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INAME: FRIEDMAN, Elizebeth Smith **Text w/Tape:**
IPLAC E: Mrs. Friedman's Residence, Washington, D.C.
VIEWER: VALAKI, Virginia T.

Friedman: Are you going to ask me questions?

Valaki: Yes.

Friedman: Or...? Well, alright.

Valaki: Well, I wonder if you would just talk about a few things. ((Chuckling heard.))

Friedman: Well, yes, of course.

Valaki: One of the things that I'm particularly interested in is how you and Mr. Friedman got from the Bacon ciphers to cryptology—you might say "real" cryptology—because there's nothing in the Bacon cipher to suggest all the other cipher systems that were developed. So I was just interested in the development in your own knowledge of cryptology.

Friedman: I, ah, ((she pauses))... I was trying to remember whether we had made any study of, what shall we say? Ah, I was going to say "protestant" cryptographic systems. ((She chuckles.)) You know what I mean. I mean, the orthodox cryptographic systems were practically non-existent before World War I. If there's anything that you were interested in, in that period, the...there were only...I think it was said to be four men in all of the professions in the United States who knew what codes and ciphers were, and what they meant to the developing science as it became at the beginning of World War I. Now, have you got a great deal of material, or any material at all, that was compiled and written up for professional use—the cryptographic systems that were described and taught by Parker Hitt... Colonel Parker Hitt?

Valaki: We have his manual. We don't have his worksheets and we don't...

Friedman: Well, I don't think anybody had his worksheets. I never...He was out at Riverbank ((Laboratories, Geneva, Illinois; a private research facility)). Mrs. Hitt was out at Riverbank.

Valaki: Did they teach?

Friedman: Ah, not at Riverbank, because he was trying...Parker Hitt was trying to get General Mauborgne, who was not then "General". He was probably a Major then—Major Mauborgne...I think the first time he was out to

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Riverbank, he was a Major. And he wanted to build up this whole science of cryptography; and they didn't call it "cryptanalysis" in those days. But it was the...It came on later in the...It didn't come on right in the very beginning of the codes and ciphers work. But Colonel and Mrs. Hitt brought their sliding strip device.

Valaki: About what year was that?

Friedman: Well, that would have had to be 1918.

Valaki: That was after the war, you mean; or while the war was in progress?

Friedman: While the war was in progress. If it was 1917...It *could* have been 1917. You see, I don't have any photographs that were taken of the celebrities who came to visit Riverbank. In fact, there were...None of those were ever given to us if they were made at all. But usually, he had...George Fabyan, he had my husband who happened...just happened to be gifted in photography...He had never intended to study it particularly, but Fabyan launched him on that. And he was...He made a lot of photographs of the cipher systems themselves and those that were dug up from Elizabethan history, and then bringing it on up to the present day. General Mauborgne...I shouldn't call him "General" because he wasn't yet a "General" in those days. He was determined that ciphers would be taught, and the making of ciphers and the making of ciphers to break the ciphers. He was insistent that that be brought at...under training out at Riverbank. And he always did everything in a very concentrated manner. ((She chuckles.)) So before you found out about what he was (B% plotting) on one side, he was off running to...or to some other direction with something else. ((She laughs.)) But Fabyan and Mauborgne were physically alike; were both enormous men. And so, while Colonel Fabyan cowed ((intimidated)) everybody—even most of the high-up university professors—he was kind of brought down to earth by then-Captain Mauborgne. And Captain Mauborgne had solved the Playfair cipher on the six weeks' transport journey from the Philippines—coming back from duty in the Philippines. He solved that Playfair cipher at sea. And that was the only cipher system really that was...anybody in the world was aware of in those days. There were a very few others, but it was not permitted...nothing was permitted to come out about them. But Fabyan had enough of a push, and he talked big, and the Army was awful and, you know, cowardly and...Just a little bit of everything that wasn't really professional, but was just something that came along more or less accidentally from every different direction. And things were done, and Fabyan would toss it at somebody and said, "Now, you do that. And don't you bring it to me unless you've got something to say." ((Chuckling heard.)) That was the kind of a guy he was, and...How the...Really, the way the...that World War I leaped on, and so many things happened so fast, and you wonder where in the world did he get all these...the brains to know really what was needed? But he did.

Valaki: You mean Fabyan or Mauborgne?

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Friedman: Fabyan. And so, he was so responsive then, you see, when Maubornge came along with a reputable cipher system. And my husband assured Fabyan that Colonel—what did I call him now?—Maubornge... Well, anyway, the Hitts and Maubornge were the Army people that really did genuine things worthy of note and of being recorded in history as really done. They may not have been done right at Riverbank because Fabyan was trying to get... He was trying to manipulate things here, there, and everywhere. He made trips down to Boston and down to Washington, for example, and get some Army officer... some... a person with a title. Not just a rank title, but a title like "Secretary of the Navy," "Secretary of the Army." That kind of title. And he would get them launched on something. That all seemed quite important, and were, I'm sure, and really indeed were. And when Washington refused to set up a school of training for young officers to go overseas—do that in Washington—he'd be in... Fabyan would be in Washington in connection with organizing that, perhaps, and would bring my husband along always, whose brains were to absorb whatever was said or done; and then, to give advice later on, although he never... Fabyan never said that there would be that. That was the way it was acted out. But he just thundered his way along, you know, and dropping heavy ideas here and there as he went by, and then ordering somebody to do this or that. But this one instance always amused me so. He was meeting with the high-ranking Cabinet officers in Washington one day. It developed that they proposed that Fabyan and this Army officer, whichever one... I mean, Army... Cabinet officer, whichever one it happened to be, was... took a government car to drive to Annapolis. Fabyan had some axe to grind over there. I never have learned what that was. But they were gone the entire day. And when they got back to the Willard Hotel, and Fabyan and my husband got out, and they went in... started going into the hotel. And this driver stepped up, saying that, you know, "Here was my whole day's taxi (B% fee), and... So they... This was paid. My husband paid the bill; Fabyan told him to. ((She chuckles.)) So matters went on until the next morning when Fabyan routed... He was... And they had separate rooms in the hotel... the Willard Hotel there. And anyway, Fabyan on the inter... telephone, got him to go get up and go out and buy a paper. And my husband said, "Well, you can get a paper right here in the hotel at the office desk." And Fabyan said, "Well, I know it does, but you get that... you go out and get one from the streets as I tell you to." So my husband didn't dare make any more objections. He had to make him... He said to George Fabyan afterwards, he said, "Excuse me, but my curiosity will not let me rest. Why, when you could have gotten...? You could have let me stay in bed, and you could ((she laughs))... I could have got you a paper from the office desk downstairs. Why did you insist on getting it the way you did?" And Fabyan said, "Why, you know, it was one penny more." Well, that wasn't his reason. He was going to make some capital out of that. Somebody... He was going to have Bill run into somebody accidentally

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down on the street probably ((she chuckles)), and had a whole pot-full of plots cooked up...(B% happening) and so on, and my husband was kind of angry about and objected to his being made to go out on the street to get that for...just to save only a penny. And he said, "You mean to tell me that you had me do all that to save just one cent, when you spent 35 dollars for a taxi to go to Annapolis yesterday, which was following a government car that you were riding in?" And Fabyan said...And my husband said, "And you didn't need it?" It turns out that...that nobody wanted it? They didn't have to go to Annapolis in the first place. And in the second place, nobody was at all interested in what this Army secretary, or whoever it was, (B% led) forthwith. And my husband ended up real peeved like and he said, "And caused me all that trouble when I needed my rest?" And Fabyan said... "And we didn't need it!" And Fabyan leaned forward and said, "Well, we didn't need it, but we might have needed it."

Valaki: Hmm! ((She chuckles.))

Friedman: That was the only apology anybody got out of him. ((She laughs.)) Ah, well, does that remind you of anything that you wanted to ask a question about or anybody...?

Valaki: Well, yes indeed, about Mrs. Hitt. When was she at the Riverbank Labs?

Friedman: Well, she was not there with him. They had been there together early in the year. I would say real spring...springtime of the year.

Valaki: Say 1918, you mean? Or just before the war was declared?

Friedman: No. No, it was, um ((she pauses))...Hmm. (B% Now I've) (1B)...

Valaki: Had you already started giving classes then, or were you just about to? Had you not started the classes for the officers?

Friedman: No, the classes had not been started.

Valaki: Had not been started.

Friedman: No, mm mmm ((acknowledges in the negative)). And when Mrs. Hitt came out later, they were working on this sliding strip device, you see. Didn't you...? Didn't I give you a Bakelite folder for the cipher things when you were here before? It seems to me I gave one to...gave my last one to somebody recently.

Valaki: Yes, may have been to somebody else.

Friedman: Well, ah, he...Colonel Hitt taught this only class in the United States at that time. He was out at...out in Illinois. What's the name of that place where they...Fort...? Fort Something.

Valaki: Well, there was a Fort Leavenworth in Kansas, where the Service schools were. But I don't know of one in Illinois.

Friedman: Well, maybe it was the...Maybe it was the other one, the Kansas thing. You see, Army didn't mean anything to me in those days. It was brand...I

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had never been in touch with...in connection or done anything in connection with the Army. I didn't know what organization the Army had. I didn't know whether they were official or unofficial. I didn't really know anything about them. All I did ((she chuckles)) was just to...I did what I was told to do. And in...that it...If it was meant to prove "A"—the Proposition A—why, that was set forth, and if it was to destroy "A" and build up on "B," why, that was given, and so on. But Fabyan never dwelled on anything unless he could see some profit or name. Those were his two great to-be achievements in all things. And he, most of the time, seemed to be doing things that weren't useful, or weren't...I don't mean to say not at all useful, but that was fruitful for any immediate future.

Valaki: To what extent did he contribute, himself, in cryptology or, say, in acoustics? Did he...? Was he writing (B% up)...?

Friedman: Well, now, I can't answer too much on acoustics except to show you that it is true. And he did. Vile creature that he was in many ways, George Fabyan really launched two or three things that were of vital importance to this country. And he stumbled upon these when he was wading his way through this myriad of cipher stuff that he got onto. Of course, the cipher stuff was not so...Well, I mean, a rarified kind of thing. In other words, the acoustics studies that were made at Riverbank, well, he certainly deserves credit (B% of) the whole world for the whole thing that...there. And the same way with this ordnance stuff that developed—not with anything that we had do with at all, although we did have to do with everything except this at Riverbank—was this ordnance engineer who...He was kind of a country bumpkin. You know, he'd never been anywhere or done anything. He just wanted to fiddle around with pieces of iron and this and that. But he developed a lot of stuff for the Army ordnance. And his name was Eisenhaur. E-I-S-E-N-H-A-U-R, I think, it was spelled. Not like General Eisenhower. And he had such a...This is an aside on my part. I'll never forget that famous Stutz Bearcat car he had. We used to go tearing down the Lincoln Highway at 60, 70 miles an hour—Oh!—with that car with no top on it or anything, and you didn't know whether your head was going to blow right off or not! ((She laughs.)) So there were lots of things...Somehow we managed to get a lot of fun out of things out at the Riverbank because we who really understood the sciences that he was promoting so vigorously were wondering where it was all going to lead to, convinced that he had something valuable and it should lead somewhere. And then, others...It was just kind of fiddling...He was going... He fiddled around with everything. He had stuff out back of the acoustics chamber, on the ground back there in the fields that had to do with ((she pauses))...Oh, what's that scientific principle that's...? ((She pauses again.)) Dear me, I can't think of it now.

Valaki: (B% Echo?) Could have been (2G).

Friedman: Hmm! Well, I'll go on and see if...perpetual motion!

Valaki: Oh!

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Friedman: He was determined there was such a thing as perpetual motion, and he was going to prove it. And he'd demonstrate why it did exist and how it could exist and so on. Yes, that was a very prominent goal of his. But (B% because they were going) way back which, of course, was considered ridiculous by most...99 out of every hundred people who knew anything about...who knew even what the words meant, ah, was to compare that then with the achievement of this sound chamber which he built—the second one in the United States. The first one built by Dr. Wallace Sabine at Harvard, a physics professor there. And Sabine was out there and supervised the building of this sound chamber. And so, as I say, the place was a...In a way, I guess the only truly descriptive term—single term—to describe the activities would be that they were, um...Well, there's this thing...The word's gone again. I had it just a minute ago, and it's gone. Now...Uh, uh, uh! I'll talk a little and I'll see. Maybe it'll come back. ((She laughs.))

Valaki: Well, I was wondering how you got from Bacon cipher. Specifically, what was the next step? Were you investigating different kinds of cipher when you were looking at the Bacon ciphers, so that you knew something about what else was published about what was going on with...?

Friedman: Well, ah, yes, actually. We met up with, if I may use...I've always loved that...((laughs)) I don't why I love that phrase. I just love that to describe the, you know, the "crash bang" of a...an idea. We met up with the biliteral cipher of Sir Francis Bacon, you see, when it had absolutely nothing to do with military stuff; had absolutely nothing to do with scientific stuff. It was a...one...It was the one and only great (B% massive) movement to prove that Bacon wrote Shakespeare and to use his...and that there was used, as a demonstration of this, his own description of...his invention and description of the biliteral cipher of Sir Francis Bacon. And it was the military...All of that military and scientific matter (1G), you know, beginning to talk with the Sabine acoustics thing, and getting all the way down to the truly literary side of ciphers in the practice of Bacon and stuff. And it was...Colonel Fabyan would have said that "We got a mouthful."

Valaki: Well, how did you get from the Fabyan...from the Bacon ciphers, which are very peculiar and just not in the general nature...not in the general family in the classic tradition of ciphers, to the classic tradition of ciphers? Did you read up on ciphers in general and get an idea of what else was going on?

Friedman: Not until we got to Riverbank. We never *heard* of any of the things until we got to Riverbank. I heard of...Did I once tell you the story of my life when I came to getting a job?

Valaki: How you were selected?

Friedman: Ah, well, the story of my meeting...*my* personal meeting with George Fabyan and so on.

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Valaki: No.

Friedman: Well, I better give you that. I don't know how much you could use of it, but I...It's not only *very, very* amusing, but it's actually true syllable by syllable.

Valaki: Alright.

Friedman: You want me to do that now?

Valaki: Absolutely.

Friedman: Well, I thought I told you that. Well, I couldn't have because I certainly would tell you the last time you were here, and (B% we're) now, and that... (B% Because it was only)...I think I remember that we had discussed between us. Well, I had always been interested in English literature. And I can't te...I had Latin and Greek as well as German and...Let's see. What else did I have? I didn't have Italian, so...Well, any...at any rate, I was in Chicago... The...It was May or June, having graduated from college just a year before. And...I mean, I was there in the spring. This was in April and May. And the year before, I had graduated at the end of May. And I taught school as a substitute principal and superintendent...school superintendent in a little county high school for the winter—county high school in Indiana, and then had gone from there to Chicago in June to look for a job. And I didn't know where or how or when to start, but I had heard about this fabulous library. It was known then, and is now known, as the Newberry—N-E-W-B-E-R-R-Y—Reference Library. And Mrs. Gallup had been, ah, (B% a youth), and of course, she was...I didn't know, but (B% luring) ((laughs)) and waiting for me out there in Riverbank... the Riverbank Estate was a job that was...Fate picked that day for me to meet up with George Fabyan. Well, the circumstances of that, I always got a great deal of smiles out of. Not...I said to...Well, the reference librarian at the Newberry was a young woman from Richmond, Indiana whose ancestry was Quaker. Now, how she got (B% all that out), or whether Fabyan had told her...one...something or other, I don't know. But at any rate, she, you know, got real enthusiastic about me when she learned that my ancestry was Quaker and that I hailed from Richmond, Indiana, where she had gone to college—Earlham—and she was of Quaker ancestry, too. And I had talked to her when I first came in. And then we'd gotten acquainted and had gotten a whole load of information. I mean, not only personal information, but real stuff on the inside, you know, the... (B% Of course), Fabyan that had been out there, trying to dig. Dig, dig, dig. You know, he was practically getting a screw in somebody's heart and just turning and turning and turning. And so, when I asked her about a job...if she knew of any jobs available...I was particularly interested in literature, and I would like something unusual. It wasn't the run-of-the-mill thing like teaching through grade school and high school and college, and that was it for a girl. And so, she said that...Well, she said, "By the way," she said, "that makes me think that...This Mr. Fabyan asked me if I can find somebody to work on the...on this cipher system in this book." And then, she started to

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tell me the whole story of the Bacon ci...Bacon's and... connection...his connection with the cipher and so on. And I said, "Well, what does she have to do?" And she said, "Well, I don't know what he has to do, but he wants somebody to carry on some research for him." And she said, "Just a minute, now. I..." She looked at her schedule she had on her desk, and she said, "He's in town today. I'll call him up." So she called him up, and before you could have hit a button, here was this limousine pulling up—a big limousine with a driver. And in came this whirlwind, this storm, this huge man, and ((imitates a deep, bellowing voice here:)) his bellowing voice, you know, could be heard all over the library floor, and he started talking to her. He had been ignoring me completely. She introduced me to him, and he ignored me completely. And what they talked about, I don't know. Must have had something to do with Mrs. Gallup or Riverbank and so on, but I really never have known what they talked about. Well, then, he said...All of sudden stepping over to me and getting...You know, towering down like a...like a windmill...tier, or pyramid just being tipped over on me all of a sudden. And he said, "Will you go out to Riverbank and spend the night with me?" ((Laughter heard.)) His very words. And I ((she laughs)) timid, little Indiana Hoosier ((she laughs again)) school gal, I was knocked kind of breathless, I suppose. But I didn't answer. And he said... / said, "Well, I don't have anything with me to go anywhere and spend the night." And he said, "That's alright. We...We'll furnish you anything you want; anything you need, we have it. Come on!" he said. And he just practically lifted me by one arm, you know, under one elbow and he stiffened my body so that he just carried me like that, swept me out of there and swept me into this big limousine with a driver. And he got in. He came along, of course, talking as he left, as he always did. And he put...He got in the car...in the seat with me and he said, "This is Burt." No, that wasn't his name. Burt was the one...the chauffeur out at Riverbank. This one, I've forgotten the city one. And at any rate, we were taken to the Chicago and North Western ((Railway station)), and I wasn't permitted to send any messages to anybody. Well, I was just supposed to spring from a race of...((laughs)) of (B% "in exbacub bola") members, I think. And so, we went to Chicago North Western station and got on the commuter train. And he had taken me...As we came in at the back of the car...You know, in the station, the trains' backs...When they're standing, they're always standing with the *back* of the car towards the station. And so, he took me the whole length of the car, way down there, and put me in the *last* seat, and then he went off and disappeared. And the train sat there, and sat there, and sat there. And I suddenly got thoughts of, "Where am I? Who am I? Where am I going? And God know what! I may be on the other side of the world by tonight." ((She laughs.)) But I sat quietly. And finally, he gave up his conversations with the conductor and everybody else he could find to talk to, and came over, and he sat down by me. He leaned forward into my face and said, "Well..." Just bellowed: "Well! What do you know?" Well, that struck something

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stubborn in me, and I sat back in the chair like this and I said, "That remains, sir, for *you* to find out." Well, he roared. It amused him no end. I couldn't have...It was the most propitious remark...I'm sure it's the most immoral remark I ever made in my life. ((Laughs.)) And so, he laughed and he started talking about...Of course, he was plowing...He just, you know...As I said a while ago, he was just plowing away at your innards and trying to get your remarks twisted into something that...(B% couldn't tell you) the reason what he meant them to be, and so on. Well, we finally got out to Geneva. It was 35 or 36 miles west of Chicago on the Chicago North Western. Still runs to Geneva—still stops the last time I was out there, which is many years ago now. And I didn't...you know, wasn't told really anything about the place except when he was introducing me around. You see, I met Mrs. Gallup and Miss Kate Wells, her sister. We all were fed in this cottage, they called it—it was really a house—called "The Lodge," and that's where the cooks lived and cooked for us. The estate was in that building. And it was (B% then at) dinner that evening that I met my future husband. He was dressed very meticulously and not at all like any country squire. Colonel Fabyan, when he got there, you see, he promptly disappeared. And when he appeared again, he was in goatees and riding collars and a big, sort of cowboy...general cowboy's hat. And that's all you ever saw him in out at Riverbank. Never...Never...I *never* saw an...even an ordinary business suit on him out at Riverbank. And my husband, of course, looked like a very *sleek*, very young college professor or perhaps just a scientist. And the conversation was...Mrs. Gallup, of course, was very aristocratic and had known a *lot* of very great people in this world. You just have no idea...And I'll interject it right here. You just have no idea how that Baconian thesis—"Bacon wrote Shakespeare" thesis—was here, there, and everywhere, England, (B% Great Britain), all countries in Europe. Yeah. I think something like I counted once *nine* European countries, you see, that had their name for this Bacon/Shakespeare cipher endeavor and formed societies in their own countries to develop the studies there for all that kind of thing. And...Well, I...It just was all...((She chuckles.)) Colonel Fabyan was a character that just...Is there such a word as (B% "imphasized")—meaning a kind of a bringing together, a fruition of a lot of different ideas all circling in on this center spot? And there you were, and everybody was...had such interesting specialties, and (B% did take)...I'm talking about, now, as time went on and he began bringing in more and more people to Riverbank. And they were...Of course, we had no idea what he had in mind. Maybe he didn't know himself. Maybe it just developed very gradually on one little old thing to start with, I don't know. Anyway, it's all kind of a mixed up mess in one's mind as to what was it, because you never actually knew how the day was going to wind up. You might get started off in the morning knowing something that sounded like a lot of fun and, you know, it was going to be a lot of fun, and end up having wasted an entire day, and the time of the chauffeur and the limousine, going off on

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some rampage of some kind or other, looking into this matter or that matter, or so on. Well, let's see. Now, what is your impression of how far along we are?

Valaki: Well...

Friedman: But you see, he was always on the edge of things. He had...Like Mrs. Gallup had that, hmm...I can't think, and I never have been able to think of an English word which would describe a philosophy as applied to a given thing in the language itself. Fabyan had no trouble because his mind wasn't a disciplined *mind*, you see. He could say to himself or to us that something was so, and make it so by doing it! And life...We lived hard and fast. And I don't mean...I shouldn't... No, I wouldn't want that term used at all in anything I said because, you know, it couldn't possibly be taken that way. I mean, there was absolutely no carousing, no parties, no nothing. Fabyan had use for only one kind of worker, and that was one that knew his business and worked at it damned hard. And so, we...The three or...The core of three or four people who were there when we went there was always the heart and center of everything, as long as Mrs. Gallup and Miss Wells lived. They stayed there to the end. The rest of us were all long since gone. But they stayed there until there was nothing more to do, and then Fabyan sent them back to Detroit and supported them for the rest of their lives. And it was just a story, you know? Nobody would believe it unless you had been there. ((She laughs.))

Valaki: ((She chuckles.)) ((TR NOTE: Audio cuts out for approximately four seconds. When the audio returns, Mrs. Friedman is talking:))

Friedman: What do you want me to say?

Valaki: Well, at which point did Fabyan try to get real crypt work done? There's quite a gap between Bacon and the Bacon/Shakespeare controversy, and real cryptanalysis. And...

Friedman: Well...Ah, you see, he never had a...Say he pointed out there a goal and, you know, just brought everything in to this main branch here (B% North) (1-2G). Nothing was ever as carefully executed as that. It was sort of a on a day-to-day basis. You did what you could with what you had to do it with. And it was his idea to get the Army...During the war, you just can't help getting this mixed in because it's actually the way it happened. When he didn't get the Army to fall for his plans of having a Deciphering Bureau, as he would have called it then, in...at Riverbank—have it brought it out there...And the whole work of the organization would be out *there*. And telegraph or special delivery would be used to send and receive messages to Riverbank from the War Department and so on. And somewhere along the line, they got...he got the idea...Fabyan got the idea of training officers for work overseas. And that meant both cryptology and cryptanalysis.

Valaki: But how could...? How was anyone at Riverbank prepared to teach cryptology when all there was, was the Bacon cipher?

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Friedman: Hah! ((Laughs.)) Well, what was taught was taught, and we taught it with what we had.

Valaki: Well, how did you get...?

Friedman: The only things that existed way back there when we mentioned the Hitts...In 1917, the only things that existed were just these sort of incidental things: the incidental thing of Captain Parker Hitt and Mrs. Hitt having invented this sliding strip device. She didn't, you know? It finally turned out to have been Thomas Jefferson's all along.

Valaki: Well, yes.

Friedman: Did you know that?

Valaki: Yes.

Friedman: Well, that's very important, I think, and so amusing. ((She laughs.))

Valaki: Was it a reinvention, do you think, or was it a borrowing...a lost invention that was reinvented?

Friedman: I...You know, I ((she pauses))...I am pretty sure that it was after the war, and it was John Manly of the University of Chicago who discovered it in the life and papers of Thomas Jefferson up at Princeton. Some historian who I can see—I can visualize the man, but I haven't the faintest recollection of his name now—somehow got that out. He put two and two together, and a niblet here and a niblet there, and so on and finally comes up with a convincing, true scientific story of Jefferson having invented that cipher and exactly how he did it.

Valaki: Mm hmm. Well, was it Parker Hitt, then, who brought the techniques of real...of modern cryptology...

Friedman: Yes.

Valaki: To Riverbank?

Friedman: That's right. That's right. They get...

Valaki: And, ah, his manual and his books... Did he bring a bibliography as well—Kasiski and Kerckhoff and that sort of thing?

Friedman: Well, I don't think that he brought them as such. But somebody was nibbling away and working at that. And as you say, Parker Hitt did come out there. And it wasn't this discovery...That what he thought *he* had invented—Parker Hitt and Mrs. Hitt thought they had invented—was first...was next found to have been invented by Jefferson because it was found in Jefferson's papers at Princeton University right about then, within a year or two. This all happened within two years, I would say.

Valaki: Mm hmm.

Friedman: And...Well, *then*, I guess things just faded away except what...You know, the war wound up and wound up to a close more or less rapidly. And so, it was kind of normal that it should all develop and wear out, as it were, finally in the end to believe this or that or the other thing. I've often wished

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that I knew where...And I...The only place that I still think of that could explain Mister....my husband's coming to be convinced that ((she pauses))...Well, modern ciphers...the Baconian ciphers led quite logically and acceptably up to modern military ciphers. And so, they started in. You know how the Army does things: bang, bang, bang! ((She laughs.)) Once they get an idea of something...where something is going, why, then you must go forward at all speeds. And so, it just seemed very natural for whatever...I don't remember where Colonel Fabyan first got that flow of messages to Riverbank to be deciphered and then sent back to Washington. I don't remember exactly when that was. I should remember, but I don't because, you know, we were never allowed to stop long enough. ((She chuckles.)) Around George Fabyan, you had to go mighty fast if you were going to keep up with him and get things down so they were unforgettable. Ah...

Valaki: So do you suppose he volunteered, then, the services of his code and cipher experts...

Friedman: Oh, he did. He did!

Valaki: When in fact, at the time, he did not have code and cipher experts, but quickly made them instant code and cipher experts? Was it possible?

Friedman: ((She chuckles.)) Well, yeah, they were "instant" cryptanalysts, you might say. Mm hmm, sure.

Valaki: So that, perhaps, he said he had these code and cipher experts. And then, when the Army said "Fine," that's when they sent Hitt. So immediately, you and Mr. Friedman and anybody else, (B% they) were able to absorb something of military cryptology sufficiently to take it from there. Do you suppose, more or less, that's the way it happened? Or do you suppose there was still some (B% problem)?

Friedman: Well, except that I don't think that we ever...ever thought anywhere along the line that these were particularly difficult things to do. It's just that they hadn't been done in the military way before.

Valaki: Mm hmm. Did you read yourself any of the classics in cryptology in French or German since you read French and German—or in Italian...or rather Italian or Latin?

Friedman: No, I didn't. I didn't read any of them. No, I never even considered going into that.

Valaki: When you first started yourself working on ciphers—let's say the messages that Fabyan got—did you take a pile of messages and have Hitt's manual and try to work them from that...used Hitt's manual to solve the ciphers?

Friedman: Yes. Yes, we did. And we...Fabyan hired translators, you know. Have you ever seen those photographs? There should be some photographs around here somewhere showing the group of people like...Now, when we got into the war in Europe, Fabyan did what all presidents of nations would

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do: they'd have a diplomatic representative at once. And so, he got Dr. J. A. Powell of the University of Chicago Graduate School, who okayed Mrs. Gallup and her bilateral cipher. And the next thing you knew, Dr. Powell was now Colonel Powell... or General... ah, Major... Major Powell, I think, and then later promoted to Colonel. And I swear I saw... Just a couple of days ago, I saw a photograph of....((TR NOTE: Footsteps of Mrs. Friedman moving away from microphone.)) ((More noises here.)) Out at Riverbank he was... He acted as liaison officer... Mind you, now, Fabyan has enlarged and enlarged his circle of operations. ((She returns to microphone.)) And here we are, hardly... hardly got into the war ourselves, when here we were with a licensed representative between the United States and the European governments—Dr. J. A. Powell. He was liaison officer between France... the American Forces in France, and Washington D.C., and Geneva, Illinois. That was what Fabyan had created. There he was. Here's a picture of...((TR NOTE: Mrs. Friedman moves away from the microphone again.)) I just came across it a couple of days ago. (B% Boy!) God, if I had a brain in my brainless head, I would have... Ah... ((TR NOTE: Audio abruptly stops at this point.))

//////////End of transcript//////////