW: It almost sounds like what a technician would wear.

AS: Yes -- no, but technicians wore white coats!

LW: Okay, even the technicians wore white.

AS: Sure. But he wore a blue smock, and again I think it was a statement. Basically saying, "You don't like it: Tough. I am a workman. I am not a professor anymore. I am not a doctor. I'm a workingman."

LW: That's an interesting way to take it. I mean, in a totally different direction from the kind of person who thinks that because he's a scientist thinks, "I can't get my hands dirty."

AS: That's right

LW: Well, should we wrap it up? I think we're probably done.

AS: Absolutely. I should hope so.

LW: I know, we've covered so much. I'm stopping the tape now; this is our last one.

AS: All right.

[end of transcript]