American Meteorological Society
University Corporation for Atmospheric Research

TAPE RECORDED INTERVIEW PROJECT

Interview of Eugene Bollay
August 4, 1987

Interviewer: Earl Droessler

Droessler: -- Eugene Bollay in Santa Barbara, California, on Tuesday, the 4th of August, 1987. And we're going to ask Gene to give his perspective and his remembrance of the development of modern meteorology. And Gene, I would like to begin by asking you, how did you get into meteorology?

Bollay: Well, you know, when I grew up, it was difficult in this country to make a living. I went to Northwestern University and had to earn my way through school, and so when I had completed four years in the School of Engineering as an electrical engineer, I began to look around for a job. And jobs were hard to come by. I—

Droessler: What kind of an engineer were you? What were you trained in?

Bollay: I was trained as an electrical engineer, and as I now look back on the development of electrical engineering, I probably could have operated a substation for an electric power company when I got through. That was about the level of technology that I managed to achieve in school. So I wrote to the various companies that used electrical engineers, and by golly, I got an offer to come to General Electric in Schenectady. They had an intern program, where they would take young college graduates in electrical engineering and route them through the various divisions of their organization to see where they might make a good fit. I was real pleased, and honored, to get this offer. The only difficulty was that all they paid at that time for such an internship was $75 a month. Well, since I worked my way through Northwestern, and paid my way, and earned on the order of about $100 a month working on Saturdays and Sundays, I felt that perhaps I'd made a terrible mistake in picking electrical engineering. So I got busy, and wrote -- oh, I must have written to 30 or 40 universities, to see if there was a chance to get a scholarship for graduate training. I knew I had to get more training; I couldn't start with this $75-a-month business. I sent one letter to Caltech and asked for an assistantship or fellowship in engineering; I got a reply back from Dr. [Funkharmen?], who first scolded me for applying for an assistantship or scholarship so late in the year -- this was in May of the year when I was to graduate in July -- and then, after scolding me in his letter, he said, "Well,

we have a new department -- we just started a couple years ago -- and I can offer you a Guggenheim assistantship that'll pay your tuition. And the new department is in meteorology." So I wired back and accepted it on the spot, without really knowing what meteorology was or hardly how to spell the word. Subsequently, I found out that Dr. Krick was the head of the department. And that summer, the summer that I graduated from Northwestern in Evanston, Illinois, he was to give a training program to dispatchers and flight personnel -- Irving Krick was -- in Chicago, at the airport. And as soon as I heard -- as soon as he heard that I had accepted the assistantship, he offered to get me a job with American Airlines, the very summer that I graduated, to find out about flight operations and where meteorology fit into flight operations. So I became an assistant dispatcher the week I graduated from Northwestern as an engineer. I worked as an assistant dispatcher in Chicago all summer and reported to Caltech in September of 1936. September of 1935, excuse me. And became Irving Krick's assistant.

Droessler: Were you his only assistant at that time?

Bollay: I was the -- there were two assistants. Peter [Kraft?] was one assistant, and I was the other assistant.

Droessler: Is this the Peter Kraft that later went on into aviation meteorology?

Bollay: Peter Kraft subsequently became head meteorologist of American Airlines, and subsequently retired in Texas.

Droessler: So you were with Caltech and Irving Krick for how many years?

Bollay: Actually, I was -- my scholarship was for one year. But I'll come to that a little later. My duties were to plot the weather map for the department, for the students, in ditto ink each morning, starting at about 4 o'clock and completing the map-plotting before I attended any of the classes. Peter Kraft had to plot the evening chart, the PM maps, for Krick, and his use. And those were our principal duties.

Droessler: And how large a class was he teaching at that time? So you had to duplicate this map about –

Bollay: We had to duplicate this map. We had about 15 students in my class. There were about four or five distinguished people from the Air Weather Service -- from the Air Force –

Droessler: Oh, well, please mention those.

Bollay: Well, there was Don Zimmerman, who became Director of Weather in the Air Force -- Air Weather Service. There was... General Johnson, who was a Captain at that time. He was a big bomber pilot who led the big bombing raids

down to Russia out of England. And there were... excuse me. There were about three or four others. And then there were three Navy officers in the same class. So immediately we were surrounded by military people who were taking the course -- more Air Weather Service people than Navy people -- and three -- four civilians.

Droessler: Do I recall correctly that Caltech and MIT were the two universities that were bringing the Norwegian weather-analysis technique and system to the United States and teaching the students in the military particularly?

Bollay: That's right. As a matter of fact, the year I was at Caltech -- from '35 to '36 -- I was very fortunate, because the Navy had made arrangements for Sverre Petterssen to be at Caltech and give a course for about three months, which essentially is the contents of his first book which he brought out in this country. So I was very, very fortunate, not only to get the expertise of Krick -- who was a very practical forecaster -- but also get Petterssen's background and influence on meteorology. And furthermore, I was lucky because when Petterssen left, Rossby appeared on the scene, and he was there about one month giving us his feelings about the impact of dynamic meteorology. The textbook we used in dynamic meteorology was basically Brunt -- the textbook -- and Shaw. So, very, very fortunately for me, I had both a theoretical input and a practical input.

Droessler: Where did you go after Caltech?

Bollay: Well, after Caltech, I had a promise of a job with American Airlines as a meteorologist in Chicago, and I also had a promise of a job with Los Angeles County Flood Control as a staff engineer and meteorologist. Getting spoiled very quickly about the California weather, with the California weather, I worked for American Airlines the first summer in Chicago, and then returned to Pasadena to become staff meteorologist for the Los Angeles County Flood Control.

Droessler: Now, there were not very many meteorologists working for the airlines at that time. I think Eastern may have had some, and American, and...

Bollay: Eastern was a dominant one. They had Joe George and a very capab—

Droessler: And he was based in Atlanta?

Bollay: In Atlanta. And a very capable staff. Next came American Airlines, of which I was a member during that summer. And then last, but not least, was United Airlines. They had just recently hired Henry Harrison to become their meteorologist. He was based, at that time, in Chicago also.

Droessler: So when you came back to California, you essentially got out of meteorology for a while.

Bollay: No, my assignment at the flood control district was to analyze all the past storms of record that produced floods and try to get a feeling of the synoptic situation which produced those storms. And then I looked at the rain-gauge records and the hydrographs to see the runoff picture and got a feel of the importance of rainfall on the southern-California scene. This stood me in good stead, because this gave me the first inkling that one really ought to try to forecast precipitation amounts from storms. It's not enough to say, "It's going to rain," when you talk about a flood control district. You need to know how much rain and how long, and when will the peak intensities occur? So it was a very challenging job, which I had for three years. After the third year, I got restless. I wanted to get more into meteorology on a larger basis, so I applied through the Civil Service for a job with the Weather Service. And I obtained such a job and became the number-two man -- well, there was Al Showalter and myself that started the hydrologic -- I believe that's the right word -- hydrologic weather service for the Weather Service.

Droessler: Did you have to go back to Washington to do that?

Bollay: And, unfortunately, I had to go to Washington. As I approached Washington, I felt I'd made a big mistake.

Droessler: So, this was the late '30s, and...

Bollay: This was in '38, 1938. And I was with the Weather Service... '38, '39, and '40. While I was there, I also received my commission in the Naval Reserve -- not through the Weather Service, but of my own activity -- and was called on active duty in the Navy in May of 1941, roughly six, seven, months before we got into the war. At that time I was assigned by the Navy to go to Annapolis to become the assistant to Fred [Berry?], who was a classmate from Caltech, and help him in teaching roughly 30 people a course in meteorology, similar to what we've had at Caltech.

Droessler: And this was done under the auspice of the Postgraduate School at the Naval Academy?

Bollay: That's right.

Droessler: And then you stayed there for some years.

Bollay: I stayed at the Naval Academy, at the Postgraduate School, almost four years.

Droessler: Mm, indeed, that's where I met you, in 1942, '43.

Bollay: That's right. And then subsequently, Fred Berry became very busy with producing training films in meteorology. So by and large, for about two years,

two-and-a-half years, I was almost on my own teaching the course, with assistants. And the assistants at that time were the best students from the previous class.

Droessler: [Yes,?] when I was there, you had... Jim O'Connor was one of our instructors, and a very hard-working meteorologist.

Bollay: And Bill [Koch?].

Droessler: And Bill Koch. And both of them went on to become...

Bollay: Bill Koch became an Admiral.

Droessler: Right. And Jim O'Connor had a very successful and productive career in the –

Bollay: Weather Service.

Droessler: -- Weather Service, as an outstanding weather forecaster.

Bollay: In ninet—

Droessler: So then you left the PG school, and –

Bollay: I was -- then I was -- I left the PG school, and I was sent on duty with the commander of naval forces in Europe, who assigned me to the British Air Ministry, to work with Sverre Petterssen in Dunstable, who had a forecasting group there making operational forecasts for the mass bombing raids in Europe. And I was there to within a week of the end of the war in Europe, when I received orders to report to MacArthur's staff in the Philippines. And I was in the Phillipines for about six months, till the end of the war in the Philippines, when I was ordered back to become a professor at the PG school in Annapolis. (pause) Something happened -- really fortuitous for me, and fortuitous, I think, for meteorology. On my return trip, I stopped off to see my parents and my family, who had spent that time in Pasadena, and I ran into Bob Conrad, the Captain in the Navy, and some of his associates. [Bruzholds?], Jim Wakeland, [Meena Reese?], and others. And they had a dream. They had a dream to develop science in this country to a new level. There was money left over from the war, and these people had the imagination and the foresight to plow some of this money back into research, because most of the real research background had been thoroughly exploited to develop the weapons of war –radar, undersea monitoring of sound, and many other things -- and they felt that we needed a new supply of basic research in order to stay as a first-class nation.

Droessler: How fortunate for you, and how fortunate for meteorology, because (inaudible) then became the... really, the beginning, the pioneer organization for

supporting basic research in meteorology at universities.

Bollay: Absolutely. And it was real fortuitous that, being in Washington, I could talk to Captain Orville, who headed meteorology in the Navy, and he provided me with people who could help ONR in getting the right programs started. (inaudible) Earl Droessler, Dan Rex, and a number of other outstanding people became involved in a program of ONR as of that moment. And I think it was the start of what I call modern meteorology.

Droessler: Prior to that time -- and correct me if I'm wrong, but -- the main emphasis in meteorology was in operational meteorology, and the Weather Bureau and the military were the main operators. And whatever research was undertaken was being done on a very, very small scale, some by the US Weather Bureau. But largely, the science and operation of meteorology were completely controlled by the federal government. And so now, for the first time, the universities were beginning to exercise an ability in scientific research in meteorology and developing competence in that area, and developing a broadening of the base of our field.

Bollay: Another fortuitous item happened -- this was all during a time when Rossby was in his prime. After he understood the problem and the objectives of ONR, he got this (inaudible) and developed a very extensive research program at the University of Chicago, sponsored by the Office of Naval Research. Similar programs started at MIT, and similar programs started at NYU, and they were the beginning of the program at UCLA.

Droessler: Yes, I remember when you asked me to join the ONR staff, and Captain Orville, [readily a Senator?], let me go over there, you know, during my last days as an active-duty Lieutenant. You had already established a research contract with MIT, with Chicago, with Princeton -- John von Neumann? -- and with St. Louis -- [Father McIllwain?]. And so the program was well underway by the time I got there, with some of the very best schools in our country.

Bollay: Another interesting thing that happened fortuitously: Johnny von Neumann, at Princeton, had this idea of a computer, and we was trying to find a difficult problem that he could try a computer on. And so he, in discussions with Meena Reese, who supervised the mathematics program for ONR, came up with the idea of doing this for meteorology. So we in ONR came up with a list of people, bright young people, and said, "We ought to get these people together with Johnny von Neumann and explore more in the field of applied meteorology. The computer could make the biggest steps forward." And this resulted in the development of the numerical processing equipment that we now know as our everyday equipment for making forecasts.

Droessler: Do you remember -- it was Phil Thompson?, Jule Charney?...

Bollay: Jule Charney was involved. Bob Elliott from Caltech was involved. Phillips...

Droessler: Norm Phillips?

Bollay: Norm Phillips, I think.

Droessler: Phil Thompson?

Bollay: Phil Thompson. I think Bob Fleagle. And a few others.

Droessler: Some of the brightest young people we had in dynamic meteorology.

Bollay: But it was really ONR that got these people together with Johnny von Neumann and then supported the activity as much as they could.

Droessler: Yeah, he was a great inspiration, von Neumann. And to have him actively working in our field, I think, was a marvelous breakthrough for us to make, even though we may not have recognized it at that moment.

Bollay: Well, it happens that there are a few people in the world, at times, who have an impact far greater than you can imagine. For example, on the West Coast, there was a Dean of Engineering at Stanford. Let's see, his name was...

Droessler: Fred Terman?

Bollay: Dean Terman. He is really the father of the electronics business in all of the California area. Just like von Kármán and his students are the fathers of the aviation business in Southern California. And it's really almost by accident, the fact that these people saw the future and then brought the right young people in charge of the various activities to make the thing go.

Droessler: Well, during the time that you were with the Weather Bureau, and then with ONR, did you become involved with the American Meteorological Society and have membership in the Society?

Bollay: I became a member in the Society while I was still a student at Caltech. Either '36 or '37.

Droessler: So Charles Brooks was then the...

Bollay: Oh, yes. And –

Droessler: ...General Secretary and editor of the Bulletin.

Bollay: -- and he was really the father of the Meteorological Society in this

country. He got to go to all the meetings -- or, he was a spokesman -- enthusiastic spokesman -- and encouraged the young people to write up what they were doing and speak out and lead discussions.

Droessler: And then after the war, Rossby got together with a small group and sort of revamped the AMS and brought in Ken Spengler as the executive director.

Bollay: As... Rossby-- at that time, already was at Chicago -- saw the need for something more than the blue Bulletin. And he brought out the Journal of Meteorology, at his suggestion, and got a small group of technical editors -- I was one of them at the time -- to help get this new magazine started. And he brought in Ken Spengler, who was a bright young Air Force officer at that time.

Droessler: You know, while dates are sometimes not important, it is perhaps important to establish that date. I think it was 1944, or '46, when the Journal of Meteorology –

Bollay: The Journal, I think, came out a little later than that. I was on active duty in Annapolis, so it was already '41, '42, when that came out. (pause) But that was the first technical journal -- that you would really call a technical journal -- in meteorology in this country.

Droessler: Well, it was certainly a landmark publication for AMS, because AMS then continued on and developed, really, world recognition for its scientific and technical publications, which it administers today.

Bollay: And I really think the full credit for that development goes to, first, Rossby as the founder of that concept, and Ken Spengler, as the fellow who executed that wish.

Droessler: Of course, he's been a powerful force in the development of scientific and professional meteorology. The -- not only the scientific publications, but the meetings and communications within AMS, and then the international activities and outreach that he fostered.

Bollay: It was Ken Spengler who also saw the need for getting the meteorologists working in industry involved in meteorology.

Droessler: Yes, he and Captain Orville.

Bollay: He and Captain Orville of the Navy. Because as -- well, as it turns out now, there are more meteorologists outside the government service than there are in the government service. That clearly demonstrates there was a pent-up need for that development to take place.

Droessler: Do you remember when you started actively interacting with Ken?

Bollay: I ran into Ken when he'd just reported for active duty in Washington, D.C., as a Second Lieutenant. There was a meeting that I attended [in?] the Weather Service, where Dr. Krick gave an exposition on his methods of forecasting, attended by both Navy and Air Force -- Air Weather -- people. And that evening, there was a reception at the Air Force field across the river, and Ken Spangler gave a small cocktail party with his wife, which was attended by many of us. And that was my first visit with Ken.

Droessler: At Bolling Field.

Bollay: At Bolling Field.

Droessler: And Ken was the host.

Bollay: Well, Ken was at the home of... a general -- I'm trying to think of his name now -- he later became the Director of the Air Force Academy. And it was at his residence, at Bolling Field.

Droessler: So you had a very early relationship with Ken and the American Meteorological Society.

Bollay: That's right.

Droessler: And then you served the AMS in many capacities; you mentioned serving as a Technical Editor of the Journal of Meteorology?

Bollay: I think that was my first job. And then, in addition to that, is I started after the war -- I started to put on a weather program on television. There was the beginning of a board -- Board of Radio and Television, with an AMS and qualifications that had to be met to become a member of that board. I believe I was a member of that board to start with, and later the chairman of that board. And then, of course, there was a group of professional meteorologists that formed a board. I think I became involved in that for a number of years.

Droessler: And this was for the certification program –

Bollay: That's right.

Droessler: -- the CCM program.

Bollay: CCM program. And then, of course, I was a councilor for a number of years. There were a few other "odds and ends" jobs that I inherited.

Droessler: I see. When did you become president of AMS?

Bollay: 1970. Which was a great honor which the members bestowed on me,

which I appreciate.

Droessler: I think it's one of the highest honors that we can have, really, to be elected a president of AMS. It's among the highest honors.

Bollay: And it's something that you never forget. You meet so many people during that one year that you're president.

Droessler: Do you remember some of the members of the Council at that time, and what some of the issues were before the Council?

Bollay: I can't put my hands on any particular issues right now. There were, I think, still the same issues on how to get more young people involved, and how to encourage good papers, and particularly how to encourage good papers in operational meteorology. There's a great need for the operational meteorologists to develop more good literature.

Droessler: And how to improve our scientific meetings?

Bollay: And how to improve the scientific meetings.

Droessler: I thought there might have been a new journal -- it appears every once in a while, and it just could have fallen on your watch, but not necessarily. Sometimes you -- it begins there, or it ends on your watch, or you push it along.

(pause)

Bollay: Well, let's see. After I became president, at that time I was operating primarily in the free-enterprise world. After I left the Navy, both as an officer and later as a civil servant, I started my own business with Bob Elliott. The reason I started my own business -- I was so excited about the work that was going on under Project Cirrus, at General Electric, under Langmuir and Schaefer, that it looked to me that here was an opportunity to develop a broad impact in meteorology for the benefit of mankind. Namely, doing something about precipitation. Studying precipitation mechanisms. Bob Elliott and I started this business called North American Weather Consultants in Pasadena, and we were very fortunate, because just at that time there was a big drought in the Santa Barbara area, and Dr. [Duprich?], then president of the board at Caltech, said certain people from Santa Barbara had requested that he look around for someone to assist these people in their precipitation problem, that they were interested. So he suggested that I go up and see if I could convince them to start a small research program. And this was the beginning of our commercial cloud seeding effort, in Santa Barbara.

Droessler: And your main effort was to increase, or enhance, the snowfall.

Bollay: Increase precipitation.

Droessler: At the higher levels in the mountains.

Bollay: Now, Bob Elliott -- by serendipity -- and I picked that perhaps we should really focus our problem to the public utilities, who were interested in developing more water in the high mountains for hydroelectric purposes. And so we went after Southern California Edison Company, Pacific Gas & Electric Company, Washington Water Power Company, Idaho Power & Light, and Utah Power & Light, and convinced all of them to start small programs in cloud seeding to enhance and increase snowfall, primarily for hydroelectric purposes. This was fortunate for us, because weather modification, as it developed, seemed to work best in those areas, dealing with the kind of clouds that produced their water supply. And so now -- this was in 1950, 1948 or '50, when this started -- for now, like, something like 35 years, Southern California Edison has continued to produce positive effects by cloud seeding in the High Sierras. I think this is one of the longest commercial efforts. Pacific Gas and Electric is still continuing the effort under their own sponsorship, and I think Utah Power & Light continues to work with North American Weather Consultants.

Droessler: While we're talking about weather modification and cloud seeding, let's examine the situation in the mid-1950s, when Congress established the -- or asked the President, really, to establish the law which requested the President to appoint a committee, which was chaired by Captain Orville and became known as the Orville Committee. I believe that you were a consultant to that committee, and the projects that you and Bob were operating under North American Weather Consultants were examined very closely and carefully by the committee.

Bollay: Yes, we were both consultants, Bob Elliott and I, with the Orville Committee. And the result of the Orville Committee was that it unfroze a fairly large amount of money in basic research in cloud physics and weather modification. The result of that was, of course -- that additional money -- that it involved many of the universities in this country in looking at the field of cloud physics and weather modification as something that they should become involved in. And a number of schools did an unusually good job in producing many, many good results in cloud physics. University of Washington is one of them; Penn State is another one; Chicago is a third one. So there was a -- it just spread throughout the country. The difficult part of weather modification, of course, is that it isn't something that you always need. Weather modification is something that you really need during times of minimum rainfall. During times of maximum rainfall, there isn't much need for it or much encouragement for it. But nevertheless, these additional resources provided real encouragement and many young people studying this field as an opportunity.

Droessler: And this was carried out under what government organization?

Bollay: Initially, it was carried out solely by the National Science Foundation. Subsequently, as the field developed, the Bureau of Reclamation got involved to a

large extent, because they also had resources that they could make available for this. The university programs were primarily sponsored by the National Science Foundation, and then subsequently to some extent by a laboratory which was started by the National Science Foundation, NCAR.

Droessler: Did you have -- were you very much involved in the establishment of the National Center for Atmospheric Research?

Bollay: Only peripherally. I had a number of meetings with Tom Malone, who got people together to think about NCAR and what it should be doing and where it should be located and what should be its functions. And it was a re-- NCAR -- Tom Malone produced -- I think it was a blue book -- which laid down the objectives, as he saw them, of what should be followed. And it became the foundation of NCAR as we now know it. I did not become directly involved in any operational aspects of NCAR. I carried out a number of subcontracts for people working for NCAR in various fields of cloud physics and atmospheric science in general.

Droessler: What role did the American Meteorological Society play in opening up this area of weather modification, cloud physics, and cloud seeding?

Bollay: I think they were the primary focus, for a number of years, in arranging meetings in areas where weather modification was thought to be an opportunistic problem. Subsequently, another organization started -- I think primarily under the sponsorship of Henderson, Tommy Henderson -- which dealt mostly with the operational aspects.

Droessler: Yes, I believe that's called the Weather Modification Association.

Bollay: That's right. And I think it still is functioning today.

Droessler: Although the federal involvement and the federal support, the federal government's support of weather modification, is at a very low ebb at the present time.

Bollay: That's right. And that's really unfortunate that there hasn't been more activity in this field, because it's a field of meteorology which you can point to as directly beneficial in the supply of the food that we need in this world.

Droessler: I see three main societal application areas for our profession. One, of course, is in weather forecasting. And the other one, which is in the area of concerns about the environment and air pollution. And then the third one is the modification of clouds and the weather, and the modification of climate, as we're able to involve ourselves in that in practical and reasonable ways.

Bollay: It's really unfortunate that more of an effort is going into the field of

understanding meteorology, or meteorological problems, more thoroughly, without necessarily pointing to specific applications in our lifestyle and in the development of better civilization. I, myself, having been brought up as an engineer, am more interested in applied meteorology than in theoretical meteorology. I realize we need to have a strong footing in theoretical meteorology, but it's in applied meteorology where the payoffs are.

Droessler: You mentioned the Bureau of Reclamation, the National Science Foundation, and the role that these two governments played in weather modification. What about the Weather Bureau and the National Weather Service? What did they do in this area?

Bollay: The National Weather Service unfortunately got off on the wrong foot in the field of weather modification, because it took such a strong negative position to start with. Subsequently that emphasis was changed, and subsequently NOAA, which is really the successor organization of the Weather Service, was very active in several fields of weather modification. One was a project in Florida, where an attempt was made to modify hurricanes. Hurricanes -- (break in tape)

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Bollay: Unfortunately, the field of weather modification applied to hurricanes becomes very complicated, because of the legal impact that it presents to whoever attempts to modify hurricanes. And I think it's the legal aspect that resulted in NOAA finally pulling out of this field of weather modification as applied to hurricanes. I think once a hurricane strikes our East Coast, the weather modification aspects will reemerge and be considered –

Droessler: That's an interesting thought. Gene, where were you born?

Bollay: I was born in Southern Germany, in a town called Stuttgart –

Droessler: On what date?

Bollay: -- and I came over in 1924 with my parents and my two brothers.

Droessler: What was your birthday?

Bollay: In May, 1912.

Droessler: And what was your father engaged in?

Bollay: My father and mother -- we were all poor immigrants coming to this country. We looked at this country as a land of opportunity, which it really was, but w—

Droessler: Was he able to find employment when he got here?

Bollay: He found employment but really always at a low level, so the benefits did really not develop till the boys grew up in the family.

Droessler: You had at least two or three brothers?

Bollay: I had two brothers. One brother was an aeronautics engineer, also from Caltech.

Droessler: And his name was...?

Bollay: William Bollay. And I have a younger brother, Ronald Bollay, who graduated from Harvard, and he became involved mostly in business activities. But re—

Droessler: Do you have any sisters?

Bollay: No.

Droessler: And those are the three Bollay brothers.

Bollay: That's right.

Droessler: Well, there must have been a marvelous incentive within the family to –

Bollay: Well...

Droessler: -- encourage you boys to do your best in education.

Bollay: It was actually -- my mother was instrumental in keeping us going and looking at the opportunities that we had here in this country.

Droessler: And when did you marry this beautiful Virginia?

Bollay: Well, she caught me after I got through college, in 1936.

Droessler: And you have...?

Bollay: And we have three daughters and one son, and we have ten grandchildren.

Droessler: What are the names of your children? Their first names?

Bollay: First names -- the first one, that you just met a few minutes ago, again, is Barbara Ann, and the next one was Suzanne [Lint?], and the third one was my son Robert, and the fourth one was Cathy. We had a boy whom we lost due to

appendicitis when he was a year young.

Droessler: This is Earl Droessler, and -- completing the interview with Eugene Bollay in his home in Santa Barbara, on Tuesday, the 4th of August, 1987, with many thanks to Gene for his hospitality and for the time that he has given to this interview, and given us the benefit of his experience and his perspective. I have always regarded Eugene Bollay as one of the truly outstanding leaders in our field. He's had a varied career in meteorology, and every aspect of that career has been honored by success. And encouraged -- he has encouraged so many other of us in the field to do our best and to help with the organizations and the structures of the AMS, and that has made that organization a fine institution. So, Gene, thank you very much for your time, and...

Bollay: Good luck, Earl.

Droessler: Thank you.

END OF INTERVIEW