

ORAL HISTORY TRANSCRIPT

EILENE GALLOWAY
INTERVIEWED BY REBECCA WRIGHT
WASHINGTON, D.C. – 7 AUGUST 2000

WRIGHT: Today is August 7th, the year 2000. This oral history is being conducted with Eilene Galloway at her home in Washington, D.C., for the NASA Headquarters History Office. The interviewer is Rebecca Wright, assisted by Sandra Johnson.

Thank you so much for allowing us in your home today to hear from you about the many contributions you have made to the field of space law policy in this organization. You were there when “space” began. Tell us, what was the psychological effect on the United States when the Soviet Union was first in launching a satellite into outer space [on October 4, 1957]?

GALLOWAY: It was an extreme shock on Capitol Hill, especially. It was almost as if a bomb had fallen there, because we were so surprised that the Soviet Union was first. Both the United States and the Soviet Union had space projects in the International Geophysical Year, but our project was very small. It was a satellite that weighed a little more than three pounds, and the Soviet satellite [weighed 184 pounds and] really opened up outer space as the new environment, added to land, sea and air.

So, it came to us as a problem in national defense, [especially when a second Sputnik, weighing 1,120 pounds was orbited on November 3, 1957. It] showed that they had the capability of launching intercontinental ballistic missiles. There was fear throughout the world for that reason, because the satellite was going around and every ninety minutes it circled the Earth. Everyone was really frightened. So because it appeared as a problem in national

defense, the first people who looked after it in the Senate [were members of] the Senate Armed Services Committee.

Senator [Richard Brevard] Russell, [Jr., Chairman of the Senate Armed Services Committee] for whom I had been working on other subjects as a military analyst, telephoned me and asked me to write a report on the impact on the United States of the Soviet Union being first to orbit the Sputnik. Then he told Lyndon [B.] Johnson [LBJ] that I could help him with hearings, and at that time Lyndon Johnson was chairman of the Senate Preparedness Investigating Subcommittee. So we set about immediately setting up the questions and getting the witnesses for those hearings for Senator Johnson.

WRIGHT: What prepared you for this role? Had you been involved in some aspects that they felt that you were the right person to assist in this new act?

GALLOWAY: There were several things. In the spring of that year, I had written a report on Guided Missiles in Foreign Countries. This had been published by the House and the Senate. I was a national defense analyst so I had worked on various parts of military legislation; that is, I worked on the military budget, on the military manpower, on organization.

But the main thing was I had a background in government organization, and that was really our problem, [it] was how were we going to organize the government so that the United States would become preeminent in outer space. That meant that we had to organize the executive branch and we had to organize the Congress, because this was a subject that cut across a great many different committee jurisdictions. My background for that was in interdisciplinary research. My background for that was the honors program that I took at Swarthmore College

where we had the social sciences and we learned how to do research and relate the different fields.

I had worked on organization of the Department of Defense and the Atomic Energy Commission, and I set about deciding how to organize the Congress. Senator Johnson asked me to figure out how to organize the Congress, so I was working on all aspects of organization, which is really a public administration problem. But it was against the background of national defense.

WRIGHT: What was the first major step that you were able to move the preliminary workings that you were doing into more of a formal action for Senator Johnson?

GALLOWAY: First, we had to select witnesses, and then we had to select the questions that we were going to ask the witnesses before we could set up the hearings. Everything had to be done in a hurry. If you were working for Lyndon Johnson, everything had to be done in a hurry. He never asked the head of my organization, Legislative Reference Service, Dr. [Ernest] Griffith, whether I was available to do this. He simply preempted me and took me over to his committee to work on this subject, and we were working on it from morning to night.

[An example of LBJ's wanting everything done immediately happened to me one afternoon the end of March 1958. He said to me "I have called a press conference for 10 o'clock tomorrow morning and I need committee prints to distribute." He did not say what the report should be about but I assumed it was outer space. It was then 2:30 p.m. and nothing had been written, there were no words to print to inform the press. I stared at all the notes I had taken during hearings, abstracts of testimonies, various memoranda and documents that had

been sent to me, and finally gathered a high pile and wrote a foreword about these relevant materials on outer space to which the Members needed access. Just before 5 o'clock when the clerk for the Government Printing Office (GPO) usually left from the Capitol, I took a high pile of materials and told him LBJ had to have it turned into committee prints by 10 o'clock tomorrow morning. He said the GPO could not print that much overnight and I said, "how much can you print?" He put his finger in the middle of the pile and I said, "Well, print half and call it Compilation No. 1 and tomorrow night print the other half for Compilation No. 2." I thought I should have No. 2 in case another crisis arose. At 9:45 the next morning, I handed LBJ a pile of reports warm off the press. I doubt if anyone else could have kept the printing office to that time frame.

I thought this was just an assignment with no further use, and imagine my surprise that through the years I have found Compilation No. 1 particularly useful because it includes the earliest official statements by top scientists and engineers on the Rocket and Satellite Research Panel and the American Rocket Society concerning the necessity for a civilian space agency and explaining the variety of specific benefits to society from space activities. Even the Moon landing was proposed as a goal.]

We had all the scientists and engineers and all the people from industry and people from the government and people from academic life to testify as to how well we were prepared to deal with a missile satellite situation. This was an investigating committee. It wasn't for legislating; it was for investigating.

A curious thing came about. Instead of it being a problem that was solely national defense where we were really afraid for our security, it became a problem of maintaining peace. It became a problem where the scientists and the engineers came up and told us of all the

benefits that we could derive from using outer space. They told us about communications, increasing the benefits of meteorology, [navigation, remote sensing,] all the information to solve problems on the Earth.

So it was not only then fear of war, but hope for peace. At that time what happened was that the scientific community that had been working on the International Geophysical Year studying whole earth including outer space, the Nation States, and the United Nations were three forces that combined to make it possible for us to emphasize peace rather than war. We would be prepared for national defense, but we were also going to use outer space for peaceful purposes.

WRIGHT: You mentioned the amount of time that went into this. Your days must have been very long. Did you have any assistance, or were you basically trying to gather all this information and put it together?

GALLOWAY: Of course there was the staff, the Preparedness Subcommittee had a staff. Senator Johnson borrowed people from here and there to put up the staff, so there were a number of people working on it. He was really like a dynamo at that time. He was so energized. [President Dwight D.] Eisenhower had not been very well at that time, and Eisenhower knew that we were well prepared in defense as far as weapons were concerned.

It was Lyndon Johnson who really took the leadership in this, and he got [experts] in the Department of Defense to testify and [anyone] in the whole nation [who] could come, because you can see how many—we had about 2700 pages of hearings as a result of this.

WRIGHT: Was this your first task working with Senator Johnson?

GALLOWAY: Yes. I had worked for other members of the Senate Armed Services Committee, particularly Senator [William Stuart] Symington and Senator Margaret Chase Smith and also Senator [Leverett] Saltonstall and Senator [John Cornelius] Stennis. All of these Senators were on the Committee and they were all very energized and they all asked a lot of questions that you had to answer, and everything had to be done immediately.

WRIGHT: This must have been one of your greatest assets, was to be able to get things done immediately.

GALLOWAY: Yes. I think that's what you learn in the Congressional Research Service, because [Members] always had some kind of a crisis.

WRIGHT: How long were you a part of the Legislative Reference Service before [the Missile Satellite hearings started]?

GALLOWAY: My entire career [was] on the Hill [starting in 1941.] I was [in] the Legislative Reference Service [which] turned into the Congressional Research Service [CRS]. I was very fortunate at a time when it was expanding. We didn't have very many people, but we were expanding to answer research problems for the Members. So if you were elected to the Congress as a Senator or Representative and you were put on a committee you might know nothing about, you still could get in touch with an expert who would tell you about taxation or

social security or education or whatever the subject was. It just happened that I specialized in international relations and national defense.

WRIGHT: Were you working on some of those issues when you learned about Sputnik?

GALLOWAY: Yes, I was working on a problem of military manpower legislation. That is the type of work that the Congress does on national defense. They deal with the appropriations and the policies for military manpower and the organization, the relations between the military services, and history.

One time I went to a hearing in the House, Overton Brooks was the chairman there, and they were studying a problem. They always have an issue they're studying. They were studying the problem that when the Korean War broke out, [men were being drafted] who had already served in World War II. These men had houses, cars, families, and so forth. [The Services] were not drafting people who had recently certified that they could be drafted, and none of the new people were being drafted, only the older ones. This was quite a problem.

So I was sitting very calmly in the back of the hearing room, listening to all of this. When the hearing was over, [the Chairman] came up. "Now," he said, "Eilene, I want you to write a history of United States policy on our reserve forces, beginning with George Washington." [Laughter] So I did that. I set about immediately studying Valley Forge and problems that George Washington [and others] had and the ones that we were having with Korea. [My "History of United States Military Policy on Reserve Forces 1775 – 1957 was published by the House in 1957.]

Everything that came to CRS is some kind of an issue or problem.

WRIGHT: Had you been there long when Sputnik was launched?

GALLOWAY: It was launched in 1957, October 4, 1957. I had joined the staff in 1941.

How I became a national defense analyst, which I wasn't when I started, was that I was editor of the Public Affairs Abstracts. That was like a congressman's Reader's Digest of all the issues that were before the Congress and what they were about. I had to assign these to different staff members, and so I assigned myself [those] on international relations and national defense because that was the area that I was mostly interested in. I gradually accumulated experience in the different types of legislation.

WRIGHT: If you would, briefly walk us through that time period that you learned about Sputnik. Were you—we know you were working on another, of course, a different issue, but when you learned of it and then, of course, how you were asked to serve on this committee to help pull the information together. But those steps and how your life changed as this new change of the world had such an effect on you and everyone else, just walk us through some of those steps of what happened not just in your professional life but how it affected the people around you and moved you into a whole new direction.

GALLOWAY: It was the same type of work that we had always done, it was just that this was an emergency and had to be done immediately. So we went through all of these hearings for the Preparedness Investigating Subcommittee, and that was where we identified the problem.

Now once those hearings were over, although they continued into the next year, as far as legislation was concerned the next step was to have legislative committees. There was no committee in the Congress that was prepared to undertake this, so what they did was to set up two special committees, the House Select Committee [on Astronautics and Space Exploration] and the Senate Special Committee [on Space and Astronautics], to create NASA [National Aeronautics and Space Administration]. These were legislative committees that began in the spring of 1958.

[Early in 1958 the Majority Leader of the House, John W. McCormack, called me to his office to discuss whether or not he should become chairman of the new House committee to deal with outer space legislation. I was enthusiastic about his undertaking this task and said “this is like the time when Christopher Columbus sailed for America – we are opening a whole new environment” and pointed out that the Senate committee was chaired by Majority Leader Lyndon Johnson. And thereafter he did conduct the House hearings.]

Congressman McCormack, who was Majority Leader of the House, became chairman of that committee. Lyndon Johnson, of course, was chairman of the Senate committee. The hearings began in the House, and Congressman McCormack asked me to write a paper on the issues before Congress in connection with outer space.

So I wrote that report, and he opened his hearings with the Eisenhower proposal and my report on the issues before Congress because we had to decide on creating NASA. Everybody had agreed that we should have a civilian agency. Ninety percent of all our space was in the Department of Defense. We couldn't leave it there [because they could not develop all the civilian uses]. We had to set up a civilian agency and then decide what the relationship would be between the civilian and the military. [My report was “The Problems of Congress in

Formulating Outer Space Legislation” and dealt with the New Frontier, how Congress moved out on this frontier; a comparison and contrast of outer space and atomic energy as a legislative problem, legislative proposals and issues, and alternative proposals for the organization of Congress.]

So all the House hearings were about that, and they were also about how you organized the Congress itself. Lyndon Johnson asked me to write that report, and I set up four options; that is, we could either give [space] to the Joint Committee on Atomic Energy, we could set up a new Joint Committee on Outer Space, we could assign legislation to the different committees that were already standing committees, or we could have separate committees in the House and Senate.

So that was a typical CRS report, where you present the options and then you write the pros and the cons so that [Members] can make up their minds what they want to do.

I kept track of all the hearings; I went to all the hearings in the House. McCormack was the one who had asked me what I thought about the bill, and that was when I said that I didn’t like NASA to be called an agency...and he said, “Well, we’ve already started calling it NASA.” I said, “Well, we could call it an Administration.”

The reason for that was that there were a great many departments in the government that were involved with this. It wasn’t going to be only NASA. The Department of State was involved because it was foreign policy. The Department of Interior was involved because it involved mapping and remote sensing of the Earth. The Department of Commerce was involved. All of these departments were involved. Of course, the Department of Defense.

So we had to decide about all of those things. Then after we got through with the McCormack hearings, we had the hearings in the Senate. That was very valuable because I was

able to know who the witnesses were and what the issues were and get a lot more information before [the bill] got on to the Senate. Then when we had the Senate [hearings], it was like all the things for Lyndon Johnson, it was in a real hurry. We were in a real hurry to do this.

So, by the end of July we had finished all the hearings and we set up the NASA. We created NASA by the end of July of 1958. Then we had an interim period. It was during that period that I went with my husband [Dr. George Barnes Galloway] to Brazil to help him with his work, which involved the Inter Parliamentary Union. That was in August.

Then in November, I went to San Antonio to attend a space medicine conference. I didn't know anything about space medicine, but I was trying to learn all aspects of space. While I was there, President Eisenhower called Lyndon Johnson and asked him to go to the United Nations and forward our foreign policy to set up an Ad hoc Committee on the Peaceful Uses of Outer Space, because one of the main points of U.S. foreign policy was to maintain peace and try not to have any war in outer space. We had everything we needed to do that. We had the forces. The whole world wanted peace in outer space. They didn't want a war in the air or directed to the Earth.

So, Lyndon Johnson then came down to the conference in San Antonio, and he took me and Glen [P.] Wilson and some other people to the ranch to work on the speech that he was going to give in the United Nations. That was a real experience. There was a telephone strung every few feet all through the house and all [around] the swimming pool and all through the ranch, apparently.

Then a group of us met in Austin, and we went over the first draft. Two or three people read the draft, and I was appalled by this draft so I didn't say anything, I just stared at [Senator Johnson]. He said, "Eilene, you get out from under the table and tell me what you think of this."

I said, "Well, I think it won't do because if you're giving a speech at the United Nations it has to be of very high quality, very high on foreign affairs, and we have to have a message, we have to say something in it." When I said that, I thought I'd probably made an enemy of everybody else here, but he said, "All right, we'll go back and do it over."

So back to the ranch we went, and we did it over. Then President [Eisenhower] sent down the plane to Texas and flew Lady Bird [Johnson] and Lyndon Johnson, the staff, [and some] other people, to LaGuardia [Airport]. We were met by Henry Cabot Lodge, who was our Ambassador to the United Nations. [This was a dramatic episode in American History when President Eisenhower, a Republican, invited the Democrat Lyndon Johnson, Majority Leader of the Senate, to demonstrate to the world that the Executive and Legislative branches of the American Government were united in calling for international cooperation to ensure that outer space would be used for peaceful purposes for the benefit of all mankind.] Lyndon Johnson gave this speech that said that outer space is free and it must remain that way and we must maintain peace. At that time, he was talking about the United Nations voting for an Ad hoc Committee on the Peaceful Uses of Outer Space.

The Soviet Union and Czechoslovakia and Poland would not go with us. We got nineteen other countries, [and the resolution] passed by twenty votes. [T]hose three countries would [not accept membership] because we were going to have majority voting. Well, naturally, the Soviet Union didn't want to be outvoted by Mongolia, Uruguay, the Philippines [for example, on] their space program, because they were the main ones that had a space program.

We worked on that for a year and finally came up with deciding to make all decisions by consensus. I said to the chairman of the Legal Subcommittee, because this committee had been

set up [also] with [the] Scientific and Technical Subcommittee, which dealt with [matters] before [going] over to the Legal Subcommittee. I said, "I'm afraid this isn't going to work." He said, "Well, I'm concerned about it too, but we have got to make it work."

So then I rolled a piece of paper in the typewriter, and all of a sudden I shocked myself because I thought, I'm going to have to explain about the difference between majority voting, consensus and just unanimous voting. Consensus is different from unanimous voting because with unanimous everyone has to vote. With consensus, it may be that you don't want to keep other people from doing what they want to do to go ahead but you are not going to vote against it. You are not going to vote; you can abstain or not vote.

So as soon as we decided to do everything by consensus, the Soviet Union joined, and we set up a permanent Committee on the Peaceful Uses of Outer Space, which is the forum where the space treaties were formulated and where we got together the scientists and the engineers with the factual basis that we have to always attend to in order to have any legal basis.

WRIGHT: You have a longtime commitment and a longtime participation with the United Nations Committee. Could you share with us—we've heard the beginning, but tell us how it moved on from that first step and what your participation was with that part of it as well.

GALLOWAY: Well, for a number of years, that is up until 1967, we worked on principles that we could agree on. The United States and the Soviet Union had to agree on these things. Everyone had to agree. It was always rather comical when the U.S. and the U.S.S.R. [Union of Soviet Socialist Republics] did agree, but the delegate from India, [for example,] would get up and disagree. Then we had to attend to his concerns, whatever they were.

What we did, we had a text, and in the text we put square brackets around all the words that we couldn't agree on. So when we went home, we had this text with the square brackets in it and we could work on it for the next time because it takes quite a while to work out the wording of some of these things.

So by the time we got the '67 treaty, which is the Magna Carta treaty, the basis for outer space law, we had worked out all these problems. So the United Nations passed that treaty unanimously, and it is the very basis of space law.

WRIGHT: You have worked among committees and other types of affiliations as well?

GALLOWAY: Yes. Whenever we got a treaty, it came back to Washington, and the President would sign it and it would go to the [Senate] Foreign Relations Committee. There were [four] treaties spun off from the main treaty: the Assistance and Return of Astronauts, Liability for Damage, Registration of Space Objects, [and the Moon Agreement].

Then I would write a report for the Space Committee that could be used by the Senate Foreign Relations Committee in which I compared and contrasted and analyzed the different reports, different provisions of the treaty.

So the United States and all the other powers, ninety-four nations, ratified the outer space treaty. But the Moon Treaty was not ratified [by the United States], and the Moon Treaty did not come to the Senate Foreign Relations Committee because the President didn't send it although the U.S. had pushed for it in the U.N. [United Nations]. The U.S. had pushed for it and the Russians were against it for a long time. Then Brazil came up with some wording that the Russians could agree to, and they agreed sort of reluctantly. One of the Russian delegates

said to me, “You know, there’s going to be a lot of trouble with this treaty, and the U.S. will be blamed for it.” [Laughter] So, they were glad to have us in that position.

This was in December 1979. [When the] Moon Treaty had been ratified by five nations [on July 11, 1984], it [entered] into force. However, it’s only been ratified by nine nations altogether, [and no space-faring nation,] so it’s really not [generally] acceptable. But there was so much interest on the Hill that the Senate Commerce Committee asked me to write a report. I wrote this 274-page report on the Moon Treaty, and then I always had to explain why it is that it is not acceptable [to space-faring nations].

It’s not acceptable because they called the Moon the “common heritage of all mankind.” They were going to distribute anything that came from there to other nations, regardless of whether they had participated or not. Also, they were going to set up a unit as sort of an organization to take charge of this. The whole thing, when it came to be analyzed by national governments, was totally unacceptable and I don’t think it will ever be accepted.

However, in the outer space treaty, we already have a provision that the Moon shall be used exclusively for peaceful purposes. We also have a provision that there shall be no weapons of mass destruction orbiting the Earth.

WRIGHT: How much of your organizational skills and your influence was used on these committees for the United Nations to help move the ideas and the mandates from the other nations into an agreement that you knew would always be centered around peaceful uses?

GALLOWAY: I was not [always] an official delegate. That was the [position of] the head of our delegation. I was observing everything that went on and helping to write reports, but what I was doing was bringing all of this back to the Senate.

The House was also interested in international space cooperation, so I did some work for the House on that. But because the Senate Foreign Relations was the main committee that dealt with the treaties, my function, was to explain provisions.

[As a Special consultant to the Senate Committee on Aeronautical and Space Sciences, I wrote analytical reports on space treaty proposals. In July 1966 my report was on "Space Treaty Proposals by the United States and the U.S.S.R." I listed the provisions in parallel columns with an analysis of the articles. In March 1967 my report on the basic "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies" was used by the Senate Foreign Relations Committee and U.S. Ambassador to the United Nations. Similarly in July 1968 both committees used my analysis and background data report on the "Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space."

WRIGHT: When you shared that information, again you always produced the pros and the cons?

GALLOWAY: Yes. It was always so they could make up their minds what they wanted to do.

Of course, there were always funny things or odd things that happened along the way. One time, the U.S. delegation was entertained at lunch by the Soviet delegation at their legation. They had a round table and there were about eight or nine of us there and it was very elaborate with lots of glasses tinkling and so forth and caviar. The Russian ambassador said at one point,

we were all very convivial and getting along very nicely, “Of course, we were always sorry that we sold Alaska to you.” We were having Baked Alaska for dessert. That reminded him that the Russians had sold us Alaska.

At that point, Boris Maiorsky looked directly at me and he said, “Yes, but Mrs. Galloway doesn’t like a provision in our treaty text.” You know, it was like he had thrown a knife at my heart, or a dart or something, you know, and it absolutely killed the atmosphere which had been very convivial. I could see the head of our delegation kind of froze. Neil Hosenball [NASA General Counsel] looked at me and wondered what I was going to do. I said in [a] kind of folksy voice, “Oh, Boris, we don’t need to be worried about that. It was only because you had a provision that we couldn’t exchange moon samples. And our astronauts were already in Moscow exchanging moon samples, so I thought you would want that provision.”

So later, Neil Hosenball was very pleased that I had been able to say something that brought the luncheon back to a good humor. [Laughter]

WRIGHT: So it was maybe another one of your accomplishments. [Laughter]

The times that you spent putting the words together served to be such a benefit for the people who understood or did not understand and could not attend these meetings. Did you rely very much on the research that you had already compiled, or because it was such a new field you were compiling research as it was happening?

GALLOWAY: Yes, you had to keep track of everything as it was going along. Of course, once the NASA Act had been passed, those committees went out of existence. They were just Select

and Special committees. [S]o they set up two permanent committees: [the House Committee on Science and Astronautics, and the Senate Committee on Aeronautical and Space Sciences.]

Now through the years, [titles] have changed. Space matters are attended by the Senate Commerce Committee now. But at that time we set up two permanent committees. McCormack was the chairman of one, and Senator Johnson was the chairman of the other until he became vice president.

So then we worked on legislation. We worked on appropriations and foreign policy and being sure that we had weapons. We had to also keep up with what was happening in the Department of Defense.

WRIGHT: Let's talk for a few minutes about the Space Act itself. It's got some unique features that were written into it. Could you share with us about the Act?

GALLOWAY: Yes. It begins with saying that The Congress declares that it's the policy of the United States that space activities should be devoted to peaceful purposes for the benefit of [all] mankind. [This covers not only nation states but all mankind.] This same idea is reflected in the outer space treaty of '67; that is, we were going to—what we really did was to preempt outer space for peaceful purposes. These peaceful purposes were so significant in the space communications industry, in improving meteorology, in remote sensing where you can map the world and find new resources. They were so profitable, and the industry was so benefited, and everyone was benefited, no one wanted to disturb this. So we had a scientific and technical base for peace.

It wasn't that we were just hoping, which, you know, you can do, hope for a treaty and the treaty doesn't have much effect. The treaty is complied with and has been for forty-two or forty-three years now. All of this came from what we had in the NASA Act in the very beginning, [as well as provisions in United Nations resolutions.]

Then we set up, we had something different from what the Eisenhower bill had proposed, because they had proposed that the Department of Defense [DOD] and NASA should cooperate. Everybody had agreed that we'd use the old National Advisory Committee on Aeronautics as the nucleus for making NASA and add the astronautics to it. But at one point, the bill that was proposed to the Congress was that the Department of Defense and NASA should cooperate and NASA could operate—it said may operate—on behalf of the Department of Defense. Well, we didn't think that would work. I mean NASA doesn't have clout to operate on behalf of the Department of Defense, and furthermore NASA was not the only agency involved. There were a number of other agencies.

So I asked NASA for a chart of all the federal agencies that were involved, and they sent me this chart. This was sort of preliminary and changes, of course, could be made in it. But it was obvious that this was not just NASA and DOD. Therefore, I had written a proposal that we should have a National Aeronautics and Space Council. This was to coordinate all the agencies. The President would be chairman of it, and the main people who would be on it would come from DOD, the State Department, NASA and the Atomic Energy Commission.

So, the Senate passed this, and at first the House did not. So then they had the conference committee. They accepted the Council. Now this was the rather interesting thing that Lyndon Johnson did politically. The House had passed a bill saying that they wanted to have their own committee; they didn't want a joint committee. The Senate then later passed a

bill that they would have a joint committee. Of course, the House bill had nothing in it about the Council.

I was so surprised, I couldn't understand why the Senate would be passing this joint committee when the House didn't want one. But Lyndon Johnson did this on purpose so that when they got into the conference committee, he could say, "Very well, we will accept having two different committees, provided you accept the Space Council." That's how we got it in the law.

[I prepared the report used by the Conference Committee, listing provisions of the bills passed by the House and Senate in columns with comments on differences, so that the Members could discuss and decide on the final wording of the National Aeronautics and Space Act of 1958. The Conference Committee changed my original proposal from a Board to the Council because Senator Symington did not like boards.]

So then when it got to when we were working on this, one time I was sitting with all the Senators, I was sitting to the side and the Senators were considering the NASA bill before it went to the conference committee, Senator [Theodore Francis] Green who was chairman of the Senate Foreign Relations Committee seemed to be nodding off and going to sleep. But when we got to Section 205 on international cooperation, he suddenly became very alert and said that NASA would have international cooperation by and with the advice and consent of the Senate. Well, my heart fell into my stomach I was so upset by this, because they expected this and the Senators at the table immediately adjourned and I knew that NASA could not carry on all of the research and development it needed in space if everything had to be in the form of [a treaty]. That was not the way [NASA] research and development was, but then [the bill] had gone to the conference, it was out of our hands.

So, I explained to Senator Johnson that this would prevent NASA from doing all [the research and development] that it was supposed to do. Every member of the committee had one of these [booklets on international space cooperation] he could carry in his pocket because international cooperation was so important. We had to have tracking stations, we had to have agreements with [nations], satellites were going over their country, we didn't want them to object. So these were gotten out periodically so that they would know what we were doing. So here were all the countries that we were involved with, and here were all the different kinds of research and development.

So this permitted me to go to Herbert [K.] Reis in the State Department and explain that [if] this [were] in the law that NASA would not be able to do all that it could. Everything would [have to] be in the form of a treaty. They arranged so when Eisenhower signed the bill he said that, "I interpret this as meaning that we cannot also have less formal agreements." This made it possible for [NASA] to have a complete space research and development [programs].

[The text of President Eisenhower's statement: "The new act contains one provision that requires comment. Section 205 authorizes cooperation with other nations and groups of nations in work done pursuant to the act and in the peaceful application of the results of such work, pursuant to international agreements entered into by the President with the advice and consent of the Senate. I regard this section merely as recognizing that international treaties may be made in this field, and as not precluding, in appropriate cases, less formal arrangements for cooperation. To construe the section otherwise would raise substantial constitutional questions."]

I have that in this final report that I wrote, the exact words of Eisenhower. That was a very near miss; that was very exciting. [Laughter]

WRIGHT: Then the Space Council has a bit of a history of its own, doesn't it?

GALLOWAY: Well, yes. We made the President chairman. This was because Lyndon Johnson wanted that. He wanted space to be at the highest level of government. It was to be an Administration. The President was to be the head of the Council. Then when [John F.] Kennedy was elected, he decided that the vice president would be. The vice president was Lyndon Johnson.

So Lyndon Johnson was chairman of the Council, and then later on when [Richard M.] Nixon was president, he decided not to have it. At first, [Vice President Spiro T.] Agnew was. Then just because they wanted to get a lot of functions out of the White House, [Nixon] decided that he wouldn't use the Council anymore, so it was abolished.

Then what the government did was to have interagency committees. If there was a project that involved the Department of Defense and the Interior and Commerce, for example, or Transportation, then the people in those departments would get together separately on a project. This meant that we didn't have the staff that we would have had under the Council. See, if you have a staff, you'd have a history and you'd have a permanent organization going. So we didn't have that.

However, it was abolished, and it was not used for quite a while. Then when [President George H. W.] Bush came, he decided to have the Council again. Then when [President William Jefferson] Clinton came, he decided not to use the Council, but to use the Office of Science and Technology as the base. Now there's a disagreement between, I think, [George W.] Bush who's running for president would have the Council, but [Albert Arnold] Gore, [Jr.]

would [continue to] use the Office of Science and Technology. There has to be some way of coordinating.

What you find in Washington, people come and if things are too well organized, it bothers them and they want to deregulate everything and give it away. Then somebody comes and sees everything is scattered about, and they want to organize it. So you have difference of organization and not too much organization between people who are administering an organization.

WRIGHT: I guess through the years you've seen it all come around again and again.

GALLOWAY: Yes, yes.

WRIGHT: Do you still believe after all these years that the Council has a definite function and a value to help organize the activities?

GALLOWAY: I think I would have to study more now what the Office of Science and Technology does. But, I don't think that they have the power. Now, at first, I didn't understand why there was any objection to it. After all, I had thought it up and I thought it was a wonderful thing. I was all for it.

It wasn't until Keith Glennen, who was the first administrator of NASA, wrote his memoirs that I realized that Keith Glennen had access to Eisenhower at any time. He had what Lyndon Johnson wanted; it was at the highest level. He could meet at the White House and he could meet with the National Security Council. So he didn't think he wanted another council,

and I began to understand his point of view on it. [But the following administrators did not always have such access.]

You still had these interagency committees, and you didn't have a history of coordination, which you needed. When you don't have that coordination, you can have mistakes, which I think has recently been made when the Congress passed a law about the export of technology. Instead of letting the Department of Commerce do it, which they had been doing and had a staff to do, it was turned over to the State Department. This has caused a lot of difficulties with industry, because you really needed the people who always deal with commerce all the time and have a whole background for it to deal with it. So this is something that needs to be brought out, I think. I think it would depend a lot on who was appointed to be on [the Council].

WRIGHT: Certainly the words on a piece of paper are very valuable for those following the guidelines that are set as well as for historical purposes, and I know that it must have been somewhat of a challenge to help put the information together for an act for NASA for a brand-new, not just agency, or administration, but for a whole new purpose.

Can you tell us some of the challenges of putting together the information? For example, we have learned, and I believe you shared it some time before, about there were those that wanted to substitute the word space for atomic energy, [which was] already a law that was existing, thinking that would be very simple to do. But with your assistance and guidance that didn't happen.

GALLOWAY: The way you do that is just to stick to the facts. You can't do this kind of work if you are engaged in some kind of political philosophy. This is what happens sometimes in the United Nations when you have a nation come in and they have a philosophy that they are developing and everything should be given to them. Or they aren't brought in to developing countries, you know.

So if you stick to the scientific and technical facts, then you can predict what will happen. You can't always do that, but if you can sort of imagine what the consequences would be if you do one thing rather than another thing, then you almost have an answer to your problem.

WRIGHT: Did you have many thoughts of different aspects of what you believed outer space should be? I know that as you mentioned just a few minutes ago, that the first thing that's mentioned in the NASA Act is about the peaceful uses of outer space. Did you keep that as your guiding force of putting the information together?

GALLOWAY: Yes, we were always working on maintaining peace. We wanted to maintain a safe, orderly environment.

You take the space communications industry, for example, employs 800,000 people worldwide, and almost everything depends on this basic communication now. So we don't want to do anything that would disturb that, and that's really what keeps people in line. You have to keep emphasizing that, because the peace has gone on so long now that people seem to take it for granted. This is really a mistake because you always have to keep guarding it. You always have to refrain from doing something that is going to upset this balance that we have.

We do have a balance between astronautics and aeronautics. We are coming to problems on that. Soon we will have a legal problem when we have vehicles that can operate both in outer space and in air space. We have constant legal problems arising.

WRIGHT: When Section 205 was placed in the act, did you feel like this was a way or a vehicle to open up international relationships with the uses of outer space, or was this more a means to make sure that the United States was somewhat protected dealing with international issues in outer space?

GALLOWAY: The outer space activity is inextricably international. You don't have to promote it; it is already international. When you send up satellite[s], [they go] around in ninety minutes or less. [Satellites go] over every single country. Every country has sovereignty up as high as air space goes. We have no definite place where air space ends and outer space begins. But we know that outer space is where vehicles can go into orbit.

It isn't a hope or anything like that; this is a fact. It is international. The weather is international. When you get weather experts together, they have more in common with each other than they do with their nations because they are interested in drifting clouds and things like that.

We have great advances in disaster relief; for example, that's international. Some of the things that we have in the treaty are general welfare provisions. Like you have general welfare in any community. These really need to be preserved.

Now, the problem that we run into is that originally only governments were in space and only governments had the money to do it. They wanted to do it in two ways: one was

exploration of outer space, and the other was the uses. The uses were all those that we have seen: communications, meteorology, remote sensing [navigation]. The governments were the only ones who could do it.

As things developed, especially with communications, it turned out that private industry is investing more money than the government. Therefore, you have this commercialization and privatization. So you have a real problem of the relationship between the government and the private sector, and that is what we are working on now that hasn't been worked out perfectly. Because the government is always going to have a role, they are always going to have to regulate for safety and national defense. Every nation wants national defense.

The private industry wants to make a profit, and they can't make a profit if they have to furnish weather information free to everybody, and weather information is a government function. All over the world it's a government function. Disaster relief is a general welfare. So some of the private organizations do not have to comply with the general welfare, and that's where we're running into trouble now and they are planning for the legal problems in the future.

WRIGHT: You had quite a challenge before you with the legal problems. You meet on an annual basis or even more frequently than that to discuss legal problems on your committee?

GALLOWAY: The Committee on Peaceful Uses of Outer Space is now located in Vienna, and they meet every year. First their Scientific and Technical Subcommittee meets, and then the Legal Subcommittee. They have an agenda that they work on, trying to work out all of these problems.

In July of this year, the United Nations had the big UNISPACE III Conference, which they had not had for ten years. I think there were 125 nations or something like that there. This was a technical forum of UNISPACE where the Legal Subcommittee met, and the United Nations asked me to chair the workshop on the Space Treaties; their Needs and their Strengths.

So first we went into the strengths at this workshop. There were about sixty people that came to the workshop. Then we went into the problems that we have to face for the future. This UNISPACE is all devoted to space activities for the whole earth for this century, for the 21st century, and it's all directed toward peaceful purposes.

That Section 205 in the NASA Act is also a way of trying to get some degree of disarmament, because it provides that there shall be no weapons of mass destruction in outer space.

We tried to anticipate problems, like when we say you can't own any property in outer space by means of use, occupation, or any other means. [Sovereign claims are] absolutely forbidden. So that is one way of keeping the peace and providing ahead of time for some contingency that might arise, and it's another way of having some degree of arms control. They could have, and some people are working on that, trying to expand [arms control].

WRIGHT: In these efforts do you bind yourself as a consultant with the Department of Defense as well, or do those boundaries ever cross, those lines ever cross, or [are] there specific boundaries on it, the information you have that could—

GALLOWAY: They have invited me to the War College, and I think the Air Force invited me to some workshops that they had. The Civil Service Commission invited me—I think I was in

[Oak Ridge,] Tennessee, I was invited down there about six or seven times to talk about the Congress and how it was organized for space.

[interruption in tape]

WRIGHT: How did you get started with a career in space law?

GALLOWAY: In November of 1958, I came back from the United Nations to Washington, and I found on my desk a lot of bibliographic cards, three-by-five library cards, all of them with references to space law and legal problems of space.

I was astonished by this. I had a regular order to get everything on space in the library from the bibliographers. So as I went through them, I was really impressed with the caliber of them and how many nations were involved, how many authors were involved. I said to Lyndon Johnson, "I think I could get out a committee print on space law." So, in an offhand way he said, "Well, Eilene, if you want to do that, you can go ahead."

This was a time when you could get a thousand copies of a committee print without having to get through a Senate resolution. [T]here was no way of getting through a Senate resolution [before the end of the year].

But anyway, I went ahead and got all these articles on space law, and mostly they had originated because of the Chicago convention and all the legislation on aviation. So I got this all together, and there was one man in the [Law] library who knew German and French. He made abstracts of some of the articles in foreign languages. So [the Committee got out] this committee print on space law. We had a thousand copies, and in two weeks it was completely gone. We had no more.

Then several years later, I was asked to do it again. I wasn't very excited about doing it again, but I was able to add things from the American Bar Association. People thought you were so crazy if you talked about space law, [so] this time I decided to call it Legal Problems of Space Exploration. Then later I changed the term to Legal Problems of Space Exploration and Uses. So that was how that happened. One thing just led to the other. Of course, the treaties were space law, but that is not all the law that you need. It's just part of it.

WRIGHT: I understand you are still writing. Didn't you recently submit a—

GALLOWAY: Oh, yes, I recently wrote an article on Space Law in the 21st Century. This was for a publication of the Air and Space Law Institute at the University of Cologne in Germany.

This deals with a problem that I mentioned before of privatization and commercialization and the different problems. You can't solve all the problems just by law that is concerned only with outer space because the information comes from space to earth and then you're involved with national laws about insurance for space vehicles, liability for damage, and a whole lot of legal problems that are really earth problems but are affected by the space activities.

WRIGHT: Do you have any idea how many papers or publications that you have written in your career?

GALLOWAY: No. A friend of mine came and made a list of them and got them in a file upstairs, but every once in a while I find something else. This house is filled with space materials, the

garage, the basement, the attic, the study, one bedroom, the fax in the other room. So you can't walk around without finding something.

WRIGHT: So many of your words are, of course, so impacting. Do you have a favorite proposal or favorite presentation or a favorite entry into something that became law that you feel is probably one of the best or the most favorite contributions that you've made to impact the space industry?

GALLOWAY: As far as it becoming a law is concerned, I think it's the Space Council. But if it isn't a law, if it's other things, just to write, I think I was most pleased with something that I did for a meeting of the NASA Historical Office, because that was when I told about the convergence of three forces that made it possible for us to have peace in outer space. One was the nations wanted peace, even though the United States and the Soviet Union were the only ones at first and we were in a cold war, nevertheless they agreed on that. They agreed that they wanted peace, and of course, all the other nations did.

Then there was the scientific basis for it. The scientists and engineers who were working on the International Geophysical Year, they were the ones that furnished the facts and the ones that told us how many uses we had for it.

Then there was the United Nations forum that emerged as the place where we could formulate treaties and all the nations could get together and discuss and where the scientists and engineers could get something done because they did want every space vehicle registered. Of course, they could be registered with the U.N. Even before we got the treaty, the United States and Soviet Union were registering their space vehicles, because they wanted to know what's up

there, they don't want them to collide. You know, you can only put certain things up at certain times. You have to adjust to the laws of physics. You can't do anything otherwise.

So those were real forces that produced unity, and it was the unity of objective. Everyone was unified about the objective. We had the means of attaining it, which is proved by the fact that for forty-three years we haven't had a war, a space war.

WRIGHT: That's quite an accomplishment.

GALLOWAY: It is quite an accomplishment. [I was given interesting assignments by Senator Symington who had a well-organized staff whose members were assigned designated legislative areas. I was invited to sit with his staff when they were considering the NASA bill. When we were discussing the Declaration of Policy, we came to the wording about effective use of scientific and engineering resources and "avoidance of duplication of facilities and equipment." I said we should insert the word "Unnecessary" to indicate we must avoid unnecessary duplication. Senator Symington shouted "Eilene, what do you mean by 'unnecessary?'" And I replied that when you put duplicate shingles on a house it keeps more rain out, and that when some space activities are divided between the Department of Defense and NASA, they might need some similar facilities because their purposes are different and flexibility is required. And Senator Symington said "Well, we will include Eilene's unnecessary." So the policy was adopted to "avoid unnecessary duplication of effort, facilities, and equipment." This can apply particularly to communications, civilian and military. Later on I think it kept DOD and NOAA [National Oceanic and Atmospheric Administration] from having to merge all weather into one organizational unit.]

WRIGHT: You have also spent much of your time being involved with nongovernmental organizations concerned with astronautics. We note that you were vice president of the International Institute of Space Law, of the International Astronautical Federation, [and] you are now an honorary director. [You are] trustee emeritus of the International Academy of Astronautics, participated in international workshops of the American Institute of Aeronautics and Astronautics, and in 1999 you received the John F. Kennedy Award in Astronautics [from the American Astronautical Society].

Tell us about the experiences with these groups and other ones that you have [worked with].

GALLOWAY: I think these professional groups are significant because they have a linkage with their governments. All the members have linkages with their governments. It's a way in which the scientists and engineers, the economists, the lawyers, the political scientists get together, the sociologists, and help to work on all of these problems.

Now, for the International Institute of Space Law, I have written papers that have been published almost every year since it started in 1958. That was a very exciting experience. That was when the first meeting was held that really formed the International Institute of Space Law, and it was held at The Hague in 1958. There were a number of Senators who wanted to go, but Lyndon Johnson said that he needed their votes in the Senate. I didn't vote in the Senate, so he said, "Eilene is expendable; we will send her."

So I had about three hours' notice. I was working on something in my office when I got a call from someone in his office, saying that I was to get on this plane. I had written my paper.

My paper was called “The Community of Law and Science,” but I didn’t think I would get to go. Lyndon Johnson had never before okayed a staff person for overseas.

My husband drove me the wrong way, on [one way] streets, to the State Department to get my passport. I had about three hours to get ready. I came home, threw all the clothes on the bed, shoved them into a suitcase. The Air Force came and took me to Andrews Air Force Base, and I got on this [official] plane.

So I thought we were going by way of Argentina [northern route], so I was very surprised when I was awakened. The plane landed in the Azores, and they said that they were having a party—this was in the middle of the night, of course—at the officers club, and I should go. I said, “Well, I’m so sleepy I think I’ll just stay on the plane until it gets to France.” I had to go to France before going to Amsterdam. The pilot looked very unhappy, and he said, “Ma’am, in order to fly on this plane, you have been given the status of a four-star general, and nobody can get off until you get off.” So naturally I got off and went to the party to have a good time and to enjoy being a four-star general for the next three hours, or maybe it was only two hours. [Laughter]

Then I took a train to Amsterdam where I met all these people who were forming the International Institute of Space Law, and we had our meeting at The Hague.

Later on I gave a paper. Let’s see how I did that. The Soviet Academy of Sciences had invited me to Moscow and Leningrad to celebrate the 25th anniversary of [Yuri Alekseyevich] Gagarin [first human in space]. That was very exciting, and I barely had time to write the paper I gave in Paris where we were having a meeting. I called it “Conditions Essential for Maintaining Outer Space for Peaceful Uses.” Not purposes, which is intent; but actual uses.

This came to the attention of someone in Tokyo, a Dr. [Edward] Ploman—this shows you how these people get around—who said that he would like to use it to have a workshop at The Hague at the [Peace Palace,] International Court of Justice. So we set up this meeting at The Hague with all these people that'd come from these different organizations. I wrote the overview and the chapter on International Institutions to Ensure Peaceful Uses of Outer Space.

Then Dr. [Nandasiri] Jasentuliyana, who has just retired as director of the Office of Outer Space Affairs of the United Nations, made the whole workshop into a book. So this then gets around to people who are studying these matters. So that was the International Institute of Space Law [IISL]. [In 1992 the IISL published a book dedicated to me: "Space Law: Development and Scope" edited by N. Jasentuliyana. 281 pages.]

Then for the International Academy of Astronautics, the head of that first was Stark Draper, who was the one who planned the navigation to the Moon. [He was followed by George Mueller] They had three sections. They had basic sciences, engineering sciences and life sciences. Mueller decided to start section four on the social sciences. So I was elected chairman of this for three terms. That was for nine years I served.

My function was to coordinate [space] science and technology with the social sciences. So like if somebody is working on problems of a crew in outer space, I could get hold of a sociologist, which I did. I got a hold of B. J. Bluth who had studied people living in small areas in the Antarctic. She had gone to Russia and interviewed those people, and she had visited submarines. So I had a sociologist who knew all about the psychological and physical problems of astronauts in small vehicles, like the Shuttle.

That's just an example. Sometimes I would need an economist or some other social scientist to coordinate with the people who were working on the life sciences, medicine or some

aspect of remote sensing. So that was the Academy. Then I was elected a trustee emeritus of that.

Then the American Institute of Aeronautics and Astronautics has an International Activities Committee, and I'm a member of the planning committee and we plan workshops. We've had workshops in Hawaii and Banff [Alberta, Canada]. We've had them in so many places I can't remember all of them, but the next one will be in Seville, Spain, in 2001 in March. These deal with all the international problems. Since that is largely composed of businessmen, industrialists, the American Institute, that links the governments with the industry.

The other was the American Astronautical Society. I wrote a chapter in a book for them and explained how we had organized the Congress to deal with space when the problem was that the issues cut across the jurisdictions of five or six committees so you wouldn't know where to refer a bill when it was sent over to the Hill. So that's what I did for them.

WRIGHT: Tell us about the John F. Kennedy Award and what—

GALLOWAY: That's the award that they gave me, the American Astronautical Society.

WRIGHT: You have received different awards from different organizations in the past. Are there some that you would like to share with us that come to mind? For instance, we are noticing the one from the Women in Aerospace.

GALLOWAY: The Women in Aerospace, that's quite an organization too because some of the women have really [high level] jobs. They are astronomers, scientists, [the] chief scientist of

NASA is a woman, and the biographies are really impressive. I don't have much time to spend with that now; I spent a lot of time with that before. But I have been too busy with the NASA committees.

WRIGHT: Tell us about your connection with NASA these days, what all that you're doing for them.

GALLOWAY: I was on the Advisory Committee on the International Space Station, and we kept track of the Space Station and our relations with the Russians and with other partners that we had, international partners. We kept track of the Shuttle and building the Space Station. Then that committee ended last October.

They started a new committee this spring, and I was appointed to that. It's the Space Flight Advisory Committee, and this is the one that deals with the Space Station, upgrading the Shuttle, the launching, they are trying to get launching at less cost, and communications. So we had a three-day meeting of that last month.

WRIGHT: Are you finding old issues revisited, or are you still encountering new issues as the technology continues to change?

GALLOWAY: I think there are new issues, like this commercialization and privatization. At the meeting, some people didn't seem to know the difference between them. We have this problem about the role of the government and the role of the private industry.

WRIGHT: Let's stop for a few minutes and take a break, and then we'll come right back.

[interruption in tape]

WRIGHT: We were talking of different honors and different recognitions that you had received. When we were looking through some of the information that you had so graciously passed on to us, one of the ones that took note was one of last year when three Oklahoma high school students chose you as their topic to research and enter as part of a National History Day competition. They went on to the national contest.

I was just curious what your thoughts were that these teenagers of today chose you to do that.

GALLOWAY: First, I was surprised. I wondered how they had found my name, and apparently they had found it on the Internet because it's listed among people who have dealt with space policy.

So, I was really astonished by this. They were all juniors, you know, and they each took a third of my life—I don't know where they got all that material—and dramatized it. So they won the state of Oklahoma contest and then came here. We had—the National History Week is quite a week of all—they said forty-eight states participated.

Regardless of what segment of my life or how old I was, all of them made me sound like a teenager. I felt like I was fifteen again. [Laughter] It was really funny. At one point, one of the judges said to the girls, "Where did you get your source material?" She pointed to me and she said, "It's right there." [Laughter] This was very funny.

This really—I was especially interested in this because my grandparents lived in Oklahoma, and I thought, my goodness, my grandfather would be surprised at how I turned out. Because the memory I have of him, I was a little girl and he took me out into the cotton field early one morning and they had planted watermelon in between, you know, the rows. He took a watermelon and dropped it to the ground, and then reached down and handed the heart of it to me to eat. So I had memories about Oklahoma now with the teenage girls.

WRIGHT: I find it interesting they point to you as their resource, and so many people through the last four decades have pointed to you as their resource for information. But when you started out in that office in the Legislative [Reference] Service, you didn't have those resource materials.

Tell us about those days, and how you first started.

GALLOWAY: This was remarkable. The Legislative Reference Service had been really just a reference service, not research. Then they had a new director, and I was appointed by the new director Dr. Ernest Griffith. I think the reason he appointed me was that I had taken a course with him at American University, and he had written a book and had given it to me to ask what I thought of it.

Anyway, it was a small organization, so there wasn't competition between people. Each one was supposed to have some specialty. Dr. Griffith was willing to let you go if you knew how to get along with people and do the work. I was struck by this the other day because I heard a book review on television by one of the astronauts who complained because he said that in some of the organizations they don't let the middle-level people forge ahead when they are

able to. I had never thought of that before. Dr. Griffith had faith in everybody; he was like a minister with his flock.

But sometimes I would get into difficulties. One time, he called me in and he said, "I understand that you have somebody working for you in the law library." That's another part of the library with its own budget. He said, "How does it happen that Dr. [William Sigfrid] Strauss ["Air Laws and Treaties of the World" 1961, updated 1965] is working for you?" I said, "Oh, I met him in the snack bar." I said, "He was very bored and he didn't have an assignment, and I wanted to know what all the aviation laws were because I thought that might have a connection with the space law and he knows German and French and he has all laws in German and French in the law library. So I asked him if he would like to translate them." Dr. Griffith just sat there looking at me, because the head of the law library had asked him why [his staff was] working for me.

But I had the habit of doing this because of having done the public affairs abstracts, I had to assign them to people. Strauss wrote this, and he got out one of these committee prints. I had it published by the Senate committee, and it was invaluable having these laws of aviation to see whether they applied to space, what the connection was.

But Dr. Griffith was really wonderful, and Lyndon Johnson was, in giving me assignments. You know, he gives you assignments. I could tell you one thing, but I don't know whether I should put it in. You can delete this.

I was in his office and we were just finished talking about something, and he got a phone call that some Senator was going to vote against his bill. I think it was a civil rights bill or something like that. He was absolutely furious. I've never seen anybody get so angry. He slammed the phone down, and he picked it right back up and he called this Senator. Somebody

had informed him of this Senator. He spoke to him in the sweetest tone of voice I have ever heard and appointed him to something that he knew the Senator wanted. I've forgotten what he appointed him to. Then he put the phone down.

I was transfixed. I never had seen such a transformation or anything get done so quickly. He must have felt he had to explain it to me. He said, "When I feel somebody nipping at my behind, I throw them a little piece of meat." [Laughter] He was a very, very interesting person. He had such a strong personality that when I picked up a book the other day, a big book that had a picture of him, it almost leaped out at me. He had a powerful effect on people, and he had a powerful effect on getting the space [program] started the way it should be in the very beginning. It was his energy and enthusiasm.

WRIGHT: It certainly had an impact on your life as you became more and more involved.

GALLOWAY: Yes, both of those people had an impact, because they had faith in me. Because if there was something I didn't know, I just would find out somebody who knew. I had done that before, because when I worked for the Senate Armed Services Committee and they wanted to organize the United States Defense Department to have the Assistant Secretary of Research and Development and another of Applications Engineering. I didn't know what Applications Engineering was, so I called up several engineers in the government, and they didn't know what it was either. So I wrote a memo saying, "I don't think this is going to work because the Assistant Secretary, both Assistant Secretaries are on the same level. The one doing research and development will keep on doing research and development. He's not going to turn it over to them then on Applications Engineering."

I knew where the idea came from because the secretary was Charles [E.] Wilson; he was Secretary of Defense. He had this done with automobiles. You had someone doing research and development on an automobile. Then you gave it to somebody else to manufacture. That was clear it was no problem. [Major] General [Verne D.] Mudge was the staff director; I was working for him. General Mudge said, "Well, it's already in the law." He said, "I don't see how we can get it out." But he said, "I think you're right about it." So they passed it, and in two years they found out it wouldn't work.

In the meantime, one of the things the Congress did, and it was very important, while we were holding these hearings they passed two laws so we could get ahead in a hurry with space, so the Defense Department could go ahead and set up ARPA [Advanced Research Projects Agency], which was the research that now still exists where they bring the research, the development and the final product of a weapon together all at once. They brought that together and they appropriated ten million dollars for [DOD] to work on it until we got NASA. That was very important, and Lyndon Johnson arranged that too.

WRIGHT: A powerful figure and a powerful congressman.

GALLOWAY: We were not bothered by the Bureau of the Budget, because we were so anxious to get ahead with space nobody was impeding us. Now they have more trouble. They don't have the Bureau of the Budget, they have the Office of Management [and Budget], so you have to explain things to them. Sometimes you don't know what you are supposed to explain because you want more money for remote sensing where [satellites] go around and take pictures every second so you know where a storm is brewing and you can get out your weather report.

Here's this man in the Bureau [Office] of Management and Budget who says, "Well, if you've gone around once and [taken] pictures, why do you want to go around again?" I mean stupid mistakes. [Laughter]

WRIGHT: Do you feel continuity of expertise or at least an institutional memory in some of these agencies or departments would assist to accomplish more? Or do you feel that people changed position so often that you're always having to re-explain or possibly—

GALLOWAY: You always have to re-explain with the Congress, because I wasn't working so much with the executive people, except now and then. I was working with the members of Congress, and of course they have to be briefed. When they come in, they need a briefing on these subjects. They have to have more than lobbyists. They really need to have the facts.

WRIGHT: What are some of the hopes or the goals or even the assignments that you hope to fulfill and accomplish as part of your latest task with NASA with the Space Flight Advisory Committee? Are there some areas that you are looking to hopefully make sure get taken care while you are on this Committee?

GALLOWAY: Yes. The main thing that I want is to have coordination between the Shuttle and the Space Station. You see, you have different periods of time when they're ready. The Shuttle is supposed to service the Space Station, and it has to be upgraded. So the main thing that I am interested in now is being sure that they are both ready at the same time for whatever it is they are supposed to do.

WRIGHT: You mentioned in a conversation that we had that you will be traveling to Florida in the next couple of months. Will you be for activities going on at the Cape, or are you going for a meeting?

GALLOWAY: I think it will be a meeting of our committee, and they will have briefings from the staff.

WRIGHT: Have you been able to witness some of the realities and the actions of all these laws of politics? Have you been to launching of satellites?

GALLOWAY: Yes, I saw the Apollo Soyuz one. I saw one last time, and I think we'll see one in September. It's very thrilling.

WRIGHT: It must be very heartwarming for you to know that they are going to space for those reasons that were first intended continually after all these years.

GALLOWAY: Yes.

WRIGHT: Through your career you had a partner that was very essential to your success. You've mentioned before that your husband and your family were there right along with you as you were able to do all that you did. Could you share with us some details about your husband

and how, if there were, at times that your work crossed or that you were able to benefit each other.

GALLOWAY: We were married when I was very young, you know. I was eighteen when I married him. There's some of the books my husband wrote. He was an expert on the United States Congress and the government. He wrote Planning for America and Congress at the Crossroads. He was staff director of the Lafollette Monroney Committee that reorganized the congress in 1943. At that time, we had Army and Navy committees, and he got them to put the Air Force in so that they had armed services in all three branches. That was really something because it meant one chairman instead of two [in the House and Senate]. I don't know how he did that, but he was a great expert on that.

That was why he was chosen to take the congressional delegations to the Inter-Parliamentary Union, and we had eleven trips like that. For some of them I did the background studies; that is, if the members of parliament of the world had a problem like juvenile delinquency, they wanted to know how all the other nations have handled it, or whatever the problem was. I remember having written one on juvenile delinquency and education. Usually you had to brief the members of Congress, because in the U.S. you have experts on national education, and they [may not know] about UNESCO or the United Nations Education[al Scientific and Cultural Organization] and all the workshops that they have and the training that they have for people. So you usually had to brief the members of Congress if they were going to have something that cuts across national lines.

Anyway, we have two sons, and we have six grandchildren and four great-grandchildren now. We all work, everybody works.

WRIGHT: Very hard, it sounds like.

You have been quoted as defining and basically defending space as a place and as a way to do things. After you've been involved with space [activities] all these years, do you believe this is still a valid definition? Or are there any definition changes that you would make to that? Has it become more than that?

GALLOWAY: It depends upon whether you're talking about the place or whether you are talking about what goes on in the place. If you're talking about a place, you have the solar system and then you have beyond the solar system, you have the universe. So all of that is exploration.

One of our subjects for the next AIAA [American Institute of Aeronautics and Astronautics] workshop is on the asteroids and fear that an asteroid will impact the Earth. They asked me there to get a social scientist who would know how to handle it if there was one impending and there was great fear from lots of people. So you need a sociologist and a social psychologist for that. That shows you how these disciplines are involved.

So I would differentiate between the practical uses like weather reports and mapping and so forth that take place in the solar system and the outer space and the uses in the space. This is a space that's filled with things. They call it a vacuum because of low gravity, but that doesn't mean that it's empty. It's filled with solar flares and all kinds of forces that affect the satellites.

WRIGHT: While you were at Swarthmore, did you have an idea where you wanted to take your knowledge and experience that you had gained there as a college student?

GALLOWAY: No, I didn't know how it was going to develop later. It's only later when you look back that you can see that there's been some kind of a logical line of development, and in the honors work we concentrated on seminars and on writing reports and on interrelating the seminars. We had political science, economics, history and philosophy. Later I had to add some other things, but it was a wonderful training.

I was there my junior and senior years, and then they asked me to teach there and I was an instructor for two years in the political science department. I taught the introduction to the course and American Municipal government. See, I didn't know anything about American Municipal government, so that taught me how to take up something new; that is, I think my only qualification is that I'm not scared of an assignment. It's something if someone comes in the afternoon and I'm working on military manpower and they say we're going into outer space, I'd put that to one side and go into outer space. This is the way I proceed.

WRIGHT: Looking back on the times that you were at college, would you have ever thought at that time period that you could have had so many opportunities to affect even mankind the way that you have over the last forty years?

GALLOWAY: No, I didn't.

My husband was field representative of the National Economic and Social Planning Association, and we had a trip of one year throughout the United States. We zigzagged back and forth between the southern states, and then we zigzagged back and forth through the northern states and really studied the United States. That was a wonderful experience. We met

all kinds of people, interviewed all kinds of people, and especially it was not long after the Depression. There were still people in the south talking about the Civil War and so forth.

I know we came to New Orleans and we met two ladies who were somehow connected with the community service. She asked my husband where he was born, and he said New York. Since I had been born in Missouri and my mother was born in Texas and my father was born in Louisiana, she said to my husband, "That makes even you all right." [Laughter] He was a damn Yankee, as far as she was concerned.

WRIGHT: It's a good thing you were along.

You've had so many adventures. As children grow up, parents will try to tell them that the sky's the limit. You've even managed to exceed past the sky and through the stars.

GALLOWAY: Yes. That was really funny.

WRIGHT: I'd like to ask you as part of our closing that you've been referred to as an author, a lecturer, editor, advisor, consultant, researcher, expert commentator on space law and many other areas. How would you describe yourself?

GALLOWAY: I don't know. Someone else has thought of those words; I didn't think of them. I just feel like myself. [Laughter]

WRIGHT: And that's it.

GALLOWAY: I really don't know. I guess the main thing is that I like to deal with factual matters and solve problems, and when I solve a problem I try to think of the possible consequences. I think that is lacking in a lot of thinking, and you can't be perfect at it because you don't know everything that is going to happen. But I think to just say that you are going to solve a problem by doing this or that and not to figure out what the consequences will be is not thinking ahead. I do think that we've thought ahead for the 1967 space treaty, because it provides—we knew that if there were claims of sovereignty in outer space they would cause wars. That's one of the things that causes wars is property claims and all. So we provided that there was to be no sovereignty in outer space [by means of use,] occupation or any other means. So we warded off a future war, future conflict.

Meanwhile, we had what it took to unify people on the objective of peace. I think that is what I'm primarily interested in.

WRIGHT: Were there areas that you had hoped to be accomplished that just didn't make it to the packages and treaties or other people didn't agree with? Were there some challenges or some—

GALLOWAY: I never learned a lot of even one foreign language. I studied French and Spanish, but it was tourist French and Spanish. So I was extremely lucky that all the conferences were in English and the Russians had to learn English. [Laughter] That was a godsend. If they had all been in French, as they would have been in the field of art, then I would have been out of it because I couldn't have worked at the level I worked [with] a foreign language.

I know some people who can. I know two women who are—I know three who are fluent in Dutch, French and English and Spanish. But it's remarkable how the Russians learned

English. They learned English without any accent. They must start out very young. I don't know how they do it because you can always tell a French or German accent. There's one who is so brilliant, you'd think he was from the Chamber of Commerce of Chicago, if you heard him talk. They are very, very good. He remembers everything. He's the one who threw the dart at me. [Laughter]

He had a sense of humor too, because going through the receiving line of one reception, a lady came. I don't know who she was, but anyway, she was ahead of me. He shook hands with her and looked at her, and she was really frightened to be in this. It was at the Polish embassy, and she was with this Russian in the receiving line. Boris [Maiorsky] said, "I won't bite you." [Laughter]

WRIGHT: I'm sure that was also an important element of doing work with so many different types of people, of working with a good sense of humor and—

GALLOWAY: Yes, I think it's very important to not be too serious all of the time.

I remember one time at a committee meeting the Senators were at a table. The Senator from Iowa started to read something, and he had forgotten his glasses. I took off my glasses and handed it to him, and he read it. Everybody laughed. But it didn't occur to me that my glasses might not fit him. [Laughter] So there were always funny things going on, amusing things to lighten up the workload.

WRIGHT: That's good if you could continue to laugh, because your workload was too heavy.

GALLOWAY: But I must say that in going through this space law book, realizing it was the end of November, and this had to come from the printer by the end of December, I was overwhelmed with it yesterday. I didn't see how I could get that together. Some of these people are the people, these authors are the ones that—well, this is a different one.

Oh, I should show you about this. After I had arranged, I had been successful in getting Eisenhower, without his knowing it, to explain that we had less formal agreements. We have memoranda bilateral agreements, we have memoranda of understanding, we have letter agreements, all kinds of [ways] to get [international cooperation] done. You know, we don't have to have a treaty [for every cooperation.] Senator Symington and Margaret Chase Smith got worried that NASA was doing too much, that some of this should be a treaty.

So then they asked me to look into this. So I went down to NASA and I got the text of all these [international agreements] that I could and I wrote. These are international space programs, and they are the texts of the executive agreements, they don't have to come before the Senate, the memoranda of understanding, they call those MOUs, and other international arrangements from '59 to '65. Then I wrote this introduction explaining all this.

Then Senator Symington and Senator Margaret Chase Smith were happy about it when they saw it. All this is on tracking and data acquisition. I must have had something else. This is useful anyway because a lot of foreigners that I met asked me what were the different forms that the United States used to make international agreements, and I could hand them this. So that was nice that that happened.

WRIGHT: That was your idea to have all those published together?

GALLOWAY: Yes, that was the only way I could answer their inquiry. I mean I had to prove that everything didn't have to be a treaty, and I could only prove it by explaining what all these were. When you read them, you can see that they wouldn't be a treaty. You just want to arrange something.

All of our arrangements were that they paid their share and we paid our share. If they furnished a tracking station, then we could pay our share and they would have the station. Or whatever it was that we were doing.

WRIGHT: This is the one that we were talking about earlier. Is that the one you did in a very short amount of time?

GALLOWAY: Yes. [It is "Space Law: A Symposium" published on December 31, 1958 by the Senate Special Committee on Space and Astronautics.]

I put in the paper I wrote on the Community of Law and Science, and that was where I met—oh, and I put in Johnson's speech. This was where I met Dr. [I. H. Ph.] Diedericks-Verschoor, who was an expert in aviation law. It was at The Hague in 1958 in August, this month, in 1958. I'm going to write her a letter. She was president of the Institute for a while and is a real expert on aviation law. So that's very helpful.

WRIGHT: Once you became so involved with the space industry as part of your job, were they still assigning you to other areas as well, or were you pretty much left to devote all your energy and focus into following this path?

GALLOWAY: You mean while I was working on the Hill?

WRIGHT: Yes.

GALLOWAY: [I never worked for space industry while I was working on the Hill or after I retired. All my assignments came from Members and Committees of Congress, and some requests from the United Nations where they invited me to speak at their fiftieth anniversary. My participation in professional space organizations has always been as a volunteer and in the capacity of a government-oriented objective researcher. My space assignments on the Hill were about every aspect you can imagine—exploration of the Moon and Mars, communications, remote sensing, navigation, international cooperation, solar power, regulation of orbits, relation of the military and civilian, appropriations—if any non-space requests came to the CRS, the front office] said, “Leave Eilene alone; she’s busy.” [Laughter]

WRIGHT: I guess that was good news.

GALLOWAY: I just didn’t want to be moved. I had an office in the corner of the building back of the Library of Congress. All the senior specialists were there, and I had a double window. This is remarkable in the government. I saw that they were always moving people. Somehow when anyone takes charge of anything, if it’s a grocery store, drug store, or whatever, they want to move things around. They want to move people. They wanted to move us all to the attic of the other building, which wasn’t air-conditioned. So I just collected lots of materials so

whenever anyone came to the door, they would shake their heads. They knew they didn't have room for me and that material anywhere else.

But I just worked on all aspects of space no matter what [they] might be. I was there until I retired. I mean after I retired I could do some other things.

WRIGHT: Did you work from your home once you retired?

GALLOWAY: Yes.

WRIGHT: I know that technology has affected your job as well, whereas at some point you might have been mailing packages back and forth internationally, now you're able to fax information. That must allow you to get—

GALLOWAY: Yes. I'm very pleased with the fax. I got so many things from the U.N., first [from] New York and now [from] Vienna. Just yesterday I got three pages from NASA. My phone is fixed so that if there's no one on the line—it's the same number as the telephone. So if there's no one on the line, I know it's the fax and I can punch star 51 and it's transferred up stairs and it comes through there. I think that's remarkable, because I can't walk up the steps very fast.

WRIGHT: I'm sure it's very different from the days when you typed with a manual typewriter with carbon paper.

GALLOWAY: I still type on my typewriter. But my old fax, which I really liked better, was just a tiny little thing, it makes these carbons like this. See, I made these for you. It's better than the new fax for this because it goes through right away, and the other one if anything gets stuck you have to take the machine apart and I'm not good at doing that.

WRIGHT: We all have our talents, and that's not one.

Why don't we stop for a while and we can visit and see if there are any other topics we want to talk about.

GALLOWAY: I can start and see about what we are going to have for the lunch.

WRIGHT: All right.

[End of Interview]