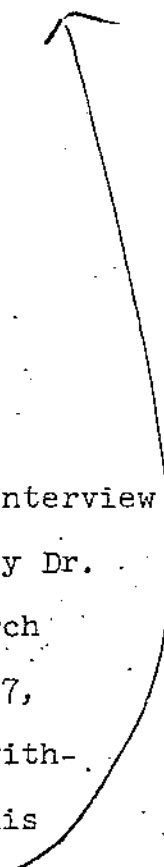


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GEORGE C. MARSHALL

INTERVIEW WITH MRS. WILLIAM F. FRIEDMAN CONDUCTED BY DR. FORREST

C. POGUE AT THE MARSHALL RESEARCH LIBRARY

LEXINGTON, VIRGINIA MAY 16, 1973

Question: Let's begin... you were going to college in Chicago.. You were going to Wooster College and after two years your mother became ill and she died of cancer. When that was over you didn't want to go back to Wooster, you went to Hillsdale...

Answer: Hillsdale, Michigan.. it's about a hundred miles from my home town.

Question: And you took your degree in English and taught for a year and then decided you didn't want to teach any more and want to Chicago..

Answer: Yes, to look for a job.

Question: Let's pick it up from there. This is June 1916.

Answer: As I was looking for a job in Chicago and went to an employment agency and nothing turned up, I remembered that there was a 1623, ^{an}original 1623 Shakespeare folio in the Newberry Reference Library in Chicago. I had never seen one and I decided to make a trip ^{from the Newberry} to the Northside to see the Shakespeare 1623 folio. While I was there I spoke to the librarian and asked her if she knew of any jobs for a young college graduate who had one year's experience as the principal of a small high school and had majored in English literature. She thought a while and said, 'well, she might know someone, and she told me about George Fabyan, this multimillionaire who had an estate outside

Chicago and had all sorts of research things going on there and among ^{which some} them was research into cipher in connection with Shakespeare and Bacon. She said "Shall I call him up?" and I said "Well yes; I wish you would, please" and she did. It seems that THE Mr.

Fabyan decided he would come out to the Newberry Library to see me.

He came out in his city car with his ^{city} chauffeur and came into the library. He was a very striking ^{looking} person, I noticed right away.

A Very big man and his ^e was not bald. He had quite a ^{little} lot of hair, ^{which} was iron gray and a ^{he had} mustache and goatee that were also iron gray.

He was dressed in a cut away and striped trousers. She introduced us and the first word ^s he said to me nearly bowled me over. He

said "Will you come out to Riverbank and spend the night with me?"

And I said "Oh, Sir, I don't have anything with me to spend the night away from my room". And he said ^{well} "Never mind that. We can

supply ~~that~~. Come on." He masterfully took my arm and marched

me out of the Library and put me in this car and the chauffeur

drove us to the Chicago Northwestern railroad ^{way} station. We got

on the train and proceeded to Geneva, Illinois, which is twenty-five miles southwest of Chicago on the main Chicago and Northwestern

line. He took me to the far end of the car, which was completely empty when we got on the train, ^{the car was} but he went to the far end of

it so ^{that} he would be at the end of the car and facing the whole rest of the car. That was his universal habit. He always

sat in an end seat with him facing the remainder of the car.

He settled me in ^{then} the seat there and he went off chattering to the conductor of somebody. Finally he sat down beside me and leaned

forward and looked in my face, very severely, and said "Well, what do you know?" and for some reason or other I perkily turned my head toward him and said "That remains, sir, for you to find out!"

Now That gave me an idea that he thought I was pretty young and inexperienced which I was. But I dressed the part. ^{because} I was dressed in a gray faille dress, made very simply and it actually had a big white puritan collar and cuffs and it gave me a very demure appearance. And I don't think any ^{body} ^{at any rate} one had ever called me demure. And I really wasn't, but I must have presented that appearance to him. So we went to his estate. At the Chicago Northwestern station in Geneva, his country car and country chauffeur met us. We drove a mile or two to his estate and I was delivered to a house called the Lodge. Now he had a large estate of several hundred acres which was cut into three pieces, ^{on} on the side where I was taken to, the Lodge, one of the houses where he housed workers, ^{I mean the brain workers} was on one side of the Lincoln Highway. Then came the Lincoln Highway, then came his own part of the estate, the house where he and Mrs. Fabyan lived, which was called the Villa and the Zoo (she was very fond of animals, she had a small zoo on the grounds), that was there, and the garages and the cars. And the thoroughbred homeses, Mrs. Fabyan's hobby was thoroughbred horses and she travelled all over the country with these horses. ^{to} Entered them and ^{for} won prize after prize. Colonel Fabyan was very careful to keep on the far side of the Lincoln Highway, away from the river, the Fox River cut into the estate too, he had there a growing going institution ⁱⁿ what he called the ordnance laboratory and later the sound laboratory. And he also had the genetics laboratory which was rigged up in a windmill

genetics lab in a windmill

which also contained a hothouse of plants. There he employed William Friedman^{a young graduate student} from Cornell University, who had come there as a geneticist ^{for} to try out his experiments in planting oats in the light of the moon and his experiments in sound. While we were there he built the second sound laboratory in the United States, under the directorship of Walter Sabin, of Harvard, who had built the only other sound laboratory in the United States. They also made tuning forks and ordnance weapons, and such things, things that really turned out to be the only useful inventions or developments that were ever made at Riverbank.

Question: Is that what the estate was called?

Answer; Riverbank Laboratories. Riverbank was the estate, but Riverbank Laboratories covered all those buildings on that one side of the Lincoln Highway ^{what shall I call it?} that carried on discoveries in this or that.

Question: You were ^{calling} talking about going to a meal...

Answer: Oh, Yes. Dinners were served to the workers on the place in this house called the Lodge, where I had been given a room for the night. It was beautiful ^{beautiful} food and lots of it and served beautifully. Mrs. Gallup, Mrs. Elizabeth Wells Gallup, who, quote, discovered close quote, the bi-literal cipher of Sir Francis Bacon, proving, she claimed, that Bacon had written the Shakespeare plays, as well as many other books of the Elizabethan period for that matter.

lots of food
and good

One of the amusing stories that I always recall about Fabyan sending for William F. Friedman was this letter; and there was a copy of it ^{re that} I saw many times. He wrote to Cornell saying that he wanted an expert in heredity. He was interested in the mutations of animals. He was interested in mutations of crops. He was interested in proving or disproving perpetual motion. In connection with the crops, he had Mr. William ^{F.} Friedman, who was then a geneticist, planting oats in the light of the moon and other phases of the moon, and to keep a record of the results and so on. The point I was going to make about the letter to Cornell about someone to do that work in the genetics world and the almanac phases of it ^{and so on} - he wrote to Cornell and described the kind of person he wanted and he said "I don't want a has-beener, I want an as-is-er." That was his description of the kind of persons he wanted. Well, at dinner that evening I met William F. Friedman for the first time. Everbody was dressed very, I don't mean in full eveing clothes, but everybody was very dressed up for the ocassion because that was this kind of semi-formal atmosphere in which everything was run there. We always had pitchers of ice water and fresh fruit with fruit knives by our bedside when we went to bed. And we really lived the life of what you might call the minor idle rich. But he paid almost nothing. The idea was ^{on} you are getting all these advantages, you don't just palin salary or money. So we all started and then the world began to pop and things began to happen. That was in the summer of 1916 when I went there.

semi-formal
atmosphere

Question: Before I forget it, that was the first evening you met William F. Friedman?

Answer: Yes. I remember I can see him walking up the steps. I was on the porch to this house, the Lodge, at the entrance and I was sitting there on the banister or something. And I'll never forget his appearance. I saw him come up the steps. He was kind of a Beau Brummel; he was so beautifully dressed and so, there was no country informality about his attire at all. He was dressed as he would have dressed going to a very well-to-do home in a city house. I'd never heard of him.

Question: It is quite clear from these pictures here that he liked the bow tie tied just right and his mustache was just right.

Answer: Yes, ^{he was} sartorial. And he always liked the bow ties. He almost never, never wore a four in hand tie. Well, since we were the only really young people on the place we got became friendly very shortly. We both got bicycles and would ride around the countryside. He played tennis. I didn't play tennis. I'm not any good ^{at} ball, ^{you know} or baseball or tennis or golf or anything like that.

Question: He was quite a good tennis player I take it?

Answer: He was. He was a very good tennis player. He was a doubles champion in the District of Columbia for two years I think. with ^{or} Major, oh what was his name, began with D in the Signal Corps, and they were the doubles champions in the District for a couple of years.

*Friedman
a very good
tennis player -
doubles champion
in DC for
two years*

Q: Did he play golf too sometimes?

A: Yes. Around 1948 the doctor told him he couldn't play tennis anymore and he took up golf. Now where would you like me to go from there?

Q: This is the sort of thing a biographer would like to know: when did he have his first heart problems? I know this is terribly personal but it is important part of the story.

A: Well, in about 1948, he had a thorough ^{going} examination and the doctors told him while there was nothing serious wrong with his heart then, it showed signs that it needed a little more nourishing care and that he must not play tennis anymore. So he stopped playing tennis and it was then ~~XXXXXXXXXX~~ that he took up golf.

Q: So he exercised very disciplined ^{with golf} ~~after that~~ ^{there after} with his diet and exercise?

A: Yes.

Q: But still managed to do a lot of work?

A: Oh yes.

Q: Were there two or three attacks?

A: Well, when he had the first attack ^{attack that was diagnosed, was the morning} ~~that was diagnosed, was the morning~~

^{that was} April 3, 1954 or 55 when the Washington newspapers came out on Sunday with a headline that big saying "Washington couple wins Folger literary prize" and that very moment before he had even seen the morning paper, he had this attack. He was in such pain that the perspiration absolutely poured in bucketsful down his face and body. I got him into bed and called the doctor and he was taken to George Washington University Hospital by ambulance all within half an hour and when they made the first cardiogram they learned that he had had a previous heart

*Friedman
heart
attack
date*

coronary occlusion, because the scar tissue was already in the heart. Then he had a third attack May 10, while he was still in the hospital. He had a third coronary occlusion. He is only one of six percent of people in the world who ever survived a third coronary occlusion. And look how many years he went on after that and how much work he did.

Q: And yes ~~xxxxxxx~~ ^{he was certainly active} ~~he continued to be active~~, except for climbing the stairs. He continued to take walks.

A: Yes.

Q: He had this form of vertigo where he couldn't stand well?

A: I don't know that he had vertigo exactly. It was more ^{or less} a means of taking a certain effort ^{away} from the heart by using this walking stick. It's called an English shooting stick.

Q: Yes but ^{I mean} somewhere in the last two years he had to go into the hospital with something quite dizzy?

A: Yes, they thought he was getting Parkinson's disease, but the tests didn't follow that through. And I think probably, ^{n't} I should say, but ^{it may have been} overtiredness I don't really know.

Q: I think maybe later we can explore these things more. But I'm putting these things on so that a biographer can know that these are to be explored with you. He kept two or three projects going I know...

A: Yes, he always had more than one thing going

Q: He was still working on Casanova..

A: Yes.

Q: And I don't know; there were two or three things that he talked me about. Of course he kept up a considerable amount of conversation by phone with a number of people and a number

came there to see him quite regularly,

A: Yes.

Q: Admiral Wenger was one of those?

A: Yes. He and Admiral Wenger, they... My personal opinion is that they won the war.

Q: 'Cause they worked together on the....

A: Yes, and if it hadn't been for Wenger's influence, which came to him through what means I don't know, but apparently he had control of a lot of money and the Signal Corps, my husband, couldn't get any money. You see, he had invented the Sigaba machine, but there was no money to build it. And Wenger said we have the money but we have nothing of the sort and we don't have anybody capable of making one. And so it was there ^{ir} forces joined ^(colly. the) which produced the Sigaba, ^{which} I think it's all right for me to say this, but I asked someone who I know is in a position to know, in the analytic ^l realm out at NSA, not long ago, ^(of course) of course as you know they carry on the section that has to do with the safety of our own codes and systems and so on and it is just as deeply ananalytic ^l as the group that works on the analysis of enemy codes and ciphers or other countries codes and ciphers) I was told there hasn't been a single message, according to their records which they feel are absolutely complete, there has never, never been a single message deciphered from the Sigaba machine.

Q: Is this what we speak of as the purple?

A: No, the purple code is the Japanese machine that was built from scratch and pieces of junk and so on. It was based on the Enigma, the German invention called the Engima,

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which was a great German cipher machine, and I suppose the Germans built it for the Japanese. ^{But} Do you know wouldn't even believe at the end of the war when they were shown it that the thing had ever been deciphered! They just wouldn't believe it!

Q: Is this S-A_G_A_B-A?

A: S-I-G-A-B-A, that's the American. That's just the nickname. I can't give you the complete authoriatative name for it, at the moment, I just can't remember it. At any rate, for many years now the United States has been ~~keeping~~ in the position of keeping a constatin day to day, hour by hour check on the security of the Sigaba and it is still absolutely secure.

Dr. Pogue: Yes, unless you have that kind of security, you may have the code broken or something done so that it's lost its complete value.

^{could}
Mrs. Friedman: And of if that isn't know, ^{if} if that becomes known that's one thing.

Dr. Pogue: Another friend, and I want to go back later and get more on Wenger, another man I know he saw a good bit of was Parker.

Mrs. Friedman: R. D. Parker. He is still alive at the age of 91.

Dr. Pogue: Astonishing.

Mrs. Friedman: He is still a consultant to NSA goes out there two or threez days a week. He's amazing. Now my husband's acquaintanceship and association with him dates back to before

World War I. That printing telegraph machine there you see, the Signal Corps used that in all their message centers through both wars, that was their machine. You see the one that I mean, right next to the plain photograph of Mr. Friedman, the machine in front of him with all those tapes running in and out of spools there. The A. T. and T., R. D. Parker was the chief of research in the laboratories of A. T. & T., and they had constructed this machine and it was for the use of sending messages over the wire because that could be wired right up to a commercial telegraphy line, single telegraphy line, if they wished, I mean an official one, in the Army for example and send messages. Well, the question at that time, in the late teens, before 1920, was whether a double key or a single key should be used, which would be the safer, that was the argument about it. General Mauborgne, General Joseph O. Mauborgne, was very stubborn about the idea. He insisted that it had to be a double tape and R. D. Parker in A. T. & T., whose men and he had developed that thing, claimed that a single tape was safer. The double tape was based on someone sitting down at the keyboard and typing out, punching holes, in these tapes, typing out a key of 999,000 letters as against one million letters and those two each sliding against ~~one~~ another created still a third letter, you see.

Dr. Pogue: Was that picture made after the war?

Mrs. Friedman: No, I thing^k that was made, I know it was made before World War I. That particular photograph was probably made in Washington in the Signal Corps, because I'm quite sure^{that} one thing Colonel Fabyan never persuaded A. T. & T. to do was to ship the machine out to Riverbank. They never had it out there. What study^{ies} ~~was~~ my husbank made of it was in the A. T. & T. offices in New York.

Dr. Pogue: Did A. T. & T. develop this particular machine for the Army?

Mrs. Friedman: Well, they were developing it for general purposes because what it acutally could do you see, was you could type out a message on a keyboard and it becomes cipher by the interplay of these key tapes over here going through at the same time the tape you^{re} typed out and those interact on each other and out comes^{the} cipher text over here and that can be put right on a communication line and sent, instantly.

Dr. Pogue: I wouldn't have thought they needed that sophisticated a cipher machine.

Mrs. Friedman: Well they didn't need it right then, but like all reseacd and development peopple, Gen. M Joseph O. Maubornge was one of those, he ~~was~~ in charge of research and development when he got us to come to Washington, ~~and~~ he was one of those who was very interested in that machine. He ~~was~~^{and he} in New York^{city} one time when Col. Fabyan and my husband went there before the war, this was around 1918^{or} ~~1922~~ at the ~~ixix~~ latest, maybe as early as 1917 and that was the beauty of the thing. And do you know the Army used those

they hadn't that much of a use for it then.

as a message sending machine, cipher or no cipher. They were used not only as cipher machines but as transmitting machines for sending messages in World War I. They has them in all the big headquarters.

Dr. Pogue: And I suppose kept them until some time before the beginning of World War II, our entry into it.

Mrs. Friedman: Well, I don't knowx how long they lasted in between. I ~~xxxxxxx~~ think developments went pretty fast after that. It wasn't long after World War I, 1923, Hebern and his machine (I don't think we have a Hebern machine in this collection.) It was a small, larger than this but smaller than that.

Dr. Pogue: In other words smaller than a portable typewriter.

Mrs. Friedman: Yes.

Dr. Pogue: The other items looks like at small adding machine.

Mrs. Friedman: This? That's one of the machines which was based on a Hagelin invention and that was what the doughboys carried that's the kind of thing... may not be exactly the same model but they are both Hagelin machines.

Dr. Pogue: Hagelin?

Mrs. Friedman: Hagelin. H-A-G-E-L-I-N. Boris Hagelin. He is the greatest manufacturer of cipher machines that ever lived. He's still alive. I had a letter from him the other day.

Dr. Pogue: Is he Swedish?

Mrs. Friedman: Yes, but he hasn't lived in Sweden...

Dr. Pogue: Is picture here some where?

Mrs. Friedman: I'm sure we have them in the collection.

Dr. Pogue: Is he a big man?

Mrs. Friedman: No, he's not short, he's not terribly tall.

I should say he would be almost, well he's probably 5'10" or '11.

Dr. Pogue: I remember seeing his picture, I'm nearly sure and it showed...

Mrs. Friedman: I don't understand ^{about it} because we always used to have a picture of him hanging in the study.

Dr. Pogue: Yes, I remember very well.

Mrs. Friedman: I don't know what's happened to it. I'll have to look that up.

Dr. Pogue: I'm trying on here to identify these sufficiently that someone coming in the room later will be able to tell which ones you are talking about. The machine you are talking about the doughboys carrying is in a khaki case.

Mrs. Friedman: Yes. I think that's interesting for that to be seen. Now this also is a Hagelin machine. Where's that teensy-weensy little thing that's so cute? This was never put into production. This is a Hagelin machine. Isn't that adorable?

Dr. Pogue: Yes.

Mrs. Friedman: And what it does is... ^{you know} here's the way you set your cipher. You open this up and then you set a certain key across here, five discs, you set a key up across there and that sets your key and then you do what ever setting you are going to use here and then you turn this for your plaintext letter, say T-H-E. Tz and these go spinning around

Dr. Pogue: Now, can you reset these dies?

Mrs. Friedman: Oh, yes. That's reset for every message, if you wish to. And then it prints, if you please, it prints on this tape.

Dr. Pogue: I see. Now this thing looks like about twice the size of an electric shaver, ^{the tape type} It has 6.13 on it.

Mrs. Friedman: Now 6 was the catalog number ~~xxxx~~ my husband gave for cipher machines and devices. ~~and~~ ^{this} is number thirteen in the...

Dr. Pogue: You say that wasn't used?

Mrs. Friedman: Well, not to my knowledge. I don't know how many foreign countries may be using it. But it wasn't used..

Dr. Pogue: That's Boris Hagelin machine type C-35 serial number 600. And here is Col. Friedman's statement: The first of its type manufactured...I don't know how much this sort of detail Kahn has in his full book I've only looked at the...

Mrs. Friedman: Well, he never got into our library. That's one thing that there were strict orders about, ^{he never got into that library} not until after my husband's death ~~and~~ ¹ then I sent him upstairs for five minutes. He wanted to know if I had such and such a thing in my husband's collection and how much was in the collection that had been his production, David Kahn productions. And so I let him go upstairs to the library but I sent John Pontius with him, John Pontius was that young Army sergeant who was working for me and I had given him his instructions beforehand that he wasn't to let Kahn get away with anything. Not to be impolite, but just hurry him through, ^{oh} just a hurried trip.

Dr. Pogue; I think perhaps we better, I don't like to jump about like this but sometime if you let one of these go you forget to put it down. In view of the fact that there is a little controversial element about Kahn in his treatment of Col.

Friedman, I think it would be very important to put down here Kahn's early relationship with him and just how much he got directly from Col. Friedman. There are some people who say that Col. Friedman gave him secret information and of course you and Col. Friedman both told me that you wouldn't see him at all.

Mrs. Friedman: That's true.

Dr. Pogue: He first, as I remember hearing this from Col. Friedman on one of two occasions, ^{the first} got letters from David Kahn, who wrote the Codebreakers.

Mrs. Friedman: Yes, but he was 13.

Dr. Pogue: And he saved his money up and wanted to buy copies of the Riverbank series, wasn't that right?

Mrs. Friedman: Uh um. His parents for graduation from high ~~xxxxxx~~ school gave him a mimeographed edition of the Riverbank pamphlets. And he wrote Mrs. Friedman and asked if he would autograph them and Mr. Friedman thought well if some kid would rather have that amount of money spent on this type of thing rather than getting a new bicycle or ~~that something~~ ~~xxxxxx~~ something, he should be encouraged. He had never seen the boy at that time, he just had his letters. This was not graduation from high school ~~either~~ ^{school} either, it was graduation from junior high. So he sent him a whole set of the Riverbank publications.

Dr. Pogue: Which was already in short supply then.

Mrs. Friedman: Well it certainly wasn't a very generaur supply, but there were quite a few more of them than there were later on.

But we did see Kahn a few times over the years. Not very many times, I wouldn't say more than three or four times. There was a lot of correspndence becuase you ~~skwx~~ couldn't shut him up you know. You'd answer some question he may have raised and then he would come back with some question that that question raised. He was always finding some excuse or other to write ~~xx~~. But we really didn't see very much of him. When he did that article for the Scientific American, which was about 1965 or some time along there.

Dr. Pogue: And this was on...

Mrs. Freidman: What was it called? It wasn't on William F. Friedman ~~although~~ alone, but he took up a lot of space in it of course. I wrote him a letter and burned him up about something or other in that and som on. I ~~re~~llay think that Kahn's not wicked. He's not a deliberate trickster or a meany or any of those things. His mind has one fixation and he has it so stronggy that what seems to other people to be a presumption on his part is merely an expression of this passion he has. And I'm convinced that he does mean well. Now I had dinner with him, you spoke about him recently having been to Washingtln. He was over here on that radio, travelling around the country, TV promotion for his paperback book. And he ciled me. He managed to wangle out of somebody down at the archives my telephone number and he cllalled me and asked me to have dinner with him that evening, it was Saturday and he was leaving the next morning or maybe that

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didn't want to go down town and all that such a mess so I said I'll meet you at the Cosmos Club, you come up there. I just treated him like more or less of a stranger. We talked something about the publication of what he was doing now and about what material he had used out of the Codebreakers for the paperback form and all that type of thing. We didn't get very serious and I didn't give him any information. But I think he's learned a lot of sense over the years and he certainly isn't vicious. Whereas a lot of people can be vicious if they've been turned down...

Dr. Pogue: You think that he does mean well, but that he just...

Mrs. Friedman: He's just inept.

Dr. Pogue: And he undoubtedly has enormous admiration for Col. Friedman.

Mrs. Friedman: Oh yes, he does indeed.

Dr. Pogue: I got the impression in those last years Col. Friedman...

Mrs. Friedman...got ~~xx~~ very annoyed with him. I can remember David Kahn sitting at our house one time one evening when he insisted on taking us out to dinner. That's another thing, my husband would never accept any hospitality from him because he that that kind of thing just would do. But this time he had insisted on taking us out to dinner and I think the only way we cut him out of that was to take him to Fort McNair where of course you can't pay cash and then we stopped at our house, he brought us back and we stopped there and

comment". "No comment." one after another. Finally he said can't you even tell me if you were awake at two or three in the morning and whether you drank black coffee or not and my husband said "No comment." and at that he gave up and left and I never heard from him since until this time recently when he came back from England.

Dr. Pogue: Well, Col. Friedman called me twice that particular day, ^{shelly after} but it was because occasionally I think he would take a nap and wake up and he would just want to talk. So there was a period there he'd call me maybe three nights a week and chat. He got very annoyed because one, Kahn sent him, not The Codebreakers, but another book or something, ^{I don't been} I can't remember, some publication and then he sent him some papers, it seems to me, which Col. Friedman thought were classified or something and was mad ^{at him} and said I want to report him. And I said "Oh you really don't want to do that do you?" And he said "well, he just worries me to death." Of course I know that Col. Friedman got very put out with people who kept annoying him. I remember his attitude toward Ladislav Farago on this score.

Mrs. Friedman: Well that man I could have killed! I practically did.

Dr. Pogue: He was wanting material for The Broken Seal?

Mrs. Friedman: Uh um. That was before that came out. Now there again he was just racing against time. He put down anything no matter how wild or untrue or crazy it was he put it down anything in order to get a book size publication because he was determined to beat David Kahn on getting out The

Dr. Pogue: Apparnelly he did Game of the Foxes the same way. And then he rushed into print with this Eichman thing.

Mrs. Friedman: Now I don't remember about that. I remember seeing it mentioned but I didn't pay any attention to it.

Dr. Pogue: I don't mean Eichman, I mean ~~E~~ Borman. ~~He~~ of course he came out with this business that Borman had been found and I guess he got a lot of money for the article but I thing that has been pretty throroughly disproven.

Mrs. Friedman: That's Farago god of course, money. He'd tell any lie, do anything I think.

Dr. Pogue: And yet, the awful thing about it is that both those books were on the best seller list for a long time. And he made a great deal of money from them and passes as a great expert ^p in this field.

Mrs. Friedman: He's awful.

Dr. Pogue: Now he did have a good deal ^{bit} of background, World War II in intelligence work, didn't he?

Mrs. Friedman: No, he didn't really. He was a special adviser with no official standing whatever, but appointment simply by Frank Know, Secretary of the Navy, And his field of ^c advise was psychological warfare.

Dr. Pogue: That's right, he was in that section wasn't he?

Mrs. Friedman: Pyschological warfare and he was never inside Naval Intelligence (tape badly garbled)was chief of Naval Intelligence, etc. etc. and Ladislas Farago who never got inside the door of Naval Intelligence said nothing, he didn't even shake his head no!

Dr. Pogue: Goodness.

Tape number 2

Dr. Pogue: We were talking about... I ^dkon't know exactly what tore off that end (of the tape) we may have lost two or three minutes of the very beginning of that other side, I've got it down here, we can always go back and record that, we talked about Farago, but we had finished that topic hadn't we? And I'd gone back to Kahn again for a minute, and...

Mrs. Fredman: Yes. That's when I asked you about that secret review of Kahn that I saw...

Dr. Pogue: Yes I said the main thing was to get on here the feelings ^{of}, your feelings about David and then I suppose I had mentioned that fact that Col. Friedman had talked to me a time or two about his annoyance with Kahn, but I know that David personally was extremely fond of Col. Friedman.

Mrs. Freidman: Yes.

Dr. Pogue: But...

Mrs. Friedman: It was his annoying persistence. ^yyou see he'd always come back in the hope that this time he could break Mr. Freidman down and get him tricked or coerced or coaxed into making some statement or other.

Dr. Pogue: I really think he thought he could talk ~~ix~~ him into it. Not trick him, but he was aware that Col. Friedman has thought highly of his work before and I think his feeling is though that Col. Friedman reacted because some people in reading the book ~~thx~~tought ~~thxz~~ he had gotten things from Col. Friedman that he hadn't. Because my impression always was that Col. Freidman went out of his way to be extremely careful.

Mrs. Freidman: Well, now you ~~kmz~~ take this man Stuart Heddon, who was the American agent for Boris Hagelin and the machines and selling them in this country, you ^{ll.} see. And I gave Stuart Heddon's name to Ronald Clark. Ronald Clark wrote to him - Heddon now lives in Florida - and he's about 71, ^{now} but he would look about 50 - & he's a very handsome Swede over six feet tall - he's about 6 feet 4, I think.

Dr. Pogue: I bet it's that man's picture that I've seen.

Mrs. Freidman: Probably.

Dr. Pogue: Because I do remember one very fine looking ^{typical} Nordic type.

Mrs. Friedman: Well, he replied to Clark that he wasn't saying ^{to him} no, but he felt that he could not help him because, although William F. Freidman was friendly and all that kind of thing and dealt with him on the purely business side of purchase or ^u non-purchase of Hagelin machines, Heddon said that Col. Friedman never once made the slightest remark that could possibly have been considered classified information. And Stuart said that in this last letter (I'm going to send down a copy of that), his letter to Clark, that even though Mr. Friedman came to his home, his farm in Connecticut, several time to rest for a few days, during the ^{period} time that Stuart then later ^{1946 or 1947} that that was when he was working on the purple code, that he never once mentioned anything and that he leaned over backwards to keep away. And he said he never talked to him even after I became Inspector General of the ETTX CIA, which he was for two years and knew what he was doing, that Mr. Friedman ^{3/11} never, never mentio

or breathed a word of anything. He didn't even act as if there was anything to be said.

Dr. Pogue: Well, I think that often when you aren't sure what people know or what has been cleared, it gets mixed up in your mind as to what you can talk about safely, and to whom, that you tend to feel that the easiest thing to do, or the safest thing to do, is just not talk.

Mrs. Friedman: Just never, never say anything.

Dr. Pogue: I'm sure there have been times in your married life when you were working for the Navy and he was working for the Army, or did you both work once for the Navy?

Mrs. Friedman: No. And I wasn't with the Navy very long, it was only about six...

Dr. Pogue: There may have been times when you didn't talk to each other some things.

Mrs. Friedman: Exactly, exactly. My husband got called on the carpet one time by General Strong, the head of Military Intelligence, accusing him of talking to me, because I worked for the Navy. Of course there was no truth in that at all and that was connected with the Hebern machine - when the Navy was considering buying the Hebern machine.

I can't remember whether we have a Hebern machine in this collection or not; I don't ^{believe} think we have.

Dr. Pogue: This is George B. Strong, head of ...

Mrs. Friedman: Yes.

Dr. Pogue: He was there at the beginning of the war.

Mrs. Friedman: Yes. But I'll say this, and this is for the record, any record, anybody can use it ~~for~~ anyway they want. The

the, what is now called the purple code, was that one evening he told me that that day Major General Mauborgne, Chief Signal Officer, had called him, William F. Friedman, into the office of the Chief Signal Officer and said "Look, this group that I have working on that Japanese cipher are getting no where. I want you to drop everything and devote your entire time to that. He told me that, I didn't know anything. it, he didn't mention what was going on or what machines were known to be in existence or anything. And the thing that astounds me so, as I've looked back on it many times, was that the day that the first message, when they made that purple machine, so called purple machine, out of nuts, bolts, screws, rusty this that, pieces of everything and they got the machine to the point where he ran a message through and it actually produced ...he^{didn't}...now wouldn't you have thought that any being that was human couldn't have resisted, that they would have said something on that day. Never said a word to me. I didn't know anything about it.

Dr. Pogue: That would be awfully hard to keep to yourself, wouldn't it?

Mrs. Friedman: Why, I have just never been able to understand that!

Dr. Pogue: Because it was a culmination of the greatest piece of work that he ever accomplished.

Mrs. Friedman: And Stuart Heddon, I was going to send a copy of this letter, Stuart Heddon said when he was with the CIA, as Inspector General, he had access to all the knowledge concerning all the solution and all the cipher machines and all that, that still my husband knowing the Stuart Heddon was Inspector General,

of the CIA, knew all about everything, he still never mentioned it, not once. Stuart said that he learned that, this was in the same letter, ~~this makeshift~~ this makeshift machine, out of bits and pieces and rusty parts, worked better and faster than the honest-to-god purple machine when they finally got a hold of a real purple machine.

Dr. Pogue: But that first one was entirely improvised. Then they made what? five more? three more?

Mrs. Friedman: Yes. Mac Arthur had one, This is one thing that always got me about MacArthur, the old foreflusher, speaking up in such derision of the ~~XXXX~~ American Army letting Pearl Harbor happen. Then the next day the Japanese attacked the Philippines and he had to leave. And he had, as far as I know they didn't have a copy of the purple machine in Honolulu, but MacArthur had one.

Dr. Pogue: He had one and the British had one.

Mrs. Friedman: Yes. The British had one and I think they were making another that was to go to Hawaii, but it hadn't gone.

Dr. Pogue: Of course our great fear was the Philippines, not Pearl Harbor. That was part of the trouble. Then there were ultimately four?

Mrs. Friedman: My feeling is that there were five. The Navy would have had one; the Army would have had one, in Washington, that's two; the Philippines was three; the British was four. Whether that was all of them or ^{whether} there was a fifth somewhere. But my feeling is the same as yours, something rattles in my head about there having been five.

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headquarters.

Mrs. Freidman: I think it went to the Pacific.

Dr. Pogue: I believe so.

Mrs. Friedman: But that's my assumption. There again there were other people that were just as closed mouth as my husband was. I knew Abe Sinkov, who was in charge of that, in Australia under MacArthur. And Major General Aiken, Spencer Aiken, was the head of the whole Signal Corps and Military Intelligence business in Australia all during the war and neither of them have ever opened their mouths, that I know of, about anything.

Dr. Pogue: General Aiken comes here occasionally. I know he was here for the dedication. And I don't know if he's ever looked at this collection. ^{Mr.} Lives not too far from here.

Mrs. Friedman: I know, I get a Christmas card from him every year. And I meant to write to him this year. He lives at Purcellville, near Leesburg. I had a feeling that he would like to hear from me because he had sent the letter to an old address and it had gone back to him apparently because I couldn't be found and he took the trouble to get my present address and send the card to me again, and had written on it "Come and see me sometime." I remember he was going blind at the time of my husband's retirement. That he wasn't able to drive down from Purcellville, that Mrs. Aiken drove. And I think he is totally blind by now, and has been for a number of years.

Dr. Pogue: Well, you see, he was still able to get about at the dedication that was '64. That may be why he hasn't been back since. I

Mrs. Friedman: Well he has a man living there with him. I don't know anyone ^{body} whose's actually seen him, unless they have gone out there to see him.

Dr. Pogue: When you mentioned him being put on to this thing, then for the next few weeks or months, was he working night and day?

Mrs. Friedman: Yes.

Dr. Pogue: So you saw ^{very} little of him?

Mrs. Friedman: Never... Well he was at home at night, presumably to sleep, but ~~he~~ couldn't sleep. He'd be up until two and three in the morning. Sometimes I'd awaken and find him down in the kitchen making a Dagwood sandwich at three o'clock in the morning. That kind of thing. He did not.... and then too they had people on duty in the section all the time, twenty-four hours a day, seven days a week. Kramer was the Navy guy that was responsible for delivering the messages to the White House, the Secretary of Navy, the Secretary of War, the Secretary of State and who was the fifth one... I don't remember now. But, ~~Max~~ that was open...

Dr. Pogue: Did you include Stark? Chief of Naval Operations?

Mrs. Friedman: Well, that would be it, I guess. The officer, what was his name now, who was in charge of Military Intelligence, was really the head of the purple organization, he was the man....

Dr. Pogue: ^{Colonel} Bratton.

Mrs. Friedman: Bratton! That was it. And I remember Bob Shoecraft. Colonel Shoecraft, he is retired now, of course, was a close friend of ours and he was not to be on duty that weekend but for some reason or other, someone must have felt something in

he came ~~on~~ in on Saturday and changed his clothes, he was supposed to come home and off duty. He was there on Friday night on duty and supposed to come home Saturday morning and off duty for the weekend. But he came home and changed his clothes and went back. He never told Jackie anything about what it was ^{all} about. But that was December.

Dr. Pogue: Now, in this business of working on that machine, earlier, did this hard work lead to that heart business?

Do you feel that this helped to cause the heart problem in Colonel Friedman?

Mrs. Friedman: Well, a ... I don't think I ever thought that through, you know, work^d by word. He certainly had the heart condition. He had the heart condition and was made to stop smoking^x. He had some heart condition that caused the doctor to issue orders he was to stop smoking in 195²₈, but that would be several years later. But the funny thing is that when he was so determined to get away from Riverbank, we were both so determined to get away from there and the Army was after him to stay in the regular Army, although he had been discharged at Ft. Dix, when he came back from Europe in 1919.

I told you he had to stay over there to write the history. In April of 1919, I came to New York City and met him and we stayed around the East and he was discharged at Ft. Dix in April 1919. Then later under constant pressure from the Army, from people like General Mauborgne, and Colonel Bratton and people like that, were all pressing him to go into the regular Army you see, he was given a physical examination for permanent commission in the Army after we had been forced to go back to Geneva because Col. Fabyan just pestered the lives out of us. Everywhere my

husband went to look for a job when he came back, after World War I, there'd be a telegram waiting there for him. "Come on back, your salary has been going on." ^{Then} When we decided that we just had to get away from there and we weren't going to stay at Riverbank any longer, then my husband told Col. Fabyan about this urge on the part of several of the Army people for him to go into the regular Army. So he went up to some place in Illinois, north of Geneva, I've forgotten the name of the place now, and took a physical examination and they said he had a heart condition. Now we never believed that at the time, because Col. Fabyan's brother-in-law, Colonel Trotter, who was in the regular Army, was in command of that post where he went to take this exam. So we thought that Fabyan had just got Colonel Trotter to kill off the whole thing and he never paid any attention. My husband went right on playing tennis and doing a lot of strenuous things, and then it was in 1955, and the funny part about it was, in January of 1955 he was to go to Europe on something like a six weeks trip and it was a very, very shhh and very, very classified and he went through a complete physical examination to make that trip. ~~and then~~. He got back in February, he left the end of January, got back the end of Feb. or the first week in March and then he had what was instantly diagnosed as a coronary thrombosis on April third. Then they found the scar tissue from an earlier attack. Then he had another coronary occlusion of the 10th of May. He is one of six percent of the people in the world who've ever survived a third coronary occlusion.

Dr. Pogue: Well, I suppose what I'm getting at is a suggestion made in, I don't know whether it was in Kahn's book or not, that he had something like a nervous breakdown after the work on this machine...

Mrs. Friedman: Yes.

Dr. Pogue: Was it then or later?

Mrs. Friedman: It was after the thing was broken. That brought the crash. He apparently had just been wound up and built up and built up and then when they got the thing and read the first messages, that's when he crashed.

Dr. Pogue: And he was away from work for awhile?

Mrs. Friedman: Yes. He was away from work for between three and four months, I think. And then when he went back General whoever it was... in charge at that time, said he was not to go back to the cryptanalytic work, but to do entirely administrative work. Keep an eye on the operation as it went along and coordination with the Navy...

Dr. Pogue: But ~~this~~ this helps explain why he was not brought in to ~~this~~ any part of the process relating to the breaking of the Japanese messages just before Pearl Harbor. He had no particular role in that. He had no particular role in that.

Mrs. Friedman: Oh yea! Oh yes! He had almost the entire role in it. That was the ... General Mauborgne was... that was in 1940 when General Mauborgne called him in and said drop everything and go to work on this. Nineteen months before they read the first messages out of the machine and made plain language of it.

Dr. Pogue: But what I meant was he wasn't working on ~~this~~ this that week?

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Mrs. Friedman: Oh no.

Dr. Pogue: I don't know whether that was during the period that he was away from work or not?

Mrs. Friedman: No, that was earlier. You mean the period when he was away from work? That followed the breaking.

Dr. Pogue: So this is in '40, when he was away from work, or early '41?

Mrs. Friedman: Yes. And if I remember rightly it was December or January. Anyway there was a period there when he was sort of off and on work and then he was out completely on a sort of complete rest period and he was in Walter Reed awhile, then he was out awhile and then he Mount Alto, the veteran's hospital for a while and that was in 194¹₂.

Dr. Pogue: Then his job normally would not have brought him into deciding on the whether or not that was a winds message or not. There's been so much argument about Safford.

Mrs. Friedman: Safford is a nut! He is just about the biggest nut I have ever met in any military service. And I could find a thousand people who would agree with me. Nobody, but nobody ever agreed with him that there was an east winds message. That's what it was you see, the Japanese had set up these four messages, I think it was four messages, each one consisted of three words, and what it amounted to was a code within a cipher system. They said that every night at six o'clock there would be a weather broadcast and that the message to signal their fleet that they were going to attack Great Britain would be "North Wind Cloudy" and if it was going to be United States territory it would be "East Wind Rain" and the others I've forgotten at the moment.

there certainly around in records. But the Japanese never sent those messages. They never, never, never. There was the most intensive radio watched that was ever conducted in the history of the world. They just never sent those messages. And Safford was that idiot that insisted that there was an "East Wind Rain" message.

Dr. Pogue: Not only that, he said that this made him positive that they were going to attack Pearl Harbor. They finally worked him over on that one.

Mrs. Friedman: He is crazy. I knew Safford quite well. He was, for a time, the chief of the cryptographic communications end of the Navy when I was there, the six months that I was there. I've forgotten who took his place and whoever the lieutenant in that office was, was replaced ^{by} Wenger.

And from then on Wenger and my husband were the closest of friends and they really had parallel life histories even when it came to the physical thing. Wenger had the same series of heart attacks and kinds that my husband had.

Dr. Pogue: Did he live another two years after your husband died?

Mrs. Friedman: Less than a year. Eleven months.

Dr. Pogue: And then Mauborgne went after that?

Mrs. Friedman: Just last year.

Dr. Pogue: Then there was another one. Was it Hitt?

Mrs. Friedman: Oh yes, Parker Hitt lived over here at Front Royal. He's been gone for quite a few years. That's he right there. We knew him...he and his wife ~~xx~~ had invented, though independently, ~~xxxxxxx~~ although Jefferson had invented it originally, that strip cipher. You know sliding these things up and down. We had met them as a matter of fact, Col. Fabyan had them

out at Riverbank. Because he was interested in everything under the sun, you know. And here talked like this was is a ~~the greatest~~ invention ~~and~~ and somebody's going to make a lot of money.

Dr. Pogue: I don't know if we talked enough about Hitt. You said he lived down in Front Royal and has been dead for some years. Just what was their relationship and when did it begin?

Mrs. Friedman: At the period just before the beginning of World War I, Col. Fabyan, who inspite of his complete lack of education, seemed to have a great facilitay for seeing what was ahead and what was coming, and he saw that ~~in~~ this government was going to be caught in a war or at least a very difficult, serious situation. And that they had nothing, but nothing to meet the situation with in the form of secret apparatus or plans for communication. He looked around the country and found out that there were only about five people ^{only} who knew what the words code and cipher met. And one of them was Parker Hitt. He and Mrs. Hitt had been interested in the subject for many years. They corresponded with each other privately in a cipher, and they invented this wooden box that had strips ~~of~~ or little separations for twenty ~~six~~ six lines across. Their model was made of wood. Parker Hitt was not able to come to Riverbank, I mean his official position at that time, I've forgotten, it may have been the Fort Leavenworth School. But at any rate, he could not come. But Mrs. Hitt came and demonstrated that sliding strip cipher, which is, well its one of the older forms, ^A a French cryptographer first thought of it or used it very early in the 1900's. But it was invented independently by several people. The Frenchman, by

Dr. Pogue: He'd done it first?

Mrs. Friedman: He'd done it first, Yes. His antedated all the others.

Dr. Pogue: But none of these came from that? In other words, his invention was not known generally?

Mrs. Friedman: No, they were, all of ~~these~~ these inventors were independent people and not one of them had seen anything before hand. And it wasn't until after World War I that the Thomas Jefferson thing was discovered. It was discovered in his papers.

Dr. Pogue: He probably just played around with it and hadn't used it/

Mrs. Friedman: Well, actually my husband and I went down to Monticello two different times and tried at every possible source there to find if somewhere in or around Monticello and all the manifest ^{old} ~~old~~ ^{old} ~~old~~ little buildings and what have you that were there; there might have been, that he might have made a working model of the device, but it has never been found. There is a complete description and picture I suppose you'd call it, drawing of the device. But its described very adequately and very thoroughly in those papers.

Dr. Pogue: You could build something from it?

Mrs. Friedman: Yes.

Dr. Pogue: I wonder if he picked any of this up from his travels abroad? If he'd seen something like it there?

Mrs. Friedman: I think the French thing, Bazeries, was the Frenchman, ^{E. A. - 20-20-20} who wrote a book and, I'll look up the date for you on that, but it was later than Thomas Jefferson's presence

Well, I started to say , there were only so many people in the United States who even so much as knew what the words code and cipher meant and I named Parjer^v Hitt. Another one in the Army was ~~XXXXXX~~ Joseph O. Mauborgne, M-A-U-B-O-R-G-N-E m, he was one of the early radio inventors. Radio was just coming out. Major General Squire was the Chief Signal Officer at the time when we came to Washington on January 21, 1921 and went to work for the Signal Corps. Joseph^D O. Mauborgne had been the first person in the world ever to solve the Playfair, P-L-A-Y-F-A-I-R cipher system. It had been the official British Army cipher for many ~~years~~ many many many years. I was based on a square holding twenty-five letters, five rows across and five rows down. The message, plaintext message would be enciphered two letters at a time and that was achieved by within this square taking a smaller square. Suppose you wanted to encipher THE, TH, you would look in your Playfair square and look to see where H is and where T is and then your cipher letters would be the letters at the opposite corners of that square. So that it was, we call it a di-graphic or bi-graphic form of encipherment. Now he solved that on any Army transport on a trip back from the Philippines and did it in less than six weeks, It was considered a great achievement of the age.

Dr. Pogue: I would think it would be phenomenal.

Mrs. Friedman: And Hitt and Mauborgne were two, Col. Frank Moorman, who became head of the code and cipher section of GHQAEF, later, also had taught something about the use of

Army codes and ciphers at Leavenworth, so he knew a little

about the subject. That's four.

Dr. Pigue: And Manly must have come in about this time?

Manly Mrs. Friedman: Manly had not dealt with any official ciphers. He had been interested in cryptography in a general sense, going back to ancient times, in the literary sense, and had looked into literary ciphers and so on. When he came out to look at Mrs. Gallup's bilateral ciphers proving that Bacon wrote Shakespeare; he damned that from the start. This was John M. Manly. He devised a test which would test her eyes-whether she really could see a difference between two type forms of the letter E and so on and she failed the test. However there were many very smart people who devised tests for her, one of which made a great sensation. I'll have to look up the name of the man who devised that test, he was quite a well known ~~literature~~ ^{littérateur} in the East. He did a whole poem in a biform type using two kinds of As, using two kinds of always italics, two kinds of Es and so on and Mrs. Gallup solved it. But of course the I suppose one of the elements of success in an unsolvable problem is to know that the answer is there. If you're convinced that the answer is there you know you'll find it sometime.

Dr. Pogue: Yes, that sort of gets bad when you know there may not be an answer.

Mrs. Friedman:.....Mauborgne, and later Chief Signal Officer was in 1920 and '21 chief of research and development in the Signal Corps. He himself had invented a number of small things - things is the wrong word, but I don't know technical terms - he had invented some things in connection with radio. Esquire himself had done. And after, this doesn't have anything to do with the

Mauborgne, I think, was the first man ever ~~in~~^{to} solve any in solvable, ⁱⁿquotes, cryptogram, in the Army. That was the Playfair which he did in 1912.

Dr. Pogue: Were the British informed of this?

Mrs. Friedman: Oh yes.

Dr. Pogue: We wouldn't have if it had been German?

Mrs. Friedman: I can't make a speculation about that.

Dr. Pogue: Was it complete enough that they changed it?

Mrs. Friedman: Oh, yes. I can't tell you what, at that time, became the official British Army cipher because I wasn't particularly interested enough to inquire and if I ever just overheard it I don't remember.

Dr. Pogue: They change them every ~~so~~ often anyhow.

Mrs. Friedman: Yes. They ~~did~~^{do} and they did, but I don't know what they replaced the Playfair cipher with. I do know what they attempted to put into effect along about, at the end of World War I, about that time, I think...

they proposed adoption of what we call the Wheatstone device,

claiming it was indecipherable. That is an eccentric, not

a concentric, pair of discs. ^{disc} One has ²⁷ twenty-seven

characters on it and the other has 26 characters on it

As it moved it made the encipherment very regular, in other

words the letter E might be enciphered by X at this point and

even three letters ~~on~~ would be enciphered by an entirely

different letter because of that eccentric movement. *of the two discs*

Dr. Pogue: That's much harder to break?

Mrs. Friedman: Yes.

Dr. Pogue: What letters were left off in the Playfair that

Mrs. Friedman: I and J were interchangeable, that was the Elizabethan alphabet you see.

Dr. Pogue: Well I assumed that they might have left out one of those.

Mrs. Friedman: Well this Wheatstone cipher was tested by my husband. The British proposed that it be adopted in all services that were on the same side. And I wish I could remember the date on that, it had to be before 1921. At any rate I recall very distinctly the incident when Col. Fabyan and a man walked in to the office, the big room where we were doing our work, and I can remember that my husband sat at the big roll top desk in the corner and I was about this distance from him and about this ~~sixteen~~ position from that and I was working on... this must have been during World War I because I was working on some Spanish messages, with a Spanish ~~translating~~ interpreter right here on my right. My husband looked over to me and said "Will you do something for me?" Well anyway I forgot to do say that Col. Fabyan strolled with this man and they had some papers in their hands and I observed that they were talking to ~~Mr.~~ Friedman over the top of the roll top desk and didn't ~~hear~~ hear anything of what was said and then they left, and my husband immediately started working on a new set of papers. Finally after some couple of hours of my doing my work and he going on alone at that desk, he looked at me and said "Would you do something for me?" and I said "Certainly, what is it?" He said "Would you lean back in your chair and completely relax and then I'm going to say a word to you and I want you to come back instantly with the first word that comes into your mind." So I leaned back in my chair

and relaxed and I said " All right, I'm ready." He said the words "cipher" and I said "machine". Just like that and it was the word. You see they had brought as test messages, these Britishers had brought, only five messages ^{of} about 35 letters each. Can you imagine on the ~~Eastern~~ ^{Western} front? This thing, this Wheatstone device was supposed to be carried around by troopers, there would be at least 200 ~~thousand~~ messages a day anywhere from 35 letters up to hundreds of letters. He was given ^{five} short messages of 35 letters ^{each} and he knew, he fiddled and ^{puzzled} and worked over the thing and got parts of what he thought was the word cipher fitted into the one alphabet and so ⁱⁿ the first place was it the word cipher, and if it was, he would have to have another word, key word, for the other alphabet. Well he reasoned that anybody who dealt with ciphers was so ignorant that they would use a word which was connected with the subject that the other word probably was connected with the subject too. So he tried everything he could think of. He tried cipher alphabet, he tried ... I can't recall... but all the words ^{that} he could think of...

Dr. Pogue: He didn't think of machine?

Mrs. Friedman: Well... you see, he was so much of a... so particular, exact, particularly in anything that was a technical term or a scientific term, that ^{it} ~~he~~ would never in the world have entered his head to call that thing a machine, that's a device, that's not a machine.

Dr. Pogue: He needed a more imprecise mind.

Mrs. Friedman: Yes. Don't tell me, of course I don't have a machine type mind. I couldn't invent a machine if my very life

and I saw this little thing, that was the first thing that came into my mind.

Dr. Pogue: And that was...

Mrs. Friedman: Immediately they clicked. That was it. In two hours the answer to those ~~xxx~~ messages was on the telegraph wire back to Washington.

Dr. Pogue: Astonishing. Did they change ~~xxxx~~ then? the us of that

Mrs. Friedman: Well they just plain didn't use that.

Dr. Pogue: ^U now there was another one I think I heard Col. Friedman talk about. Some woman had a device or a machine that ^{she said} couldn't be broken and he broke it.

Mrs. Friedman: Well of course it was Mrs. ~~X~~ Hitt who broke that sliding device.

Dr. Pogue: No this was a ~~xxxx~~ latter thing.

Mrs. Friedman: Oh I know, that was the Hebern machine. The Hebern machine, I don't think we've got one here... That was Agnes Meyers, who was a mathematician who had been sent by the Navy out to Riverbank for Mr. Friedman to train ~~x~~ in cryptanalysis, cryptography and cryptanalysis. While she was working in the Navy Department, along came this man Hebern who invented this machine which he said went to something like 80 billion combinations.

If the letter E was enciphered by K in a definite position in the ^{sc}rotors on this machine, there were five of them, ^{that} it would have to go through 80 million combinations, before that E would be enciphered in the same position by the same K. The combinations, in other words were considered infinite and the chances of any decipherment ^{could be made} were... well it was absolutely indecipherable. They had appointed a Navy board to devise a new cipher system for destroyers and

Navy ~~xxxx~~ as the one official cryptographic system for the Navy. Agnes Meyer, this woman mathematician, she had a PhD. in mathematics, was a person who thought only of furthering herself, so she left the Navy and went with Hebern, the developer of the machine because the Navy had appointed a committee of which Admiral Smith ~~xxxxxx~~ was the head of a board of five Navy officers to decide on whether the Navy would buy this Hebern machine ~~or not~~ and they had ~~planned to xxxxxxxx~~ have enough of them built to try them out on the destroyers, which were not a very great number at that time. Hebern went back to California and started a factory and started building the machines, Agnes Meyer established a downtown office in the Muncy Building and left the Navy completely. That's how I got into the Navy cryptographic work; they couldn't find anybody to take her place. I didn't want to work for the Navy, but I found they were just sitting on my doorstep all the time and the only way to get rid of them was to go there for a little while until they found someone else. Time went on and one morning I recall ^a this is a very strong recollection of mine, this Admiral Smith lived somewhere in our neighborhood. We were living at the end of Mt. Pleasant Street, ~~somewhere on~~ Park Road as you ~~to~~ go down into Rock Creek Park, that was the end of that part of Washington at ^{rode} that time. And he ~~xxxxx~~ down with us in the car. ~~the~~ and Navy and the Munitions Building were on Constitution Avenue right next door to each other. I remember so distinctly one morning Admiral Smith saying "Did anyone ^{body} ever ask you to test this Hebern Machine? Have you ever seen it or tested it?" and My husband said "No." Before the day was over the Navy called the ^C Chief Signal Officer and instructed that this

cipher machine without knowing anything about it what the messages were, where they came from, where they were going - somewhere there is a picture of him sitting before that Hebern machine... he did tell me many times that he was discouraged to the point of blackout. probably that he sat for six weeks before that machine before he thought of a way to attack it, but he did attack it, he did solve the messages. There again when they would be sending many hundred messages a day with that machine, they gave him a test of something like ten messages of 25 ^{letters} words each, or something like that. It was all resolved in the end by what could be called the index of coincidence, by putting all these letters on strips of paper and sliding them back and forth until some Phenomenon arises in one column and another phenomenon here and here and finally you work away at it. You will read in literature, of course, that the index of coincidence was the thing that all the extremely modern science of ~~xxx~~ cryptanalysis was ^{launched} with that paper of his, which he wrote out a Riverbank when he was, what you might say a beginner.

Dr. Pogue: Around 1917 or 18?

Mrs. Friedman: Um-um.

Dr. Pogue: Let me clear up just two or three points. Do you remember Smith's first name? Admiral Smith?

Mrs. Friedman: I think it's William.

Dr. Pogue: And what was Hebern's first name?

Ex. Mrs. Friedman: There are booklets around here I know that have his name, isn't that funny it just what come to me know.

Dr. Pogue: At one point you mentioned 80 million and another one

Mrs Friedman:

Well, I guess let's make it 80 million, that's staggering enough and I'm not sure which it is frankly.

Dr. Pogue: And about what time was that in the 20's or 30's?

Mrs. Friedman: His solution of the Hebern machine came in 1923

Dr. Pogue: That's the year you were at the Navy?

Mrs. Friedman: I was at the Navy five months.

Dr. Pogue: In twenty²³-three only or part of '22 and '23.

Mrs. Friedman: Now I don't remember whether I went there before Christmas or not, I might have been there say November and December and left there in early spring.

Dr. Pogue: This is the sort of thing ^{that} some biographers like to clear up.

Mrs. Friedman: But I remember 1923 very specifically. I know I'm not mistaken about that. Now whether I was there for two months say in 1922 also, I don't remember. But poor old Hebern. You know the Navy had appropriated, I don't know if this should be recorded or repeated...

Dr. Pogue: If you have that warning on it that takes care of it.

Mrs. Friedman: The Navy were going to pay him 50 million dollars, no, it wasn't that... they weren't going to pay him that much either, but they were going to pay him a very good size sum, you see. And then when the whole thing fell through, the Navy didn't pay Hebern anything. And you can imagine that he was greatly in debt. He wasn't ^{not} a very reputable man. He had been jailed as a horse thief for something or other, at some time in his life out in California. So he had used stock holders really to raise the money to build that factory where he was

\$75,000 to buy the machines and he never got a penny. And he did expend a lot of money and so on. After he died, his estate sued the Navy for \$50,000,000, and I think, I'm not absolutely sure of the sum, but I think what the Navy finally got the estate to settle for, maybe the estate didn't settle it, maybe the Navy just gave them \$50,000.

Dr. Pogue: Well, quite often that happens when they figure that something needs be to paid. And then of course the lawyers get in on it. He never did any further work in this kind of machine? Hebern?

Mrs. Friedman: Hebern, no. That was the only thing. He developed two forms of it. There was a five wheel machine when he first brought it to the Navy. And then I think he developed a form with six discs in it or wheels. But today I suppose there are many machines which resemble the Hebern. The Hagelin^{for example} used those rotors. And they two have had different numbers of rotors in the different models of machines. Now that's a case of where a government service, in this case the Army, really made a man many times over a millionaire, plus the fact that he supplies partically every country in the world with their official cipher machines. I don't know that that should be said aloud or for publication but I know personally because we came to know Hqgelin very well because the Army dickered with him for a long long time. After the Hebern thing fell through, you see, the Army was trying to get some kind of a keyboard machine that was portable. That A.T & T printing machine was absolutely safe thing it was proved in the end, by the use of a single key tape to be utterly safe, but who's going around to carry a cipher device as big as that blue desk there?

So the Hagelin machine came up and I was mixed up in that picture only enough, only to this extent, that when Hagelin's representatives in the United States, two youngish men, one by the name of Kirk Paulding and the other Stuart Heddon, whose name must be familiar to you.

Dr. Pogue: Yes, you mentioned the thing.

Mrs. Friedman: They came to see me about selling the Hagelin machines and I said "Why the Treas...we don't need a machine like that one. You invent a machine that breaks other peoples ciphers and we'd be interested. But so far as the Treasury Department is concerned we don't make 'em, we break 'em."

Dr. Pogue: That's very good.

Mrs. Friedman: So then they went over to the Army and that went on for years and tests and tests and tests. And I might as well say it right here because it's apropos of this story, when my husband was ill, ^{when} he had that really breakdown, which was nothing more or less than exhasution, after the solution of the purple code and was away from the office, out of the office, General Harold Hayes, who was a youngster really, was the head of the ~~the~~ was the chief Signal Officer at that time, and he said, he told the Army supply Corps...

TAPE # 3

Mrs. Friedman:..... was so burned up that I wrote four long pages legal size.

On David Kahn's book (garbled)

Dr. Pogue: (garbled) and I think it is important to put down here that you have ~~xxx(garbled)xxx~~ about him and you don't think he is a trickster like you do ^{Fargo} ~~(garbled)~~

... (garbled) ... but otherwise I ... (garbled) ...

Dr. Pogue: (garbled) and then return to the Friedman interview, however I have done this in such a way that it will not interfere with the complete story

Dr. Pogue: ^{let's take up} For the remainder of what you were talking about ^{when we} ended here. ^{a few minutes ago}

Mrs. Friedman: I think General Harold Hays, who was a very young man, but was at that time ^{chief S.S. Officer} he had had some cryptologic training under my husband, when he was a young Captain, and he, ^{while} with my husband away and in the hospital, gave the order for the purchase of Hagelin machines, ^{and we came to} know the Hagelin's rather intimately ^{because of mutual} friends and acquaintances, and they had been caught in this country, ^{so they had} had come over on the last trip of the Conta des Swaya (?) and could not get back to Sweden and lived here all during the war, up in Connecticut...

[REDACTED SECTION]

However

Hagelin was an inventor himself. He was ^{not} set some poor struggling inventor who had hired Hagelin ^{or} had interested Hagelin as a rich man to do this, he himself was an inventor and his story ^{as he} that he was the follower up of Damm, the great Swedish cryptographer-inventor, he followed him up. All the Damm properties were bought by Hagelin. Damm died very early in that deal that went on for

[REDACTED]

Hagelin has a big factory and it's always working and they are always developing new things.

Dr. Pogue: The factory is in this country?

Mrs. Friedman: No, the factories are in Switzerland, in Zug, on Lake Zug. He is no longer active in the factories or the cipher machines. It's all been organized very efficiently and so on. Unfortunately, the only child that Hagelin had, the only offspring that he had, ^{was} attempting to become proficient in this field and carry it on, was killed in this country in an

automobile accident and so it went, the whole Hagelin business, is carried on by a board and I don't recall the name of the man whose the head of it Styrenyberg, S-T-Y-R-E-N-Y-B-E-R-G, he's a Swedish engineer, and he's the head of the factory and all the development. And they go on developing something new every year practically.

Dr. Pogue: Well, you have to keep ahead of the people that are trying to solve it. Now when we were talking yesterday about work on the purple machine we didn't finish exploring one thing I never quite understood what Safford contributed to this.

Mrs. Friedman: My understanding is that the actual solution was entirely Signal Corps. Later they shared, the Navy knew of this struggle, but, I may be wrong, but as I recollect it, there were no Navy personnel in that group that were actually working toward that solution. Once it was done, it became a cooperative Army-Navy operation. On certain days of the week the Navy received all the messages and deciphered them and delivered them. On the other days of the week the Army, Military Intelligence, the Signal Corps did the actual work of decipherment, but the Military Intelligence had the distribution of the messages. They were turned over to this Commander Kramer, who died just a few months ago, in the Navy and he was in charge of the delivery. They were delivered to only five people, the Secretary of the Navy, Secretary of the Army, the President, of course, first of all, and the Secretary of State, I remember, I can't think who the fifth one was. David Kahn goes into that quite... creates quite a long picture of it which he certainly never got from..

Mrs. Friedman: Yes, Well now ³ she worked entirely from unclassified material.

Dr. Pogue: It's spelled out in the pearl Harbor hearings. In fact that message of the ^{45th} 45th was delivered ^{to} part ^{by} by the Navy and part ^{by} by the Army after it came to the central... I mean intelligence. For example Bratton was supposed to deliver it to the Chief of Staff, in G-2, the Army G-2, War Plans, and I believe he took Hull his copy and Kramer gave it to the President ~~attempts~~, ^{attempted} attempted to deliver it to Stark, ~~and~~ Ingersoll ¹ and not Weathespoon, can't think of the other name, any how Navy G-3, and whoever their 2 was, now whether that was Ingersoll or not I don't know. But the same Army opposites. And then the Navy man gave it to Knox and I think possibly delivered it... I don't know whether Bratton or who delivered it to Stimson. By the next morning, before they ever got Marshall located, every other person to whom this information was transmitted had it, ^A and his presence became crucial because he is the only one who when he got it did anything about it. And yet you'd think from all the hullabaloo made about where he was that he was the only ~~one~~ ^{one} who could send ^a the message, when actually the ~~whizz~~ G-2 of the Army and Stimson, with Stark had sent a message on the 27th of November. But its very peculiar.

Mrs. Friedman: The Army lines that went up through Alaska ^{and across} crossed to Honolulu were out of order I remember. And French, Col. French, who was in charge of the Signal Corps, made that idiotic decision to send it by Western Union. I've often wished, everytime anyone says Pearl Harbor, I get a picture of that boy trundling down the roads and streets in Honolulu riding that bicycle,

the way,

Dr. Pogue: Well, finally he was dodging bombs. So he stayed in the ditch a good part of the time. But I can't understand French doing it when according to all the testimony, Bratton came back and third time to ask if it was being sent, and it was quite clear that there was priority on the message.

Mrs. Friedman: Well now you see how the services protect their own. To use an expression that was coined for ~~something else~~ some other purpose, but I thought at the time, I would have choked French.

Dr. Pogue: Because after all he must have realized from the nature of the document, he didn't have to have anybody tell him to get it right out. Just reading it, and I assume the man didn't turn it over to somebody without looking at it...

^{Mrs. F.}
Dr. Pogue: I knew French and I certainly never considered him a heavyweight, he was distinctly a light weight brain in my estimation. And then in all that Pearl Harbor investigation in Congress, how people could deceive themselves. Sadler, Colonel Sadler, went over there and testified. He afterward regretted that very much. He apologized to me personally once.

Dr. Pogue: His testimony of course attempted to say that he had gotten misleading testimony from Colonel Friedman, that... what was the story that...it's the only part that Colonel Friedman testified on, not in the regular Pearl Harbor ~~thing~~, but there was an ^{independent} inquiry...

Mrs. Friedman: Yes, that earlier one

Dr. Pogue: ...and he was asked to, this particular story was one that they were burning G-2 material and ^{Sadler} ~~Sadler~~ said that Colonel Friedman had told him, and when it was tracked down

what he'd said ~~to him~~ and he'd heard this rumor, but that he knew it wasn't so. You see, in other words, he mentioned it only to deny it. But on the basis of this it goes back through five people and it had come up in the inquiry and I still see repeated, that Marshall had already had the stuff destroyed. I deal with it in part in this volume of the book. ^{in '44 this was} It's pointed ^{up} out that three or four Senators came to see ~~xxxxxxxxxx~~ Stimson and Stimson said "I know all about it, I authorized these duplicates that we ~~get~~ ^{and get} rid of to find the space." That brings a point we must as well put down here. One of the question she asks ^{is} to clarify the point of Colonel Friedman being told not to testify, or not allowed to testify in the inquiry held in 1944 or 45.

Mrs. Friedman: Do you mean the Congressional inquiry?

Dr. Pogue: Yes.

Mrs. Friedman: That's true, he was ^{not} allowed to testify in that one, but he had testified in the earlier one. Robertson Report, is that what it was called?

Dr. Pogue: No, the very first one was the Roberts...

Mrs. Friedman: Roberts...

Dr. Pogue: Roberts Inquiry and then this other thing he testified on before one man, I think Carter Clark came and interrogated ^{about} twelve or fifteen people about this one thing, ^{but} I think that's the only time his testimony, well it's introduced in the Congressional Inquiry, ^{but I assume the point there is they were afraid they'd} get on questions about the working of the machine.

This secret must be protected above life and everything else.

Dr. Pogue: We got off a minute ago about Safford. I thought Safford got \$100,000 for work on the purple machine itself?

Mrs. Friedman: That doesn't sound right to me. I wonder if that got mixed up with the story of the money for the SIGABA machine.

Dr. Pogue: It may well have done.

Mrs. Friedman: Because Admiral Wenger and my husband were very very close, they were like twin brothers really. Even their physical lives were almost like twin brothers, The story of their heart abnormalities was almost identical Wenger died eleven months after Mr. Friedman, the same type of thing all the way through the story. He was the bright, bright, really brainy person ever in charge anywhere in communications in the Navy Department and I happen to have a little bit of personal knowledge and I meant both ~~Wenger~~ and ~~Safford~~ when I was with the Navy in that brief period in 1923. I do know that years and years and years later my husband told me, and this is partially the only thing he ever told me in connection with any communications system of anybody, no matter who, what department, it was not the usual husband-wife thing telling the wife things at night that worry you and so on, my husband never never open his mouth about anything, I didn't even know about the invention of the SIGABA/ But it was the SIGABAB machine that the Navy furnished a lot of money for. Wenger was an inventor of sorts and my husband was an inventor par excellence and he had devised this machine getting the rotor idea, according to David Kahn, from Hebern and Hagelin and all those people. Well my husband didn't need to get ideas from other people. But never the less he did develop this rotor machine and that's the nickname of it in the Army, I can't remember

referred to as the SIGABA. My husband did tell me this one thing. That one day he and Wenger, they almost invariably had lunch together and one day at lunch he was lamenting to Admiral Wenger, he wasn't Amiral then, commander or whatever, that he had invented this machine but the Signal Corps didn't have any money and they didn't seem to be able to get any money for it and that Wenger, my husband told me had said to him " Well why don't we see if we can cooperate, the Navy has the money but we don't have a machine we do not have any comparable machine or any ideas for one. So why not develop it has an interdepartmental operation and the Navy furnish the the money and you furnish the machine." And that's what was done, that's where the money, it wasn't for any machine to solve anything, it was for SIGABA machine which became the official cipher of the Army, the Navy and everybody else all during the war.

Dr. Pogue: Did Safford have anything to do with that?

Mrs. Friedman: Safford became, when I left the Navy in 1923, Safford had just reported there to be the chief officer, I've forgotten his rank at the time, it couldn't have been more than lieutenant commander if that high, He was the head of that cryptographic, they didn't use the word cryptanalytic then, but that section of communications, that had to do with all cryptographic and cryptanalytic work Safford became the head of that. Wenger had been there before Safford came. Wenger soon after left and I don't remember where Wenger went for a while. But my personal opinion, and I suppose I should request not to be quoted on this if I value my life is that Safford is a nincompoop. You know he was always inventing little flubdubbs and gadgets of one

soul, that was where my office was located although I served the whole Treasury Department, the six law enforcement bureaus, and the young men, I had very bright ~~in~~ young men, one of them at least had a very good inventive mind, as Safford used to send over these ~~absolutely~~ ridiculous things that he had developed or invented and my young men started saying "Another Rube Goldberg device has come. Have to look into this." And Safford was known as the Rube Goldberg of the day. His going in and claiming a \$100,000, or what ever he could have gotten out of it, he would have taken more of course, on the grounds that he 'd invented this and that was just sheer...well I can't think of a word to describe it...it was so brash. He couldn't prove anything except that he had some strips that slid up and down. But he knew it wouldn't be questioned. My husband had written you see my husband was not allowed to have a lawyer except to do the leg work, and he wrote his own brief for Congress on that award and he did such a masterful ~~xxxx~~ job and lawyers who were cleared afterward who read it said that it was an absolute masterpiece that no lawyer could have done it as well. Well, that settled it for Congress for alltime. Here was the master's voice speaking and Safford comes along and claims that he'd done some of these things and was very vague about what they were and so he gets \$100,000 too. And then there was a third guy, who was that that got the third prize, they used this marvelous brief which my husband had written which lawyers said was better than any lawyer could have done.

Dr. Pogue: Had he mentioned their work on it in his brief?

Mrs. Friedman: No.

Dr. Pogue: Well they must have had very good friends in Congress to push their case.

~~XXXXXX~~ Mrs. Friedman: Well they did. you see, Safford got Saltonstall, Safford and his wife both came from New England originally and they had a summer home up there. So they got Saltonstall to introduce theirs. But my husband ~~wasn't known to~~ ^{wasn't known to} anybody he'd never paid any attention to Congressmen or Senators in anyway. The only function that the lawyer performed for him was to find a Congressmen to introduce the bill and to run on legwork...the lawyer wasn't allowed to see anything.

Dr. Pogue: Who introduced it for Colonel Friedman?

Mrs. Friedman: I can't remember.

Dr. Pogue: I suppose I can find that in the Congressional Record. I'm just thinking of things Clark might not know to look up because I think this is of interest.

Mrs. Friedman: Well that would be one thing that he wouldn't...

Dr. Pogue: I'll just put down here that the Congressional Record of that period will show it. When was this '48?

I remember when the award was made.

Mrs. Friedman: I think it was later than that.

Dr. Pogue: Yes, because it would still have been very touchy, wouldn't it? In '48 to even talk about the thing publicly because for several years they didn't even want it discussed in any way.

Mrs. Friedman: I'm trying to remember if it was before or after he was retired. At the moment I can't remember.

Dr. Pogue: I expect that it would have to come after he was retired or somebody would bring up the question that this belonged to the government anyway.

Dr. Pogue: This was just a matter of recognizing the contribution

Mrs. Friedman: I sent R. D. Parker to the patent office within the last few months to find out with his clearance, he's 91 years old, but he's still a consultant to NSA, and an inventor himself of course. He looked up the stuff. Mr. Friedman's patent files, both the general and I suppose he was able to see the secret file too. He said and he said it with an air of great surprise "Why there are just any number of things of Bill's in there that are still secret." Now I would never be permitted to know that of course. I mean I wouldn't be given access to anything in the patent office that would reveal that. But that's what R. D. told me himself. I sent him to look up a specific thing I'd come across some notes in a folder of my husband marked "Patents" and of course ~~these~~ the only notes that were in there were about things that were not classified "secret" but among them I saw mention of something that puzzled me and I hadn't known about it before but heaven knows there's a lot more I haven't heard of than I have heard of because my husband was so faithful to his security oath. But I came across this mention of a patent which I would call a multiple carrier transmission line and he had developed an invention way back in 1920, '18 or '19, I think, that a message on radio thru the air could carry more... a transmission line could carry more than one message at a time, say as many as three things could be transmitted at the same time on the same radio wave and still be sorted out at the end and come out as a whole, each separate and in its own field. That interested me greatly and that's what I sent R. D. to find out about and it is there. My husband did invent it and the patent

all during both wars, with the government just handing over to them whatever knowledge that government had, whatever methods they had developed in any field were all handed over. So that cleared up one point for me. That was one of the inventions they were...that was covered in the so called "bill for relief" of the \$100,000.

Dr. Pogue: I would get that stipulated. Because I know this was used in WWII but he developed it, got the patent before WW II by some years?

Mrs. Friedman: Yes, yea I think it was right after WW I I think the final patent was issued was okayed in 1924, if I remember right.

Dr. Pogue: At this point let's go back to the Riverbank period and add some things to what you've told me. You mentioned of course something about the background of Col. Fabian and how you came to go there and how Col. Friedman came and your meeting in 1916, ~~yes~~ when you first went there. Was this Fall?

Mrs. Friedman:

~~Dr. Pogue:~~ It was in the summer, 1916.

Dr. Pogue: and Col. Friedman had been there several months by this time, or had he come in '15?

Mrs. Friedman: I think he was there in '15.

Dr. Pogue: Did you work closely together during that first year? Or did that come after?

Mrs. Friedman: Well, he carried on his genetics work and working all the Mendelian law using the fruit fly as the experimental device and also planting oats by moonlight and other slightly out of the regular line kind of experiments. But he became interested in the bilateral cipher because Col. Fabian discovered

that he was a very, very fine photographer. So Col. Fabyan got the idea that if photographs could be taken of italic type pages out of the Shakespeare books, they could be enlarged and the characteristics of the two forms of A and E and all the other letters of the alphabet could be studied in enlarged forms so that was extracurricular with him. He still carried on his genetics work.

Dr. Pogue: The cryptographic thing ^{came} absolutely after he had worked for some time for Fabyan?

Mrs. Friedman: About a Year. He'd been there at least a year when Col. Fabyan started him on this and then he became a sort of factotum for Col. Fabyan. Col. Fabyan would give University press professors out there and he'd give these lantern slide lectures. He had my husband developing all these lantern slides and they got the apparatus for the screen and the giving of talks which they'd give to even a single person and run that, well the lecture material through on the screen so that he was busy many many many hours a day because, up until we were actually in conflict in the war, he carried on all his genetics work as well as the other...all the ^{Shakespeare} Shakespeare work.

Then all the genetics work was dropped when we began to actually do official war work for the government. We did all the deciphering and decoding for ^{check} departments of government.

Dr. Pogue: On that business of the type it seems to me that with the poor type they must have used in those days and the fact that you couldn't get the best cases in which to put it, it seems that would be quite a problem of deciding whether xzhazx or not shade of type...

C and D and E and on down the line and it was always in the italic type and they did have little quirks and ~~xxxxxxxx~~ and so on, there were ~~xxxx~~ definitely differences But the whole point was were their only two and that would never never be proved, and you couldn't convince Mrs. Gallup and you couldn't convince Col Fabyan. that all of those forms of which there were, well there might be as many as six or eight ~~xxxxxx~~ different sorts of little of same b's that you would find ...(garbled)...

TAPE # 4

Dr. Pogue: We were talking ~~ix~~ about the fact that in 1930 your husband got the first two people with any training as assistants and before that time you said he had an ex-prize fight as a typist as a typists and all that.

Mrs. Friedman: And that was the only help he ~~had~~ had.

Dr. Pogue: And then you mentioned three young helpers..

Mrs. Friedman: The third one I was just going to tell you about was a man named ^{Frank} ~~Ralph~~ ... (garbled) ... senator from Georgia and a graduate of a college in Atlanta, is there more than one?

Dr. Pogue: Emory, is the best...

Mrs. Friedman: Emory, that's it. At any rate he had an inventive ^{all} ~~ma~~ and an inventive ability of a limited area and it was he whose name was put on applications for ~~x~~ patents on one or two possibly three inventions and he stayed, well they all stayed with the organization ^{that} ~~that~~ was built up beginning in 1936 and going on through, finally culminating in NSA and both Dr. Sinkov and Dr. Kullback resigned at the end of 30 years

Department of Statistics at George Washington University and Dr. Sinkov became the head of the mathematical and statistical department at the University of Arizona.

Dr. Pogue: What are their first names? Rowlette stayed on didn't he?

Mrs. Friedman: Frank Rowlett, Dr. Solomon Kullbak and Dr. Abraham Sinkov, S-I-N-Ko-V. They were both from New York City and had their doctors degrees before they came to Mr. Friedman.

Dr. Pogue: Well that gave him some excellent assistance.

Mrs. Friedman: Yes. And then they began building up an organization after that in the '30's it became, I would hesitate to name the number of people that he had in the personnel department up to about 1940 when the thing began to leap upwards and took on hundreds of people.

Dr. Pogue: Now let's go back ~~xxx~~ topick this up when he came back from France and later I'll take on the French experience You told me some about that yesterday but I think we need to go into that alittle more. The very first thing that if you've never pu it done, what was the date of your marriage?

Mrs. Friedman: We were married on May 21, 1917.

Dr. Pogue: Shortly before he went over seas probably?

Mrs. Friedman: Yes. He went overseas I guess within two months No I think he went sooner than that.

Dr. Pogue: He wnet when the first ~~xontingents~~ went in June '17.

~~Firstxxxxxxx~~ took along on the Baltic, I don't know if he wnet on the Baltic or not, but he took along a smallish staff...

Mrs. Friedman: Actually, when he went over he went over alone for some reason or other I don't know why but he just joined some

that he was sent on, he didn't join anybody and he wasn't with any higher ranking officer or anything and he was only a first lieutenant you know

Dr. Pogue: How long had he been in uniform? you told me yeaterday that most of them at Riverbank had gone before he was more or ~~MrsxxxFriedmanxx~~ less turned loose by Col. Fabyan.

Mrs. Friedman: I don't think he could have bean in uniborm more than a copule of months if that.

Dr. Pogue: Well there was no training they could give him except for teaching him how to salute and anything else was ablolutely impossibe because, as you told me, they had been doing the work threr at Riverbank, been training them and he had been one of the chief instructors, hadn't he?

Mrs. Friedman: Oh, yes. He had been ~~the~~ THE chief instructor. There wasn't anybody else. Well nobody in this country kaew anything about the subject.

Dr. Pogue: Well, I remember he told that this was one reason that some of those early things of his were still classified, that they were still repeating them.

Mrs. F.
~~xxxxxx~~ That's right.

Dr. Pogue: and that there was a lecture he gave repeatedly to newcomers or something of the sort...

Mrs. Friedman: Yes.

Dr. Pogue: And did he tell me that he wrote regualtions for the handling of the ~~xxxxxxx~~ security of these codes and all that.

Mrs. Friedman: Yes he did. That was when Mauborgne was chief Signal Officer and my husband of course was a civilain. He did write, I don't know if he wrote all of them or not, but he certainly wrote many of them.

Dr. Pogue: Then he went you said. to GHQ. it was not set up

immediately but very soon after Pershing went over he began to organize this force and as you said he and Moorman ~~xxxx~~ headed two sections....

Mrs. Friedman: No, Moorman was the overall head and he didn't do any of the technical work. J. Rives Childs was the head of the cipher solving section and my husband was left with the code solving section, although his analytical genius lay on the cipher side rather than the code side. That was a question of breaking one army field code on the part of the Germans and it would be replaced in three weeks by another. But if you had solved most of the other one, he just moved it over to a different word, to a different...that meaning over to a different code word and that became the new edition and so on...

Dr. Pogue: I see ~~W~~ they didn't redo it, they just shifted it a bit.

Mrs. Friedman: Yes. And he was chosen although he was the latest to arrive of all of the younger people who worked under Col. Moorman, he was the one selected to stay and write the history, the whole history of headquarters in the cipher and code sections.

Dr. Pogue: You mean Col Friedman?

Mrs. Friedman: Yes. He didn't get back until April of 1919.

Dr. Pogue: Was ~~he~~ he in Paris then or did he stay at Chaumont?

Mrs. Friedman: He was a Chaumont.

Dr/ Pogue: That's still used as a French barracks. Christine and I went there in '61, it was still being used and I checked recently and ~~xxx~~ they say it still is. I found a postcard of the way it looked when Pershing had it. Now you were going to tell me something about Childs.

Mrs. Friedman: Well in November of 1917 it was 1918. that my

May of 1918, because in November of 1917 four young lts. who had been selected by the powers that be in Washington to head a division of cryptograhpy and ca at Chaumont. They were sent to us for training and they were at Riverbank for a whole four months. They were all college graduates, J. Rives Childs, was not only a graduate of ExxR ndolph-Macon for Men at Ashland, Virginia, but he was also had a degree from Harvard too. The other three didn't have more than one degree. One of them was a newspaperman, I can't seem to remember what the others had done, one was named Grah ~~xxx~~ and one had been a newspaper man, his name was Knight, I think , perhaps of the Knight newspapers, I don't know. Anyway these four young men then proceeded to France and J. Rives Childs became the head of the cipher solving section at GHQ. Than my hssband was made the head of the code solving section when he got over there. What ebecame of these other fo the original four lts. who had been trained by us, I don't know. I don't remember what their mark was in the war.

Dr. Pogue: Now none of these went over until May of 1918?

Mrs. FriedmN: No those fourwho were trained n November went right over right after that, they must have been over there before Christmas.

Dr. Pogue: November of '17.

Mrs. Friedman: Of '17. Then that huge class, that one up there, we trained ~~in~~ in January and Feb. of 1918 at Aurora, Illinois, it was donw the Lincoln Highway from Riverbank. Col Babyan padi al l the expenses of all that vast group of people. And he's th in the center is my husband in civilan clothes ^{filled the hall} and Mrs.

Cora Jensen here name was, the girtl who was a sort of factotum a lit bit of evervthing. sort of a colle clerk and a file clerk and a

girls who had been recruited on the female side, Col. Fabyan is the man in civilian clothes pmx on this end. And I think yesterday I mentioned but this is apropos. You say ^{why} ~~why~~ was my husband not in uniform, it was only after that after that class was held that husband found out, and at the moment I cannot tell you how, he found it out, he learned that the War Department had many months before right after the war began partially, had been offered a commission.. a letter had been sent offering to commission my husband for work overseas and Col Fabyan thought nothing of opening everybody's mail. He did it regularly. And my husband never learned about that until after the war but he finally began to raise such hell about not being in uniform ~~that~~ and wouldn't stand for it anymore that ~~and~~ Fabyan had to give in. But my husband never found out about this until after the war. I think he found it out in Washington.

Dr. Pogue: So you think that photograph was probably taken in February of '18. And that he went into uniform in May of '18?

Mrs. Friedman: Yes.

Dr. Pogue: Went over shortly thereafter?

Mrs. Friedman: Yes. I think he hadn't been in uniform more than two or three weeks when he left for overseas and ~~in~~ travelled alone, he didn't go with any group - travelled on a troop ship of course.

Dr. Pogue: He had been assigned to headquarters, in other words, he was there for GHQ duty.

Mrs. Friedman: Yes.

Dr. Pogue: I don't know whether you've ever put his down, there may be an annotation on the back of that...

Mrs. Friedman: What the message is? Knowledge is Power had the

There was one person lacking to make the completely message, which Knowledge is Power, which was kind of a daily precept in my husband's life, Everything to him yields before knowledge, knowledge is power. He never ever for one moment relaxed that precept.

Dr. Pogue: That brings up a point. I had intended to ask you about his breakdown. Was there any particular personality change after that? But I gather he had always had this rather demanding...

XXX Mrs. Friedman: Very high standards.

Dr. Pogue: For himself and..

Mrs. Friedman: Others.

Dr. Pogue... and also expected other people to behave well and live up to certain standards and he didn't suffer fools gladly at the time I knew him...

Mrs. Friedman: Yes. You're quite right. The one thing that I was going to say about this man Rowlett, was that he just wasn't the caliber of Dr. Sinkow and Dr. Kullback who just dove in, you know and became very hard workers, very analytical thinkers and were achievers from start to finish, but taking things in their stride. They didn't think that they were messiahs, but good commonsenseful people. This man Rowlett was very lazy and I just mustn't be quoted on this because it would reflect badly on my husband, but I want you to know the truth, he was really quite dishonest and some of the things he did in connection with my husband's achievements - taking credit for things that...

Dr. Pogue: Did he rise fairly high in the administrative...

Mrs. Friedman: Yes, he became head of a section which, what you call it, I don't know the term they used for it, but when the organization got to be 10,000 people ~~and~~ Rowlett became the

Rowlett not
of caliber of
Sinkow - Kullback -
R was lazy

and dishonest

administrative job as far as he was concerned because I don't think he knew any language, but they had all these people, Austrians translators, the Italian translators,

the Japanese translators, and all that. He became head of that section. But one of their jobs was not only translation ~~xxx~~ it was to straighten out tangles, there are always tangles in messages and the language many times was the effective instrument in straightening out the tangles so that a translator had to be more than a language expert. He had to have brains enough to analyse the language when it was wrong or be able to fit in pieces that were missing and that kind of thing.

Dr. Pogue: Now let's go back to GHQ a minute. He was there you say in the spring of 1919. Was he mostly just in and around Chaumont? Did he spend any time in Paris?

Mrs. Friedman: Well he spent some time in Paris but as a tourist surely

Dr. Pogue: One thing that's going to baffle a biographer is that you've got, ~~is that~~ because of the nature of work there are going to be so few stories about things they did because for years he couldn't have told about what they broke in the way of codes or something of the sort. ~~He~~ ^{It} seems to me that he got hold of some German information before ~~xxx~~ our last push we were reading some of their messages or something. I can't remember exactly what that was. I remember reading something about it. Somebody in G-2 wrote an account of of their activities, a big account told how we faked some messages and let the Germans pick them up, which is another side. ~~xxx~~ You don't recall any

organization. Did it remain a very small section?

Mrs. Friedman: At Chaumont? Actually I don't know, but why don't we ask J. Rives Childs. He's in Richmond right now.

Dr. Pogue: It's important I would think that Clark talked to him.

Mrs. Friedman: Clark has seen him briefly once. Childs has had a habit, he retired and went to live in Nice, he's had a habit since Mrs. Childs died of going to Stratford on Avon in the fall of every year and see say three to five plays something like that. And Clark saw him and talked to him last year.

But he wrote that he would expect to see him again and

J. Rives, I call him Rives, because we became very very good friends, said that he didn't know whether he would be able to, he hasn't been well this winter at all, so instead of staying out at the college he has been in the Jefferson Hotel in Richmond. In this letter I had from him last week he was feeling very very ill and said he had a letter from David Kahn who wanted to see him in England, when he goes to England this year and he said I don't know whether I'll be able to go or not...

Dr. Pogue: I know what we were going to put down that he went on the Hoover committee.

Mrs. Friedman: Yes, he was the, what do they call that besides... we speak of it as the Hoover mission, but what was that special word for it...

Dr. Pogue: This is the one in the war or just afterwards?

Mrs. Friedman: It was just after wasn't it?

Dr. Pogue: the one that went to Russia?

Mrs. Friedman: Yes. That's where J. Rives Childs met his wife.

the refugees, and the other was fxxxx... it wasn't called the Hoover Mission, it was the American Mission to Aid Russia or something of the sort.

Mrs. Friedman: I know that he did do that and when he came back he got a job with the associated Press and was stationed at the White House. Later he went into the diplomatic service. And he got out of the service because he was so discussed with McCarthy's carings on.

Dr. Pogue: Was he Ambassador somewhere?

Mrs. Friedman: Yes. He was Ambassador to Ethiopia, was his final assignment. He had been in Saudi Arabia before that and before that, I don't think I remember where he was.

Dr. Pogue: I thought that I did recall he had a couple of Middle East appointments. He's very anxious to talk to Clark again because he said so in his last letter.

Dr. Pogue: I would think that Clark's going to have to depend on him almost totally for this period of WW I because there at that time that ate wouldn't be many others that were with him ~~then~~ alive

Mrs. Friedman: I don't know of anybody that I could name right now.

Mark Rhodes is dead, everybody that I can think of right now who was in Col. Moormans section in GHQ... there all gone except J. Rives Childs

Dr. Pogue: If they were any age at all, they got to be in their upper 80's. Because Col Friedman would be...

Mrs. Friedman: Let's see, he would be... he was 78, that was 69, he'd be 81 now.

Dr. Pogue: Probably 82/

Mrs. Friedman: Yes.

Dr. Pogue: And he was younger than some of them I imagine.

Mrs. Friedman: That's true. Many of them men in that group were far older than he.

Dr. Pogue: Yes, because he looks so young in this picture. Then he came back in uniform. How long did he stay in uniform after the war?

Mrs. Friedman: He finally was discharged at Ft. Dix, But the Army didn't discharge him when he first reported for discharge they tried to persuade him to stay in and at that time he felt that he'd like to get out, get away, Riverbank was behind him for ever and Col. Fabian and all his shenanigans. He wanted to use his powers of scientific analyses somewhere in industry, in some business but every place where he would go to apply for a job, every big corporation or company that he had written to and hoped to see, there would arrive while he was right there in an interview with the president of the company, would arrive a telegram from George Fabian saying "Come on back to Riverbank. Your salary has been going on." Now that shows the calibre of that man. He had us followed. He opened our mail.

Dr. Pogue: Well, did the salary actually go on?

Mrs. Friedman: No, he never paid up. He carried his word very lightly.

Dr. Pogue: Incidentally, a footnote. When did he die?

Mrs. Friedman: Col. Fabian? 1934. And Mrs. Fabian died in '36 or '37.

Dr. Pogue: Did he continue to the end of his life his various experiments?

Mrs. Friedman: Yes and the sound laboratory and the engineering laboratory are still operating. When Mrs. Fabian died she left the estate to the state of Illinois to be used for a park. But that was exempt, that was on the west side of the Lincoln Highway, the

of Illinois hasn't been very generous. The last time I saw it it looked pretty run down. I don't think they were spending much on keeping it up. The sound laboratory is still there. He built the second sound laboratory chamber, there was only one in the United States the Sabin Sound chamber at Harvard and he built that sound chamber out there at Riverbank under the direction of Dr. Wallace Sabin. One of the things that's interesting that in Fabyan's engineering and sound laboratory, they developed a tuning fork except that it was the kind of tuning fork that would be used in ordnance and the Army bought it. It was actually put into use. That's the only thing I know of that posterity would ever hear the name of Riverbank, was in connection with that.

Dr. Pogue: They certainly wouldn't about Bacon. I expect that your book helped kill that off more than ever. You say he came back and decided to get out of the Army, this was put off for awhile. Fabyan helped interfere with it. Did he go ahead and leave the Army though in 1919?

Mrs. Friedman: Yes. He took the discharge because he didn't want to stay in the Army, it was too limiting to him. He didn't like the restrictions about having to spend so many years, so many months there, so many years here and be subject to the changing orders. He wanted to get into one specific thing and stay there and I agree with him on that.

Dr. Pogue: Well the Army in that day was pretty adamant about this, that you had to move every three years.

Mrs. Friedman: Yes. They're not nearly so set in their ways now.

Dr. Pogue: The Army in those days did not believe in specialists.

Mrs. Friedman: Well, if I may finish the bit of personal matter in connection with the Riverbank service, shall I say, at Riverbank, because it amounted to that because each had marching orders and all that. We tried to get away from there. We got ~~any~~ away on the fourth attempt. ~~EVERYTHING~~ The Army was after my husband they were determined to get him, commission or no~~x~~ commission. If he wouldn't accept a commission, all right, come as a civilian^{and} you'll be given the salary of such and such and your title will be such and such. We'd go to Col. Babyan and tell him about this offer and he would sweep it all aside and say "Oh, I'll give you twice that if you stay here." And you just couldn't talk to the man, he'd just walk off - couldn't be talked to. That happened a least twice and maybe three times, then I daid "Look we've got to come to our senses. We've got to be just as tricky as he is." And at that time we were living in a house in the village of Geneva, a mile and a half from the estate. So we got ready to leave. We packed up and got everything loaded up unto a car and completely locked up that house - cleaned out and locked up that house and then we went to him and told him we were going, and that we were taking the three o'clock train. That's the only way we got away.

Dr. Pogue: Did he make a big fuss?

Mrs. Fridman: Yes, He was pretty angry and he didn't write for a long time and then I guess curiosity king o got the getter of him or something or other, and he wrote a not too unfriendly letter to my husband and so they corresponded after a fashion after that. But he was so ruthless about having his own way.

Dr. Pogue: That's probably what made him a good salesman.

~~xxxxxx~~ You knew when you left there that he was going to the Army as a civilian?

Mrs. Friedman: Yes.

Dr. Pogue: And this was in the Signal Corps?

Mrs. Friedman: Yes. We had met... You see Col. Fabyan tried to control everybody and everything that he ever had the slightest fringe contact with - and one of them was the Signal Corps of the Army because Joseph O. Mauborgne, who later became Chief Signal Officer was the head of research and development and was working on things like that strip cipher and all that kind of thing so that Col. Fabyan really wanted to do something.

He would have built thousands of those devices for the Army to use, because he would have seen that as giving him power to wield this or that or whatever end he had in view. So that really the Signal Corps, you see my husband had been in Military Intelligence in WW I, and then when he got out of uniform that was over - he was no longer military Intelligence.

Dr. Pogue: In other words, he'd been in G-2 section? At GHQ, instead of...

Mrs. Friedman: Yes.

Dr. Pogue: Now he's in Signal?

Mrs. Friedman: Yes. Then Mauborgne was still head of research and development when he succeeded... well, he helped us get away from Riverbank in our secret plot to be able to get away without getting our throats cut. Mauborgne, who had been an inventor, well,,, he was an inventor of some radio things, don't know exactly what in connection with radio, but that was in the early days of radio. We reported for work on January 1, 1921 to the Signal Corps of the Army. We were to rebuild, reamplify

correct, do whatever was necessary about the Army's codes.

They still had no cipher as an official cipher. You know that Army disc going A B C going this direction and M X Y Z going this direction, a silly little Army disc, that was the only ~~any~~ cipher device that existed in this country.

Dr. Pogue: That had been used all ^{through} during WW I?

Mrs. Friedman: Yes.

Dr. Pogue: You say it was in this period when he first started that he had only ^{one} man, this ex-prize fighter?

Mrs. Friedman: Yes. Well, I was there the first year. We rebuilt all of the Army codes that year. That was one of the jobs of the Signal Corps.

Dr. Pogue: This was in the Munitions Building?

Mrs. Friedman: In the Munitions Building in 1921, we reported for work on January first, 1921 and we built up the manuscript for a complete new code of every sort that was used. It was the job of the Signal Corps at the time to supply all the systems of communications for the whole army and so we reconstructed, revised brought up to date everything that they had.

Dr. Pogue: They probably had a larger section in R&D working on things like radio?

Mrs. Friedman: That's right. It was during that period to that ...about the strip cipher device - that came later.

Dr. Pogue: Was there any particular thing that he did in that period that or was it just an overall type of...

Mrs. Friedman: An overall

Dr. Pogue: ...reorganization and the like rather than any particular thing he contributed in that period.

Yo satyed thaere six months, a year?

Mrs. Friedman: I was there a year. ~~maxixkaxkxwxhaxxywxwax~~
~~kaxkhexNaxxyfxxxxhxxxxtime?~~

Dr. Pogue: And that's when you went to the Navy for a short time?

Mrs. Friedman: No, I didn't go to the Navy until 1923. No I styed home and started to write a book - a history of the alphabet for children and was working on that. Then ~~is~~ in 1923 when the question of the purchase of the Hebern machines by the Navy came up and agnes Myer, this woman mate-hematican, who had fallen for ~~x~~ ...had accepted the Hebern principle and gone to work for the Hebern Co. and the Navy needed somebody just to help run there cryptographic end if nothing else. Because the cryptographic section was the same thing as the cryptananlytic section there and tey were left high and dry and ~~maxdax~~ colde builders for the Navy, thiese code clerks, needed somebody to direct them. the Navy kept after men and after me. I didn't want to go to the Navy at all. But I finally couldn't seem to get out of it so I went for a short time til they could find somebody else. I was only ther about five months and that was ~~x~~ in the early part...

Dr. Pogue: Did they have a large group working on this?

Mrs. FriedmN: No. No.

D. Pogue: And Wenger was...

Mrs. Friedman: He came there as a commissioned officer. The assistant chief of the secton, at that time, while I was there. And so did S fford come while I was there. And S fford was the head chief.

Mrs. Friedman: Yes.

Dr. Pogue: Was it a house or any apartment?

Mrs. Friedman: We were in a five room apartment with a real wood burning fireplace.

Dr. Pogue: Washington must have been an interesting place then. I would think Clark would want to get some notion of what Washington was like at that...

Mrs. Friedman: It's very hard to jump from 365,000 people which Washington had when we went there, to over a million now.

Dr. Pogue: Well, the whole area is probably a million and a quarter, if you take parts of Arlington, parts of Alexandria and Maryland and changing every afternoon. But you were almost out in the country weren't you?

Mrs. Friedman: Yes, we were right on the edge of Rock Creek Park.

Dr. Pogue: Part of Rock Creek Park gives the illusion of being out in the country.

Mrs. Friedman: That's what it was you see. There was a great big glass enclosed porch on this apartment and it looked right into Rock Creek Park.

Dr. Pogue: A lot of those apartments are still very charming now. I suppose this has given way to a much bigger place hasn't it?

Mrs. Friedman: I haven't really gotten around and covered the territory in Washington for so long that I hesitate to say. Again as a footnote, we talked about the first place you lived here and the last place what other ones did you live in in Washington in between?

Mrs. Friedman: Before we got this apartment at 17th and Park Road,

triangular area that's where Florida Avenue and S Street and Connecticut Avenue all come together. There's this one building there, it's a great fancy drug store or something now. But in those days there was an absolutely divine bakery on the first ~~xxx~~ floor called Hubert's. He ~~was one of the great..~~

he was one of the masters who threw ^a big parties and things like that and then we had the second floor, where this pianists had two pianos and taught piano during the day time and it had two small bedrooms with a fireplace in one of them, if I remember, a wood burning fireplace and a kitchenette and a dinette.

We lived there until we could get an apartment and sent for our furniture from Chicago.

Dr. Pogue: Now during the war where did you live?

Mrs. Friedman: During WW II? Military ^{Road} ~~Row~~ in Chevy Chase. ~~Which~~

There was one place we lived in between the Park apartment was a house that we.. Oh dear... two places that I remember

We moved from that apartment on Park Road out to a five acre place beyond Bethesda, it was all country. The house was an old house that had probably been built around 1900 but it was in this forest of magnificent tulip trees. They were 60 - 75 feet high, all of them. We lived there over two years when my husband came to the conclusion that ~~xxxxxx~~ it took too much time to drive in and out from Washington because it took a full two hours in those days.

Dr. Pogue: There was no beltway?

^{Mrs. Friedman}
Dr. Pogue: No, nothing like that then.

Dr. Pogue: You were hitting all the stop lights.

Mrs. Friedman: Yes. And then we built this house on Military Road in Chevy Chase. It's near the corner of Reno Road and

Military Road and we were in the 3900 block. That's the house we lived in during WW II and entertained all the foreigners.

That's the house where the British and French and the Indonesians and the everybody else who came to see us during the war.

Dr. Pogue: Many of them would remember that place more than the latter place. And you moved from there into the Capitol Hill place?

Mrs. Friedman: Yes.

Dr. Pogue: ~~Thx~~ You say that this section he was in grew in '30 ti two men~~x~~ and then a third man.

Mrs. Friedman: The original four young men?

Dr. Pogue: Yes.

Mrs. Friedman: I may be mistaken about the four. I can't remember now anybody except Rowlett, Sinkov and Kullback.

Dr. Pogue: He didn't keep that original one, the ex-prize fighter?

Mrs. Friedman: The ex-prize fighter, well, I guess he listed as a stenographer until he himself got a better job or something and then of course they began taking on enormous numbers of people too later on.

Dr. Pogue: But that wouldn't be until the late '30's would it? Or '40's?

Mrs. Friedman: No it was in the later '30's. They began taking on crowds of people around 1937-38.

Dr. Pogue: But up until then he had just this small group?

Well now didn't they start playing around with the Japanese code as early as this '38?

Mrs. Friedman: I'm sure they were.

Dr. Pogue: I mean on an important scale.

Mrs. Friedman: Will you see he never talked to me about those things

began
pretty sure they ~~xxxxxx~~ working on... As the Navy did on the
so called Red Code, which was a navy Japanese system. They
solved that and a lot of the information concerning the
Battle of Midway...

Dr. Pogue: Came out of that one

Mrs. Friedman: ...came out of that one.

Dr. Pogue: That wasn't completely solved until after Pearl Harbor
was it?

Mrs. Friedman: Well, no code is ever completely solved, you
know. And that was a code, it wasn't a cipher.

Dr. Pogue: They weren't reading the Navy code at the time of
Pearl Harbor or they would have known the possibility that something
was going on there. They were just reading the diplomatic.
But apparently ~~xxxx~~ shortly after Pearl Harbor, in time
for Midway, they were reading all this. Now, did he have
several promotions in this length of time?

Mrs. Friedman: You mean my husband? Well he was Lt. Col.
and he never actually got the military rank higher than that. He
would have been a general had he not had that breakdown at the
end of the solution of the purple code.

Dr. Pogue: But I'm thinking back now to this beginning. When
did he go back in uniform? Before Pearl Harbor?

Mrs. Friedman: Well, he went oh yes...he was in the reserve corps
all the way through. He used to go up to Fort Monmouth, New Jersey
twice a year and stay a month giving lectures.

Dr. Pogue: He was just doing reserve duty though?

Mrs. Friedman: Yes, but he carried that reserve commission.
And he kept going up in rank.

Dr. Pogue: Yes, but he didn't go back in uniform though until

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Mrs. Friedman: Well, no. He didn't.....

TAPE # 5

TAPE EDDS

Mrs. Friedman: ...words code and cipher