ASHRAE Leadership Recall (formerly Leadership Recalled)
Transcription

Video Interview of: Paul Auchenbach

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Interviewed by: Gordon Weld

Gordon Weld

Good afternoon. My name is Gordon Weld. I'm an ASHRAE member and a member of the historical society and we are meeting today in Atlanta and it's February the 18th and we are at the semi-annual meeting. And it's my pleasure to be able to interview today Mr. Paul Auchenbach who's a long time well known member of the society. Paul is a fellow of ASHRAE. He earned his distinguished service award some years ago and he served on the board for a number of occasions. He served this one year as vice president. Paul, it is very nice to be with us today and thank you for coming. Perhaps we might start by having you give us a little review of your life and where you were born and your early education and that sort of thing. Could we start that way?

Paul Auchenbach

Okay. Well I'm glad to be here and I feel honored to be interviewed. I was born, I and my two sisters were born in Canada about 50 miles north of the Montana-Canadian line. And both of our parents were born in the U.S. however. My father went west with his parents when he was twelve years old in Wyoming in 1886. In 1898 when he was past 20 he and a friend went to Canada to take up some land because Canada had some very favorable arrangements for owning land. So he went up there and built a log cabin and farmed a quarter or so of land for about 10 years and then came back to Wyoming and married my mother and took her up there. They stayed up there for twelve years until 1920. They established a country store and a post office. But it wasn't a very good place for education for children. We were 35 miles from the nearest railroad. And sometimes we got a teacher for 3 months out of the year and sometimes for 6 months out of the year. So she insisted that we move back to Wyoming. When we moved back to Wyoming, we lived in the country for three years. Both my sister and I got put in the 6th grade even though I was only 9 years old at the time. And we finished our grade school education in the country and then moved to Sheridan, Wyoming which is near the northern part of the state to go to high school. I graduated high school in 1927, or we both did. And the two of us each got a grant, a fellowship grant to the university when we were seniors. So my parents moved to Laramie, that's the city where the university is to go to college. I graduated in electrical engineering in 1931 but you couldn't get a job at all because that was the height of the depression. So I went back for another year and got a mechanical engineering degree in 1932. There still wasn't any jobs to be had, I stayed at home during the year of 1932-33 because my father was seriously ill. And during that year I hauled coal from the mine to the town in order to earn some money and it was during that winter that Roosevelt had the bank holiday for a couple of weeks and cash was really hard to come by. Well anyway, in the fall then of '32 I was offered a job at the Laramie power plant, Laramie, Wyoming. So I stayed there, went

through most of the jobs they had and had a thorough training in the engineering and power generation. In '35 then I was offered a job in Fort Pick, Montana. In 1933 they decided to build a dam across the Missouri river at Fort Pick and by 1935 they had several bridges there and needed to expand of course. So I and several of my team of classmates were all offered jobs as strikers on these bridges. So we spent a couple of years there and during that time I took the junior engineer exam for the civil service and I got a good grade and there weren't very many competitors for Montana. So in the fall of '37 I got an offer to come to the national bureau standards in Washington. And so that was the beginning of my career here. The reason this job opened up in the mid 30s Roosevelt had decided that he wanted to use the building industry as a means to stimulate the whole economy, the depression hadn't really ended yet. And as you've probably read, there was as many as twenty-five percent of the people employed during that period. Anyway, in 1937 FHA, the Federal Administration gave a grant to the National Bureau Standards for $50,000 for three years to study low cost housing and heating equipment for low cost housing. So the Bureau Standards hired 6 engineers at that time and I was one of those to carry out this program. So that's how I got in the HVAC industry. And that career lasted for 42 years. The only thing I want to say about my career after that is that is I did a little consulting, I served ASHRAE as an interim director of research for 9 months and was leading the exploration for a new director. So that's a brief summary of my career.

G.W.

So you were born in a log cabin. You have degrees in mechanical and electrical engineering and you're an old coal miner as well.

P.A.

Yes.

G.W.

Do you hold, you were born in Canada, do you hold dual citizenship or just the United States?

P.A.

Just the United States. When my family came back to the U.S., after a few years now I don't just remember how many, they applied for citizenship again and I was not yet 18 so I got what they called derivative citizenship from the citizenship of my parents.

G.W.

I see, okay. So when you decided to take, it was mechanical engineering first-

P.A.

No electrical.

G.W.

Electrical, I'm sorry. What lead you to the field of engineering as opposed to some other field?

P.A.

Well that was mostly my parent's doing I think. I was only 15 when I graduated from high school and I wasn't very adept yet in my career investigation. And I think they steered me there for two reasons, one I was a good student and I didn't have any trouble with mathematics so I enrolled in engineering.

G.W.

Perhaps you could remember some things about the industry when you first started, the HVAC Industry, when you first started with standards?

P.A.

Coal was still the primary heating fuel for housing but they were beginning to convert heating systems to oil and gas. There was also problems with burning fuel oil without soot, smokeless. So there was interest in how much draft they needed to burn free of soot and how chimneys would perform to make heating equipment work well. So we started out, I actually started by testing jacketed fire places. That was probably the cheapest and simplest heating equipment that you could get but it wasn't very good. You'd roast in front of the fireplace and froze in all the other rooms. But anyway, we studied small heating systems and as I say FHA gave this grant to the bureau to study small buildings and heating equipment and so they were interesting in our examining how various small equipment worked. In 1940, we built what we called test ? but it was really one of the FHA buildings that they built for occupants. It was a four room house with 2 bedrooms a kitchen and living room about 625 feet for it. So we put a lot of different heating equipment in the house and studied the equipment and how well it heated the house. We actually put one of the fireplaces in there too. But we studied all kinds of things in that house. Other things that were important at that time were um, they began to build houses on concrete slabs directly placed on the ground and that raised questions of moisture raised through the concrete as well as the edge of the floor getting too cold and condensing moisture on the floor. So we studied concrete floor slabs. I think it was a little later that we began the study underground heat distribution systems and insulating piping systems for underground. Systems that were used extensively at air force bases. So those are some of the things that were going on at the time.

G.W.

Okay. Perhaps we could talk a little about ASHRAE. When you joined it wasn't ASHRAE at that time I presume but when did you join?

P.A.

I joined in 1942. My boss R.S. Dill was a member of ASHRAE and quite active in the society and wanted some of us to join. Not all the six engineers that I was part of joined. But anyway I was active in the chapter and in the region. I was chairman, er I was president of the Washington chapter in 1949 I believe. I was also a member of the Baltimore-Washington chapter of the American Society of Refrigerating Engineers. They were a joint chapter at that time. I was president of that chapter in 1957. It was shortly after that that the two society's merged.

G.W

You've obviously served on many ASHRAE committees of all sorts including TCs, would you like to comment over some of that?

P.A.

There's fuels, combustion, absorption, weather data, survival shelters, heating load, air cleaning devices, urban environment, water coolers. I was also associate editor of the ASHRAE guide the ASRE guide data book at different times. I was chairman of the R&T committee at one time and also international relations committee. I served two three-year terms at different times on the Board of Directors and I was elected as Treasurer and Vice President of society in the middle seventies. Those were the principal associations of ASHRAE committees. I was also part of quite a few other organizations.

G.A.

Can we talk about the F. Paul Anderson award for what I didn't mention that in the in the introduction, but you were awarded that prestigious award in 1976. It's considered to be the most prestigious award that ASHRAE can give a regular basis, which is quite something. It's awarded for a notable achievement

in an outstanding work of any area of the society. Perhaps we could cover the area in which your outstanding work took place?

P.A.

Well, the award itself acknowledges, outstanding scientific work and then identify five categories or five items. It doesn't go into the subject matter, but those items were extend to the publication of technical articles. I was awarded the gold medal from the National Bureau of Standards for work on standards and I was awarded the Edward V Rosa award, for the work I did on the energy conservation buildings. I was also awarded the Fellow. And awarded the distinguished service award by ASHRAE, as well as a Paul Anderson Award. I was a fellow of American Association for Advancement of Science. I was a member of Sigma Psi. Also an honorary vice president of International Institute of Refrigeration.

G.W.

1976 was the year that you receive the award, can you remember what was happening in the world and at that time?

P.A.

Well, as you probably remember, it was about 1971 when the gasoline shortage became acute and they became aware that there was a fuel shortage and so years immediately following that the Bureau Standards got involved in energy conservation. In fact, I was given credit for starting energy conservation activities of the Bureau. The way this really got started was the Bureau Standards had been the reason for creating what is called NCS the National Building Conference on Building Conference and Standards. They had been in existence for a few years and in the summer of 1973 the met in Salt Lake City and asked me to come out and discuss some of the work we've been doing in energy conservation. And there were two or three others from the bureau that came and somehow in my discussion I made the statement that I thought there was enough technical information to produce a set of design guidelines for energy conservation in new buildings. Well we came home and a few weeks later, the officials from NCS. NCS came with the Bureau and said we'd like to have you do that. So the officials thought it was a good idea and we put together a test group of about six or eight people from the Bureau and we had a person from ASHRAE Walter Spielvogel and I think it was Ralph Johnson of the National Association of Homebuilders. And so we sat down and put together a document which I think was called Design Guidelines for Energy Conservation in New Buildings. It took us about six months to do that and in 1974 somewhere in the middle of that year at the summer meeting of ASHRAE in Los Angeles, the substance of that document was presented at the ASHRAE meeting and a few the members, their reaction to that presentation was well as another effort to the federal government to tell the industry what it has to do. Well in a matter of weeks after that we had well, I should say first the Bureau of Standards itself decided it did not want to issue that as a standard. So we asked ASHRAE to take that document as a starting point and go from there. We thought they were the best of two or three agencies. And they agreed to take it. So starting somewhere in the middle of 1934 ASHRAE inherited this document and they I think appointed about a hundred different people to work on different parts of it. And they came out with their first document in 1975. And of course since that time it's been changing and adding on to, in fact there was a whole series of guidelines for existing buildings that came out of that too, and I should also add that the Illuminating Engineering Society joined with ASHRAE in sponsoring this document.

G.W.

One of the questions I had in mind last year was what problems and major issues were facing ASHRAE at the time of your award I think you pretty well covered them all unless there's some that you missed.

P.A.

Well energy conservation was important. I believe at that time there was also beginning to be a problem with water quality in some of the lakes, rivers, because of dumping toxic materials. They're just beginning to be concerned with air quality and, of course, the energy conservation brought on a wide

much wider use of insulation in buildings so as well as a drive to improve the efficiency of equipment so there was a big activity in evaluating different insulations and there are a lot of new materials proposed. Some of them were pretty well-suited and some of them not and also the big push to improve the performance of air conditioners and heating plants. So all of that sort of went on together and it was as a result of the need to conserve energy.

G.W.

Maybe we could talk about people. You we were dealing with a lot of the important and people who were changing the whole ideas of things at that stage. Let's talk about people for a moment.

P.A.

Two people that were very much in the front lines of research at the time I joined the society where Professors Comstock and Kratz of the University of Illinois. They had already done and continue to do a large amount of research on warm air heating in a two-story frame house the kind they have on the campus. And they published a lot of material on that. And when the society decided not to operate laboratory themselves any more a Kansas State University took the environmental chamber that ASHRAE had and Ralph Nevins operated that for a number of years and produce a lot of new information on human comfort. Pharo Gagge was also prominent at that time. He specialized in the effect of radiation sources on comfort. Two people that I was associated with and were important in my opinion were Richard Jordan from the University of Minnesota and Bill Penser from the Department of Agriculture. They were instrumental in the heart of increasing our connection with the international group. They promoted and lead the effort for ASHRAE to take part of the International Institute of Refrigeration and International Standards Organization. Another person that was quite prominent was Ron Tye. He was the granddaddy of informational insulation. He wrote a book or two on the properties of insulation and their physical, and thermal properties. Then that was the beginning or sort of the beginning of the time when the computers were beginning to be used for calculating heating loads and energy requirements. One of my fellow workers Tom Kasuta (spelling?) and a couple of men by Kamalie (spelling?) and Lachmanikan (spelling?) they were sort of competing with each other as to who was going to have the most to say about computerization. So they were sort of in the vanguard of introducing into ASHRAE technology. I took occasion in preparing for this conference this interview to look at the four current ASHRAE modules and I looked at various chapters and I looked at bibliography 's of some of the chapters I was familiar with and I found in that examination that the technology has advanced measurably since the time of these folks and that in the bibliographies, they're only marginally mentioned so I think it indicated to me that the society is growing, moving, and advancing and that even though the technology was highly regarded at that time it's been superseded essentially by newer work.

G.W.

Interesting, very interesting. The technical changes which you are referring to which have come along through the years has made ASHRAE, shall we say an ever-changing society going in various directions required at the time. What events or what things were going on in '76 that you recall that caused ASHRAE to make any changes that they may have made at that time?

P.A.

Well, of course the energy conservation is the leading issue at a time and there are quite a few side issues to that improving the efficiency of heating and cooling equipment, insulating buildings so that they required less energy, being able to evaluate how much energy is needed, and that's where the computers came in, the computerization of energy use and load calculations became very pressing. There was also quite a bit of concern about water quality and air quality began to be important at that time so these issues were foremost, then of course the use of wide amounts or large enough insulation in buildings so they needed less heat. So quite a few of the companies had to build smaller units in fact, it was a little difficult. Some of them found to build a unit that was small enough for say a four room

house and so there is a lot of new equipment built for the purpose smaller the capacity then had been in the past.

G.W.

The HVAC industry in the past whatever thirty years has grown and by leaps and bounds ASHRAE has grown as well. Do you feel that ASHRAE has kept up with the industry and has contributed to the requirements of the industry?

P.A.

Yes, I feel like they have. I think they've done a number of this for the industry. It's my opinion that ASHRAE has provided a technical base for the industry work. In other words its research supported, the technology is research supported. I think ASHRAE has also increased the vitality and the flexibility and the responsibility of the society in general. And through its active standards program I think it's made it more responsive and more responsible to the consumers. I view standards as a meeting ground for the producers and consumers they both have an opportunity to express their needs in the consensus process really modifies those two things. So I think ASHRAE has been good for the society.

G.W.

Young people coming along in the industry, couple of questions could you, would you recommend a young person interested in that field to get into that field and presumably you would say yes to that and if you did what further advice would you give them?

P.A.

Well I say they should join us as soon as they can afford it. And that they should participate in all areas of interest if they have an interest in, and that they should go for the top in the area of the special-interest.

G.W.

You've been around the society for a long time, you must have seen some humorous things happen and some well humorous things that have happened. You might wish to recall some of those.

P.A.

Well I'll mention a couple of things that are sort of humorous, they are sort of half ironic I guess. Back quite a few years when the weather data was important and being studied there was a move to put more than one design temperature in the guide for designing heating and cooling equipment and I was on the weather data committee at that time. Anyway when that proposal came forward, one of the fairly well-known members of the society opposed putting more than one temperature in there and he said that would restrict the area of judgment that engineers were supposed to exert. But that didn't prevail, it didn't prevail so we have more than one design temperature in a guide. The other thing I wanted to mention was when we reproduced that document, well I guess I already covered the turning over the document to ASHRAE for development as a design guideline for energy conservation. Oh the other thing I wanted to mention in about 1975 I made a serious proposal to ASHRAE that they add another phrase to their purpose statement and that was the thermal performance of buildings. And it went before the board, but it was rejected. I thought it was logical, because ASHRAE even at that time for many years had been the principal source of information on the thermal properties of insulation and the material systems and design data and it seemed logical and then thermal comfort, and so it seemed logical that this was a logical extension. Well it was rejected and I personally rationalize that perhaps there were too many machinery people on the board. But even though the inclusion in their statement purpose was rejected they've gone ahead now and they're really in the forefront of energy use and comfort in buildings.

G.W.

You're retired now and you have a very active mind and you've been a busy man all your life. You don't sit and do nothing I'm sure. How do you fill your day?

P.A.

Well after I retired from the bureau I consulted with DOE for a number of years. I should also mention maybe I have already I don't think I have, I served as interim director of research for the society for nine months. The existing director retired about the same time I did and I lead the search for a new director of research. Then I got interested in the control of moisture in buildings. One of the results of adding a lot of insulation to buildings was there was more tendency for condensation to occur in the insulated space and there wasn't a very good appreciation on the part of the building as to what the hazards were, so I got interested in that area. We, along with another member of the society we did a few field studies, published a paper or two on moisture control in buildings, and I was one of the co-authors of the ASTM manual that was produced three, four years ago on the subject. Another I won't say the nonprofessional but non -ASHRAE subject. I was instrumental in inducing a church congregation to move. And that's not easy to a new site. Our building was too old and overcrowded, but in the first effort at vote to move, well I should say that our Constitution required the we have seventy five percent approval if we're going to move. We got seventy three percent. So then we had another go around and we got a little sweeter offer from our developer to give us a chance to go back to the congregation and before we took that vote we did a little arm twisting. So we got about eighty percent the next time. So we had the approval to move and I was also on a committee to design the new building. So that took quite a little time in fact it took several years to accomplish that. So aside of those things I have been helping to raise grandchildren.

G.W

Oh, good for you. Sometimes the non-technical tasks are more difficult than the technical ones that we're used to dealing with through our lives. ASHRAE is a growing society, as demonstrated by its growing membership and the increasing in attendance at the meetings, it's in financial good condition. Where do you see it going and what pitfalls or problems do you foresee if any?

P.A.

Well it's hard to predict future, I don't really want to do much in the way of prediction. However, I'll make one comment at least. Last fall there was a symposium held in Washington on super insulation, and I guess we had a dozen papers presented by various companies and organizations who were experimenting with a much higher levels of insulation in buildings and in many cases that consisted of evacuating the space that the insulation was in. That improved the resistance substantially two or three times, or even more sometimes. There wasn't much said about the application of these ideas. There was only I think, one company that is producing a small panel that could be installed in a wall. It occurred to me, though, that if this develops and gets very widely used it's going to reduce the heat loss of houses so that the heating season for a building will be a lot shorter and the cooling season will be longer. And there may be some climatic areas where you won't need any heating at all and this will pose the problem for small systems again. It probably will promote electric heating, which is already grown quite substantially. Now whether super insulation will take hold or not, this remains to be seen. There's a lot of work being done on it.

G.W.

We've had a pleasant talk. I've asked you a number of questions I'm sure, there's some questions that you may wish that I did ask and didn't. What you like to cover that I have asked you to cover?

P.A.

I've been retired from the NBS for sixteen years. And fully retired form pretty much useful occupation for three or four years, but I wanted to say that maybe I haven't lost quite all of my indirect influence on the bureau, on the heating and ventilating industry. Because in 1983 Clint Phillips was the president, he worked for me for about thirty five years of my organization. And the next president coming up, Jim Hill was on my staff for a number of years. Jim Hildenbrant(spelling?) who is a manager of standards was on my staff when I retired and it was he and I that put together leading the group in putting together this design criteria for energy conservation. So he fully involved in continuing development of those

standards. And then Doctor Didion, who I believe that is going to be given the E.K. Campbell Award at this meeting, he was the section chief under my leadership for several years. I wouldn't want to claim that I've brainwashed them or that they would agree with me on everything but maybe I still have a lot of influence.

G.W.

I'm sure you do. Well I've enjoyed this very much, Paul, and want to thank you very much for coming to us today. We've just been interviewing mister Paul Auchenbach, who's a long-term member of ASHRAE, a fellow of ASHRAE served on the board for many years, including treasurer and vice president also the recipient of the F. Paul Anderson Award and it has been a real pleasure Paul. Thank you very much.

P.A.

It's been a pleasure and an honor to do this.

G.W.

Thank you.