

**National Center for Atmospheric Research  
University Corporation for Atmospheric Research**

**ORAL HISTORY PROJECT**

**Interview of: Professor Emeritus Robert G. Fleagle  
September 24, 1990**

**Interviewer: Earl Dressler**

0:00:00.0

Earl Dressler This is Earl Dressler, and I'm at the Faculty Club at the University of Washington in Seattle, Washington, to interview Professor Emeritus Robert G. Fleagle, Department of Atmospheric Sciences at the University of Washington and long-time worker in the field of meteorology and atmospheric sciences. Today Bob and I are going to talk about the early develops of NCAR and UCAR.

Bob, you were involved in the very early development of UCAR and NCAR. Would you talk about this activity?

Fleagle: Yes. My recollection goes back to late '50s. In the aftermath of the IGY, really, there was a lot of talk within the profession about the need for new institutions. This was the time when NSF also was really becoming active and vigorous in the atmospheric sciences. And I guess the first real contact I had with the idea and the concept of NCAR was a meeting in Hartford, a small group of us I guess Tom Malone organized, where we talked about the concept. But more specifically, my recollection is of the first organizing meeting of UCAR, when the corporation itself was organized. This was at UCLA in I believe the late summer of 1959, although the date may be somewhat in debate.

0:02:15.5 This was a meeting of the 14 universities, the original members of UCAR, and Tom Malone, of course, was an important member of the group, and there were a few others. I'm sure National Science Foundation was represented probably by you, Earl, although I don't recall precisely on that point. It was at that meeting that Henry Houghton was elected. He had been the chairman of the University Committee on Atmospheric Sciences, which also of course was known as UCAR, and he was elected as chairman, and I believe Horace Byers as vice chairman at that time.

The big issue at that meeting was the degree of independence and scientific strength that was to be developed at NCAR. This was not an easy issue, it was a somewhat controversial issue. There were feelings among some of the member representatives that while there was a need for facilities and for a conference center, that the universities didn't want to create a competitor for federal funds. Out of that very healthy debate, there was a resolution at that meeting, and as I recall it, Henry Houghton and Tom Malone were the stalwart leaders of the case for making NCAR a strong national center with strong scientific credentials, a strong scientific program as well as and operator of facilities. Those are my early recollections. Perhaps you want to elaborate on that or respond.

0:04:49.5

Dressler: As I recall, the issue of the independence and strength of the institute or center to be established was one of important issues. And as you already said, the universities were wary of setting up an organization that might compete for the federal funds and other funds that were available for research and development. But wasn't there another issue that dealt with the possible recruiting of the university scientists and therefore the universities would be devoid of these scientists and they would all go to this national center? Was that debated at that meeting? How was that finally solved?

Fleagle: Yes, you're absolutely right, and I fold these two together because I think they were discussed as a single unit, the question of federal funds and the question of competition for faculty. The resolution there was a compromise, in a sense. It was that NCAR would be prohibited, really, from competing, from recruiting directly from university faculties. This provision, ground rule, was in effect at NCAR from the beginning up until I believe 1973, when it was rescinded.

Dressler: Was that an important resolution to get accomplished at that meeting in terms of getting the unanimous consent of the universities?

Fleagle: I believe it was the crucial one. Without it, I believe, as I recall it, it probably would have been a majority in favor of going ahead with a strong national center, but it would not have been unanimous, and I suspect that without unanimity, the federal government, NSF, would not have been able to give it the support that it gave ultimately.

Dressler: I think that's right. This issue and the agreement to prohibit UCAR from recruiting from the university campuses, how did that affect and perhaps inhibit the early recruitment of scientists and staff for NCAR and UCAR?

0:07:22.3

Fleagle: I think it's difficult to be certain about any particular case and not fruitful to go into any speculation of that sort, but I'm very satisfied in my own mind that this was a strong inhibition on NCAR for many years and that it had an unfortunate effect. I can refer that back to my experience when I was at the Office of Science and Technology in Washington, reviewing federal research budgets in atmospheric and oceanic sciences. NCAR, of course, was a prominent and important component in that the Bureau of the Budget and Peace Act, the President's science advisory committee, both were skeptical of the quality of work at NCAR, the quality of staff was—in the early days and for a few years, NCAR, of course, had a green light to prove itself, but as the years went by, there was an increasing skepticism as to whether this was working out just as it had been hoped to work out or not. There were many cases where discussions hinged on the question of, why couldn't NCAR recruit a stronger staff?

Dressler: Some years later, this is 1959 when this resolution, this meeting took place at UCLA and this resolution was passed. Some years later, was it you who led the effort within the UCAR establishment, the board of trustees and so forth, to have this prohibition removed?

Fleagle: I think there were several of us. I was very strong in feeling that it should be removed, and we did get it removed. I don't want to claim sole leadership of that move, by any means.

0:09:56.6

Dressler: And this was probably 1961 or 1962 when that was lifted?

Fleagle: No, no, it was much later. It was 1973, as I recall. I may be wrong on the exact date.

Dressler: That's late?

Fleagle: That's why the provision, I felt, had a negative effect. For more than 10 years, surely, it constrained the recruiting of faculty.

Dressler: And in those early days, Walt recruited from the retired ranks of the military and from the university—I mean, the research institutes, labs around the country, and limited himself in recruiting from the universities directly?

Fleagle: That's right. As a final note on this point. I think that to this day there is a feeling among some of the university representatives of UCAR, and probably some of the faculties, that NCAR should not compete openly and freely for faculty, even though this is no longer an official restriction.

Dressler: Bob, let's move on to your other activities now with UCAR and NCAR. You served as a representative from the University of Washington for a long, long time. Will you mention some of the other activities that you were involved in and some of the people who were involved with you on this work?

0:11:43.6

Fleagle: I suppose the first official role that I played at UCAR and NCAR was as a member and then chairman of the council of members. This grew out of the feeling among some member representatives that the board of trustees was so much involved in budget and planning of institutional matters that not enough attention was given to the program. The council of members was recruited or established from among the scientific faculties of the member universities. The first action or the central action of the council of members was the formation of the evaluation and goals committee. I was the first chairman of that. I chaired it for the first two years, and then Norm Phillips I believe was the next chairman. The evaluation and goals committee looked very directly at the questions of the scientific objectives of NCAR, the quality of the programs, and the outcomes. They tried to evaluate the results in terms of research product.

We found much good to say, but we had some pretty fundamentally critical things to say as well. I believe this led ultimately to the reorganization—well, it led in the early 1970s to what was known as the JEC, was it?

Dressler: The joint evaluation committee.

Fleagle: Yes, the joint evaluation committee, which was the successor of the evaluation and goals committee, and to a recommendation for a rather far-reaching organization.

Dressler: Yeah, the reason it became a joint evaluation committee, as I remember, is that NSF insisted on having membership on the evaluation and goals committee for at least one round of evaluation and assessment of goals. This was in large part due to a leader in NSF by the name of Tom Owen. What was your relationship with Tom and with the joint evaluation committee on evaluation and goals?

0:14:43.6

Fleagle: Yes, you jogged my memory there. I of course recall Tom Owen. And you're right, he was very insistent that NSF take a more explicit role in the evaluation. Frankly, I was opposed to that. I felt it was the responsibility, really, of the universities to manage its own house, and NCAR was its house. But that's not the way it came out, and I think the ultimate result was good.

Dressler: The ultimate result was good, but the steps taken along the line were sometimes painful?

Fleagle: Yes.

Dressler: After Walt Roberts left as the president of UCAR and a restructuring of the NCAR activities was called for, as I recall, Tom Malone, who was then the chairman of the UCAR board of trustees appointed you as chairman of a group to oversee the restructure of NCAR. I'd like you to talk about that activity and those times.

0:16:19.3

Fleagle: The task of restructuring UCAR and NCAR was undertaken by a rather broad committee which consisted of not only university representatives but people from government, particularly NSF, of course, but also NOAA and other agencies that potentially had an interest in the NCAR program. Our chief focus was the question of the central management of UCAR and NCAR. We recognized that the chief problem was to emphasize scientific quality and scientific product, and to make very visible our commitment to that objective. We felt that the way that this should be done was through combining the two positions of president of UCAR and director of NCAR into a single position, and we selected Francis Bretherton as the person who could best do these two jobs.

I believe that was the proper decision at that time, although I think it's developed more recently that the job is far too big for a single person and the objectives are sufficiently separate that it's proper that there be a president of UCAR separate from a director of NCAR. But at that time, the important thing was to give visibility to the emphasis on scientific quality, and I believe that that was correct and that in fact Francis Bretherton performed this task very well. Most of the emphasis that I recall in that period, as a member of the board, after the restructuring committee had done its work, most of the effort went into developing criteria for the scientific staff, establishing the positions of senior scientist, selecting the initial senior scientists, developing a personnel structure that would give proper recognition and comparability to the leading technical people as well as to the senior scientist staff.

A great deal of attention was given to that by Francis Bretherton that I believe resulted in a significant upgrading of the quality of the staff.

0:19:49.8

Dressler: And you continued on the board for another period of years. I believe you came on in 1971 and served on the board of trustees for about a 10-year period. And during that period you were elected the chairman of the board.

Were there some other issues and problem areas that engaged the board at the time you were chairman that you might recall at this time?

Fleagle: I was chairman from 1975 to 1977. The budget and program committee was very important, it always has been, I guess, at NCAR and UCAR. At that time, that's where the focus of attention lay, and in addition to the emphasis on scientific personnel and criteria for identifying and appointing senior scientists and the other ranks of scientific staff, there was considerable attention given to the management of the Palestine balloon facility. Some of us were interested particularly in moving that over to support by NASA, which seemed to many of us a more natural supporter, since most of the flights from the balloon facility were in support of NASA programs rather than directly of NCAR or UCAR member programs.

Dressler: Under Francis Bretherton, under the board of trustees, NCAR was restructured and became a solid and productively working organization and started moving out into the coordination and the management of international programs and some new national programs. I think that the record of NCAR during that period of time is very good in this endeavor, too. Were you involved in some of these NCAR-led activities?

Fleagle: Yes. The one that occurs to me in particular was the Barbados Oceanic and Meteorological Experiment, BOMX. I was chairman of the interagency committee that did the planning for BOMX, and then the subsequent that evaluated the results of BOMX. At that time NCAR was not the—didn't play a central role in the management of that program, but it played a very important role not only in the provision of facilities but also in some of the scientific programs. NCAR went on to play a much stronger role in other programs, but I think BOMX was important in giving NCAR an opportunity for substantial large program participation.

Of course, it had earlier participated in the Line Islands Experiment, which I had no direct role in, although I was involved in some of the oversight of it. In concluding that response to your question, I might mention, too, that NCAR played a very important role in providing the Electra aircraft for our Storm Transfer and Response Experiment here in the Northwest, a program that was carried out by the University of Washington, NOAA, and the Department of the Environment of Canada.

0:24:48.5

Dressler: I'd now like to ask you a reflect question in the sense that you're reflecting on the question of NCAR in its early stages and what our hopes and ambitions were for NCAR and what NCAR has become today. Is there a reasonable match-up between the two, the early the vision Blue Book general guidelines and blueprint and what NCAR is today? In what ways

do you assess the strengths and some of the weaknesses of our NCAR development?

Fleagle: That's a very important question, and one that requires real depth of reflection, which I haven't had a chance to give it. But looking at it as best I can, I would say that viewed from the perspective of the Blue Book, it's remarkable that if you take the objectives and functions that are outlined in the Blue Book and look at what has been achieved, that you can find a one-to-one match, I believe, although I haven't done this, but I think it's true. You'd find a perfect correlation, that every objective has been represented in the program at NCAR.

If you look a little more deeply at questions of relative success, there are questions, of course. If you look first at the question of facilities, NCAR has provided a wide range of facilities. It's been quite limited, however, by budget at every turn, so that both the quantity and the quality of facilities have never been up to what might have been achieved, I believe, with a stronger budget available.

If you look at specifically the computing aspects, NCAR has maintained a leadership role, certainly, in atmospheric sciences computing, even in general computing, up until fairly recent years. This was one of the obviously central functions of NCAR. As an international conference center, it's certainly performed well, visibly and successfully. It's provided for graduate student support and interaction between graduate students and NCAR programs.

If you look at a different perspective on NCAR, another objective which was not as clearly stated in the Blue Book was raising the whole level of atmospheric sciences nationally and internationally. This is a much more difficult one to evaluate, but I believe that, and this is a very personal subjective evaluation, we wouldn't be nearly at the point that we are without the experience of NCAR, that it has given a visibility to the field as well as a capability in many aspects, given a breadth of opportunity for interaction with oceanography, solar physics, biological sciences, that could hardly have been imagined, really, under any other institutional structure.

0:29:55.6

So when, as we do, we hear many statements to the effect that NCAR has competed with universities for resources, I believe this is a totally misstated objection.

Dressler: Bob, that was a wonderful statement, I must say, your assessment of NCAR and where it's been and where it seems to be heading and what some of the results of the NCAR activities have been as far as promoting

the whole field of atmospheric sciences in the U.S. I'd like you to reflect on the presidents of UCAR, beginning with Walt Roberts, and if you would, just comment on each of them. There'd be Walt Roberts and then Francis Bretherton, next would be Bob White, followed by Cliff Murino, and our current president, Rick Anthes. So begin with your comment on Walt Roberts.

Fleagle: Walt was a very dear man, of course. He combined his personal qualities of concern for others, interest in a broad range of activities, personal and scientific, covering an immense range, with the energy and ability to put together a unique institution. The motto which adorns the NCAR building is very apt in Walt's case, that the walls of NCAR are a monument to Walt. He was certainly the spirit and the source of energy that put that whole thing together in the first decade and that pervades the institution, I think, to this day. In particular, as an aside, I think that the conviction of Walt's that NCAR was to be a friendly place where university people and all others would feel welcome and at home, has been an immense asset to maintaining good or at least tolerable relationships with the member institutions all the way through.

0:33:36.8

Francis Bretherton played a very different role. I've already referred to what I think is the crucial contribution that Francis made to placing scientific quality and scientific achievement at the masthead of NCAR and UCAR. It was essential, really, that that be done. He did it, and that should—it's not as visible as a building, but it's crucial and as long as NCAR maintains a strong scientific program, I think one should look back to Francis as the architect and guiding intelligence that led to that.

Bob White as chairman was a very different person with a different set of opportunities and objectives. He was there as president only for a relatively short time, but he opened the door to industrial and a stronger government participation in the NCAR-UCAR program. This was appropriate at the time. It's I believe still too early perhaps to see what the final product of that effort to bring industry into the NCAR-UCAR program will be, but potentially it may be of immense value.

Cliff Murino again was there only a fairly short time. At that time I had very little direct contact with NCAR and UCAR management, so my impressions are largely second-hand and were simply that Cliff pursued the industrial component of support for a UCAR-NCAR program, enlarged it to an extent. Again, that remains yet to be evaluated.

0:36:54.8

With Rick Anthes's appointment as president, I believe we have a melding, really, of a person with good, strong scientific credentials and at



the same time with a feel for management of the facilities and a broader role in both the national and the international institutions. But again, it's far too early to evaluate what the outcome of Rick's presidency has been.

Dressler: Bob, the federal government agencies, several of them played an important role in the development of meteorology, atmospheric sciences, and undoubtedly their missions and their programs impacted on the shape and size and the development of NCAR and its programs. I'm particular talking about NSF, Weather Bureau, NOAA, NASA, and then more recently Office of Naval Research, the Navy Department. I wonder if you'd comment on these agencies as you from your perspective saw the impact of what they were doing and their ambitions and their missions and how this reflected in the NCAR activity.

0:38:44.7

Fleagle: The role of NSF in NCAR-UCAR is central, has been from the very beginning. Of course this was deliberate. In a sense, UCAR was conceived or at least the initial support was entirely from NSF, and the universities built into the UCAR structure a requirement that most of the support for NCAR be from NSF, and although that's eroded over the years, it's still a fact and an important fact. This has ensured that the NCAR central administration pay attention to NCAR, it's given a sense of responsibility to NSF, and it's provided, of course, a visible emphasis on science and science objectives.

The Department of Commerce has had a much more complex relationship with NCAR. They now participate in cooperative programs, I believe very successfully and very positively. The relationships, both within Boulder itself and more broadly across the country, between NOAA and NCAR and UCAR, are positive and operate quite successfully. That hasn't always been the case. Although Francis Reichelderfer played an important part in the initial correspondence and the urgings to the National Academy of Sciences to undertake a study of meteorology, which ultimately led to the recommendation of the committee and finally the creation of UCAR, so that I think the Weather Bureau was quite a constructive role in the development of NCAR, later on the Assistant Secretary of Commerce for Science and Technology in the early 1960s felt that the proper place for NCAR was within the Department of Commerce as an adjunct to what was then the Weather Bureau, which became ESSA and finally NOAA. At that time, considerable tensions developed between the Department of Commerce and NSF over the question of NCAR or rather UCAR support and the type of programs that should be emphasized at NCAR, with the Department of Commerce feeling that they should be much more tightly coupled to Department of Commerce programs. But that, as I said earlier, is no longer the case. I believe that the relationships with the Department of Commerce are entirely positive.

0:42:47.2

You mentioned the Navy. As far as I know, the Navy played very little role, actually, in the initial formation of UCAR and NCAR or in its program up until the mid-'70s, when under the initiative of Francis Bretherton, a small scientific oceanographic program was established at NCAR. It's proven to be, I believe, an important adjunct that gives some meaning to the important interaction of the atmosphere and ocean and it's relation to the climate in particular.

NASA you mentioned also as a government agency of some importance, and of course, from the very beginning NASA has provided support through HAO. It's been almost entirely financial support. NASA has exerted little or no administrative control or tried to emphasize anything other than support for the scientific program at HAO and more recently has undertaken the support of the balloon facility.

Dressler: I think we may be nearing the end of our interview here on the UCAR-NCAR development, Bob. But before we conclude the tape, I'd like to get a little bit of biographical information on our tape for future students to understand who is this person Bob Fleagle.

0:44:59.8

Fleagle: Well, I'm not sure exactly how far back you want these things to go. I could start with my undergraduate education at Johns Hopkins University, where I was a physics student and completed a bachelor's degree in physics in 1940. At that time I had no clear idea of what I might do with my physics. The first year I took a job in Baltimore County teaching, as it turned out, algebra in high school, although I would have preferred to teach physics, but at any rate, that was the job that was available. I spent a year doing that before the Second World War swept me into that.

At that time the training program for meteorologists was just being developed, and I applied for and was selected for the program at New York University in meteorological training. So I got my first nine months of exposure to meteorology.

Dressler: Who were some of the faculty leaders there that you became acquainted with as you began your early career in atmospheric sciences?

Fleagle: Athelstan Spilhaus was the chairman of the department at New York University. In fact, just as I arrived, he had left or was about to leave NYU to go down to signal corps at Red Bank, New Jersey, where he spent the rest of the war developing instrumentation for constant-level balloon flights. So we saw very little of him, although he came back several times, as I recall. Other members of the faculty at that time were Robert Colman,

who later went on to the Weather Bureau, James Miller, Ray Montgomery, Hans Panofsky. Those were the permanent tenured faculty at that time. There were a number of young instructors in addition. Yale Mintz [?] was one. I believe Josh Holland was one of my early instructors. Homer Mantis [?] was my first lab instructor.

Dressler: At NYU you received nine months' rather intense training in meteorology and weather forecasting under the auspices of the U.S. Air Force?

Fleagle: Yes. We were appointed as what was called aviation cadets. We wore a little propeller on our hat. Later, I was out in the central area of Wright Patterson Field and was called back to NYU to help staff a research weather station at New York University. This was set up under Harry Wexler's general supervision. He was in Washington, but research stations were established at the five major meteorological departments around the country. So I spent a year, a year and a half, I guess, in a research station. And in fact I was able then to take some graduate courses along with my work there and finished a master's degree in meteorology during the war.

0:50:25.6

After the war, I had become sufficiently enamored with meteorology and stimulated, actually I remember being particularly stimulated by a visit of Carl Rossby to New York University and his seminar that he gave at that time on global circulation as it was understood at that time. And by that time, Bernhard Haurwitz had become chairman of the department.

As my mind enrolls here, maybe I'll go back and bit and mention that another reason I think for my attraction to atmospheric sciences was really a stimulation that I got out of the class that I was in at New York University, which seems then and still seems to be consisted of exceptional people who were in my class. In fact sitting next to me was William Gordon. We were assigned seats by alphabet, so Gordon sat next to Fleagle. Kenneth Arrow was another rather remarkable student in that school who later on went on to become a Nobel Prizewinner in economics. Gil Hunt was a brilliant applied mathematician. And there were others of considerable eminence.

Then when I became an instructor in a subsequent war course, as it was called, there were a number of outstanding students who also cemented my interest in teaching and in the field generally. There were people like Lou Battan, Dave Atlas—my mind is slipping here. There were at least two other guys in that same class who went on to become well known in the meteorological field. Dave and Lou were outstanding even as young students and of course went on to become even more outstanding. Let's see, where was I?

0:53:32.2

Dressler: You were at NYU as an instructor in meteorology. Is that where you finished out the war?

Fleagle: Yes. I stayed there until the end of the war, and then, thinking about what to do after the war, I very soon decided I'd go on and get a higher degree, a Ph.D., in meteorology. But it wasn't clear where I should do that, because NYU didn't offer a Ph.D. in meteorology at that time. In fact, I talked to Rossby about going to Chicago and was about to accept that, when NYU decided to develop a—well, it was Bernhard Haurwitz primarily who did this, developed an interdepartmental degree program in physics and meteorology. I and Homer Mantis were the first students who undertook that. The degree actually was in physics, but we did our Ph.D. in meteorology under Bernhard's general supervision. My work was directly supervised by Hans Panofsky, and this was a very important stimulus to me. Hans's combination of very attractive personal qualities and his exciting scientific insights and capabilities in a broad range of subject matter were very attractive to me, very important.

So I finished my thesis work in 1948 and decided on accepting one of the rather few openings in the field at that time here at the University of Washington, which was a new and small department.

Dressler: Was the department called a department of meteorology at the University of Washington? Was it associated with the geography department? I've forgotten.

Fleagle: The department here grew out of the department of geography, actually, but it was called the department of meteorology and climatology. This was the designation and design of Phil Church, who was the first chairman of the department. He had been a geographer who had spent several years during the war as a member of the faculty at the University of Chicago and had done some interesting work on the interaction of the atmosphere and lake over Lake Michigan. And he had also worked at Woods Hole earlier on the interaction of the Gulf Stream with the atmosphere. So he had a strong interest in the atmosphere.

0:57:00.9

Dressler: The mention of Phil Church reminds me that when we were discussing the early days of UCAR and NCAR, we did not bring Phil into the picture. Perhaps we should, because if you don't do it, I don't know who else will. As I remember, Phil had a tremendous zeal and worked very, very industriously for UCAR and NCAR. You might just say a few words about Phil and his NCAR connection.

Fleagle: Phil was a man with very broad and unselfish responses to people and to ideas. He met the concept of UCAR and NCAR with enthusiasm and a positive attitude. He was the first scientific representative of the university to UCAR, and he became—I guess all the representatives in fact were members of the board of trustees at that early stage. He became a member of the board and in fact treasurer of UCAR, I believe, and a strong supporter of the corporation and a strong proponent here on the campus, carrying the message to the central administration.

One of the problems that Phil faced in the very early days was a prohibition in I believe the state constitution or perhaps in the interpretation of the state constitution, I guess would be a better way to put it, that prohibited the University of Washington from becoming a member of a body in which we had to use state funds to become a member. And of course there was a fee of \$2,000 required to become a member of UCAR. The president of the university simply told Phil, “We can’t become a member. That’s the way it is.”

Phil didn’t accept an answer of that sort, and he went to Boeing, as I recall it, and got \$2,000 contributed so that the initial membership fee didn’t come from the state of Washington. Since then, I don’t know how many scientific consortia the University of Washington belongs to, and I’m sure that all of them have had fees far in excess of \$2,000. But Phil’s determination and persuasiveness carried the day in that case, and we became a member of the original 14, that is, a position which had been designated and held open for the University of Washington pending the provision of the \$2,000.

Dressler: Thank you very much for bringing in that highlight in Phil Church. He certainly was one who had his heart in the atmospheric science and AMS and UCAR and University of Washington. Whatever he put his mind to, he did it with great enthusiasm and courage. I’m delighted that we did have an opportunity to recall for just a few moments some of his contributions. So now you’re at the University of Washington. Are you married at this time?

1:01:24.8

Fleagle: Yes.

Dressler: Where did you meet your charming Marianne?

Fleagle: That goes back even farther to New York University. In fact, it goes back to high school. We were in the same high school in different classes and knew each other and in fact dated to a small extent at that time. Marianne went on to Goucher College in Baltimore while I was at Hopkins, so we knew each other throughout the college years. And then, as fate would

have it, we were appointed to teach in the same high school in the first year after college, Towson High School. She was teaching English and social studies and I was teaching algebra. It was during that year, I guess, that we believed that fate had thrown us together once too often and decided that we'd sign on for a longer term.

Dressler: This was 1941?

Fleagle: Yes. So we were married actually in 1942. She was with me in New York and our first son was born in 1945.

Dressler: What was his name?

Fleagle: Robert. We came out to Seattle with one young child then. The second child was born the first year we were here.

Dressler: Another son?

Fleagle: Another son, yes, John. I think we were fortunate that both sons are here in Seattle, have remained here.

Dressler: Are they both graduates of the University of Washington?

Fleagle: No, neither are. My older son is an electronics associate at Physio Control, which is a medical instrument development company, where he's been for 20 years. The younger son works with the telephone company here in Seattle.

Dressler: And your third and last child was a girl?

Fleagle: No, you're wrong about that. No girl, no third child.

Dressler: I see. What about your parents? Both you and Marianne were born and raised in the Baltimore area?

Fleagle: Yes. Yes, we were. My mother was born in West Virginia and lived in West Virginia. She became a teacher of the deaf. My father was born in Maryland in a farm community, one of a very large family. The notable thing about this family is that virtually all the children, nine or 11 or whatever it was, almost all of them went through college, which at that time was very unusual. He became an English teacher in Baltimore, at Baltimore City College, which was a high school. They lived their married life in the outskirts of Baltimore. My wife Marianne's family also had Maryland background. Her father was also a member of a sizeable family from Baltimore, originally from Virginia, I guess. Her mother's family was from a Baltimore family.

Dressler: You have something to look forward to, in 1992, your 50th wedding anniversary.

Fleagle: That's right. Your arithmetic is perfect.

Dressler: In this day and age that's almost a wonder of the world. [laughs] And I know you've been very happy, the both of you together. Bob, I want to thank you for this interview. I want to thank you on behalf of our National Center and our University Corporation for Atmospheric Research. It's been a real joy to come and sit with you and to review and get on tape your perspective on the early development of UCAR and NCAR. You personally had a very vital role to play in much of the accomplishments and development of these two institutions, the Corporation and the Center. I for one watched and participated from time to time in your activities, walked with you many, many years in the atmospheric sciences activity at UCAR and NCAR and AMS and other places, and always have been delighted to be with you and to walk with you on these endeavors. It's always been a challenge for me to keep up with you and your vision, [laughs] but I regard you as not only a good friend but one of the truly outstanding leaders in our field, in this last generation, this period of the last 40 or 50 years since our field has developed from a very small start to what we have today, over some 50 universities involved in Ph.D. programs in our field of meteorology. Again, many, many thanks for this visitation and for your comments.

Fleagle: And thank you for your very kind comment.

1:08:18.3 End.

**END OF INTERVIEW**