

ASHRAE Leadership Recall (formerly Leadership Recalled)
Transcription

Interview of: Richard Jordan

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Interviewed by: Randy Murray

Randy Murray

Hi I'm Randy Murray and I'm here with Dr. Richard Jordan and we're doing Leadership Recalled for the ASHRAE historical committee. Welcome Dr. Jordan.

Richard Jordan

Nice to be here.

R.M.

Why don't we start to talk a little bit about your personal history. Where you grew up and your life before you got into this industry.

R.J.

Well I grew up in Minnesota. Minneapolis, St Paul and also we had an island on the Canadian border. And I got married in 19- let's see, 55. 35, that's better. Now I have three children who have lived there and in Oklahoma for one year and down here since about the last, about seven years ago

R.M.

About seven years you moved to Arizona? Tell me a little bit about your family. You were married in '35 and you're still married?

R.J.

Yes.

R.M.

Oh well that's wonderful. And this being 1993 that's quite a few years. Your wife's name is?

R.J.

Freda.

R.M.

Freda. That's right. And how did you meet Freda?

R.J.

At the University of Minnesota.

R.M.

Oh well that's neat. That's neat. And how many kids?

R.J.

Three children and one of them, one of them lives in California. One in the New Mexico. And the other one at Washington or her husband's with the State Department so they get to places like, they're moving to Kenya for four years.

R.M.

Oh is that right. Well that's neat. None of them followed you into the education area or into engineering?

R.J.

Well our oldest grandchild, a daughter is getting her doctorate in physics at Penn State, a university of Pennsylvania. And we have another grandson who's working for his doctorate at Harvard and he'll be in bio sciences primarily and bioengineering included. And the other two are in colleges and not quite decided what to do yet.

R.M.

I see. But they're going to school. That's wonderful. You actually are, never served as president of ASHRAE because you served as president of ASRE.

R.J.

See the two societies, ASHVE originally, ventilating engineers and American Society Refrigerating Engineers both co-existed from about in the early part of the century up until they merged in about 1955. I joined ASHVE in 1933 as a student member. That's 60 years ago.

R.M.

Refresh my memory what is ASHVE.

R.J.

ASHVE

R.M.

The acronym it stands for?

R.J.

American Society Heating and Ventilating Engineers.

R.M.

That's right, okay.

R.J.

Then ASRE was not involved in Minnesota at that point because there wasn't much refrigeration. There was no air conditioning. In 1940 I decided, that was the year I got my doctorate in engineering and I was, had been active in ASHVE but I wanted to get American Society Refrigerating Engineers involved with the two societies. And so I organized the Minnesota chapter of ASRE. There were chapters other places in the country but not in Minnesota. And that worked out quite well. And then I was president of that society, national president in 1953. My thrust at that time since I had been equally active in ASHVE, so trying to get the two societies to merge because of the inter relationship between heating, ventilating, air conditioning, refrigeration was so general then. And air conditioning was starting in the 1920s really. And so at that point we finally, with several other my colleagues, were able to get the two societies to merge into ASHRAE, American Society Heating, Refrigerating, Air Conditioning Engineers. And any previous members of either ASHVE, presidents of ASHVE or ASRE were then presidential members of the new society since they had merged.

R.M.

And how many people were in that first ASHRAE. How many people merged in, how many members did you have at that time?

R.J.

Well if you look back in the 1930s probably there were only a thousand members nationally and in either society and now it's, I don't know what the total would be but probably 20, 30, 50 thousand nationally.

R.M.

That's fabulous. Tell me a little bit about your career and how you got to the University of Minnesota and your years there.

R.J.

Well I lived in Minnesota. I was born there and when one went to college in that day you tried to find the cheapest place you could go and home is the cheapest. After all when I first graduated with my baccalaureate degree, actually in aeronautical engineering in 1931; that was right at the depths of the Depression. And I remember the first one of our graduating class who got a job, the one who got the best job got a milk route. And that shows what the Depression had done. And the bank holiday came in then too, you know, and any money you had in banks was closed off. Well then I worked for the American, I worked for American Radiator and Standard Sanitary for a couple years. I was fortunate to get a job. Not related to aeronautical engineering but that got me interested in mechanical engineering and which heating, refrigeration, air conditioning was a dominant part. It was dominated in that area. So I went back to school and got a masters degree in mechanical engineering in 1933. And then worked for American Radiator and then taught down at the University of Tulsa for a year. And came back by chance to Minnesota and they needed somebody on the staff of mechanical engineering and they offered to give me a job full time teaching and allow me to work for my doctorate at the same time.

R.M.

What year was that?

R.J.

So I got the first doctorate in engineering at the University of Minnesota.

R.M.

That's fabulous. What year was that, did you know? Which year?

R.J.

1940. And it was at that year that I became interested in forming a chapter of the American Society Refrigerating Engineers in Minnesota. I had written a book on refrigeration that had been adopted by about 120 schools and so that gave me access to ASRE and from that point on I dealt with the two societies.

R.M.

That's fabulous. The theme for your term as president was actually a pretty important theme.

R.J.

Well I had three of them. One theme was to get the two societies to merge. And the second one, I wanted to get education involved in the two societies and I chaired the first committee on education. And I wanted to get the societies involved in solar energy. And I'd written a few articles on solar assist heat pump systems starting at about 1949 and then when I wanted to get the societies more involved in that so they formed a solar energy committee which I chaired. Then in 1955, the world symposium on solar energy was held down in Phoenix and Tucson. And I was involved in the organization of that through Stanford and actually Arizona State. The two societies, the two schools that were dominantly involved in organizing it. And I had three of four papers on the program then. And then the third thrust

that I had was to get the society involved in international activities. Now international affairs in engineering at that time were pretty well separated by continents. If you went to a meeting of a society in Europe you didn't go by plane. You went by boat. And as a matter of fact when I first went to some of the national meetings of both ASRE, refrigerating engineers and ASHVE, which turned into ASHAE, they added air conditioning, one went by train. You didn't have good transportation by plane that was reliable at that point and, although it was coming about pretty rapidly. And the International Institute of Refrigeration which was headquartered in Paris had about 50 nations that were involved in that but not including the United States. And so they wanted to get the United States involved. There had been difficulties between World War I and World War II. The activities of the International Institute of Refrigeration had dropped off to nothing during those periods of time. But after World War II they became interested in getting more of an international flavor including North and South America as well as parts of Europe, parts of Asia. And so I was sharing, I was vice chairman of the division of engineering of the National Research Council at that point. And the National Research Council was part of the National Academy of Sciences which was formed by President Lincoln in 1865. And chairing that division when they received a letter from the International Institute of Refrigeration asking for the United States to become a member, ASRE and ASHVE both received letters too. And so the National Research Council appointed me a chairman of a committee to investigate what should be done about getting international affairs involved in the United States in these areas. So I formed a committee in 1955 we went to Paris at the International Congress that was held every four years. And we made recommendation to the National Research Council that they become members but any members in the International Institute of Refrigeration was a governmental membership. And so how do you get a society to be a governmental member. Well they looked on, we made recommendations to the National Research Council that they try to join and because the National Research Council was a pseudo governmental organization the International Institute permitted membership through the National Research Council. Well at that point we formed a US national committee for the IIR and then we had representation from ASRE, ASHVE, the American Chemical Society, the American Society of Mechanical Engineers and others on this representation national committee. Things worked out pretty well and we got much more involved in ASRE and ASHVE at that time. So that finally the government said that they didn't think they should any longer be the governmental member. They felt that a society should be the member and that ASHRAE should be the member. So at that point and ASHAE was permitted to become a member of the International Institute of Refrigeration. And we got involved in international activities which have expanding a great deal since that time.

R.M.

Well that's great, that's great. Congratulations on that work. What? Was ASHRAE the only association member of the IIR, is that or were there other associations over there?

R.J.

You could have individual members. And there were about eight or ten of us that became individual members of the International Institute of Refrigeration. And then we pushed to have this coalesce into a governmental membership which then was permitted to be transferred to American Society Heating, Refrigerating, Air Conditioning.

R.M.

I see and that's great. That's a pretty significant accomplishment of the work that you've done. But your work with these organizations didn't start as president. How did you get in, how did you work up and tell me a little bit about your chapter involvement and your early involvement in getting into these associations.

R.J.

Well joining as a student member of ASHVE, that got me immediately involved and I think if I reviewed the committees of the two groups that I've chaired, they're would probably be at 35 or 40 of them. So it's a little hard to...

R.M.

Remember them all.

R.J.

Right.

R.M.

What was your main emphasis as far as committee involvement? Was there a particular area you saw more activity in?

R.J.

The two I think were the Solar Energy Committee which I organized and the International Affairs Committee. And the first heat pump committee of either society. Heat pumps weren't more used than as they are now.

R.M.

Or invented really.

R.J.

Well they were invented. And they were actually, they were being used in Florida. But some of the power companies down there had put in heat pump systems and they were used in other parts of the world but not very much. And they turned out however to be a boon to many areas of Arizona.

R.M.

That's right. Let's talk a little bit about what was happening, you know, outside of our industry during those years. You know obviously a tremendous, you mentioned you know the Depression and then the war and it was a couple of other wars thrown.

R.J.

Well at that point, you have to recall the days were a lot different than they are now. You paid three cents for a postage stamp, first class mail. And if you got a salary of five or ten thousand you were really pretty well off. In fact very well off. So some of my friends said that if they could ever have a salary of 35 hundred dollars a year, they'd be willing to retire for life on that. Inflation.

R.M.

That would be tough. So inflation's played a big part in the world. Any national events change or have tremendous impact on our industry?

R.J.

Well I think the development of the rapid transportation and communication are the two areas that had the greatest effect on the world. So that you no longer, well at that point when we first were involved with the International Institute of Refrigeration, you sent letters by mail. You didn't have any fax and you didn't have any radio communication, well you had radio but you had actually, no television. So

that I'd say the greatest impact on the total world as far as I can see is that you now can communicate internationally any place you want to within two or three minutes and you can see people anyplace in the world and you can get there within a few hours of any place you want to go.

R.M.

It's really kind of an important thing. I mean you had to travel a lot for your work in the three associations and you mentioned that you had to travel by train across the country and boat across the Atlantic.

R.J.

The first meeting that I had tended to in 1955 of the International Institute of Refrigeration in Paris, I decided that point that this would be a good time to take my entire family to Europe. And so the five of us went by boat and drove around England and drove around all over Europe. And the interesting thing was that at that point. This was so recent after World War II that the buildings were still down in London and various places in Germany and in France. And you found that that every place you went they were extremely pleased to see an American family traveling together. And I recall at one point in Austria I got going the wrong way on a one way street and I heard this whistle blow and the policeman came up to and he saw that I had three children in the car and we were Americans. Well at that point I don't think they do this anymore but what he did was walk the street blowing the whistle, getting everybody out of the way and taking us two blocks on the wrong street until we got into an open area. And we were treated that way virtually every place in Europe in 1955.

R.M.

Wow that's something. And today I think it's...

R.J.

They're more blasé.

R.M.

They're more blasé and sometimes even abusive. The involvement in the associations, you're pretty happy then with your involvement. You would recommend it to others?

R.J.

Oh yes.

R.M.

What would you advise somebody who is looking to getting into these industries? How would, you know, if they're starting out in their career or their education, how would you advise them?

R.J.

Well the first thing they have to do is to get an education if they want to get into engineering or actually in many of the business parts of engineering companies, why you better start out with an engineering degree. And graduate degrees are becoming somewhat more important than they used to be a but at that point one of the things one can do is if you go to a school that has a work study program and which you can get involved with industry before you're graduated then that's a big help in getting a job.

R.M.

I see. And as far as encouraging people to be involved in ASHRAE, you must have had a great impact being a professor.

R.J.

Well I'd say that ASHRAE is one of the very interesting national engineering organizations because when they were in their infancy back in their 20s and 30s they formed a research committee and they formed research laboratories in Cleveland in which they did experimentation before universities were involved in this training extent. And they devoted I think it was 40 percent of the annual fees that you paid for membership went into research and development in the field. And I think it's the only society in the country that ever did this. And that includes ASME, ASCE and so forth. To actually get so definitely involved in the development of new procedures and processes that it became a part of the budget of the membership.

R.M.

What have we seen as a result of that effort that you recall?

R.J.

Well I think that, I think the industry's a very important one. And it certainly is important in some parts of the world that would never have developed if it hadn't been for refrigeration and air conditioning and food preservation. If you look back at the time of the development of refrigeration, if you go back early enough you'll find that cities were a certain size and no larger. They were small because the principal concern at that time was preservation of food. If you didn't have, if you had to bring in your food into a city you couldn't have a million or multimillion population city. So cities were small and the food was, how did you preserve it? Actually food preservation occurred to develop primarily during about the time of the Civil War. That's refrigeration developed in this country. And without food preservation you couldn't have a large city. And you couldn't, if you look at the development of, I'd say Phoenix is one area but then go down to southern Texas is worse. Or better. You find there that a city like Houston never could have developed without air conditioning.

R.M.

Right. That's correct. Would have, people would have moved out very quickly. In Phoenix too, as well as in the Middle East.

R.J.

Oh, yes.

R.M.

Tell me about some of the people who influenced you and that you saw coming up through the associations and that you were involved with?

R.J.

Well I'd say that my concern and interest in engineering developed when I was about five or six years old. And I always knew that I wanted to be an engineer and so there's no problem there. I got involved with the refrigeration, air conditioning field first of all with a man by the name of Frank B Rowley. Frank B. Rowley had been president of ASHVE and he was at the University of Minnesota. And so as a matter of fact he was my advisor for my master's degree and co advisor for my doctorate. And so that I would say he had a great influence on me and getting involved in the air conditioning, refrigeration field. And then from that point I think that the main thrust of involvement with actual people in both ASRE and ASHVE was the driving force. People like Burgess Jennings who was eventually a president of ASRE. He may have been ASHVE, I don't know which one it was. (Ed. Note ASRE) These kind of coalesce together. And Charlie Leopold that probably Frank Bridgers mentioned.

R.M.

Yes he did.

R.J.

And Charlie became a good friend of mine and just everybody seemed to have a common interest and so the national meetings became things of fun.

R.M.

Well that's neat. A great big part of what ASHRAE is in this whole effort to further the industry is papers and you've written a number of I guess. Why don't you talk a bit about the areas of interest and the quantity.

R.J.

Well about, I checked the other day I think I have something like 225-250 papers I've published and two or three books. And the areas heavily involved, solar energy. I have about 40 or 50 papers in the solar energy field. They involved engineering education. They involved heat and mass transfer and they involve building construction for efficient operation of a building with low energy requirements. And I'd say dominantly these are the areas that I've stressed.

R.M.

That's neat. Where do you see the industry going in the future?

R.J.

Well I think that if you look far enough ahead it's possible now to build a building that requires virtually little energy for either heating or cooling. And cooling is somewhat more difficult but heating you can build a, we did through one company in Minneapolis St. Paul. We built two test homes out near the Mississippi River. And the first one we built it in a regular fashion. And then the next one we insulated as thoroughly as we could. We had a weather station there. We measured temperatures throughout the home and we got a very complete comparison of what you can do when you insulate homes. This is back about 30 or 40 years ago. And we found that we could in Minnesota, we could cut the heating requirements down more than 50 percent, about 70 percent by building it properly. And I think this is one of the things that if a person is building his own home now he certainly should do. If he's building it, a contracted home he may not know how to do it but because it costs the contractor money to do it.

R.M.

Right. As far as the major changes in the industry over the years and you're involvement in the industry, what would you say would be the most important change is?

R.J.

Well I think the most important is that it's becoming international. That companies that manufacture in the United States are also involved in probably seven or eight other areas of the world, Europe and Asia and so forth. So that you no longer have national industries in the sense we used to have. They become international and that's one of the problems of the present time.

R.M.

What about technology? What's been the most important technology over the years?

R.J.

Well there's no single technology that's the most important thing.

R.M.

Anything, any of them that stand up?

R.J.

I might say that if you look ahead in the solar energy field and so far as heating, refrigerating, air conditioning is concerned that by sometime early in the next century it will become much more prominent much more used. And you'll find that power generation by solar energy will be more efficient than it is now. And you'll find that, well if you look at the first world symposium on solar energy held in Phoenix in 1955, one of the interesting exhibits and they had a number of exhibits from all over the world, they were brought in here. One of the interesting ones was developed by American Telephone and Telegraph and its research laboratories. And that was the first development of conversion of solar energy to electricity. And I've got photographs of some of the equipment that they were showing at the exhibit. It was very inefficient. I mean you paid probably 15 or 20 dollars per kilowatt hour of electricity generated. But that's down now so it's lower than a dollar but it eventually will get down to it where it's much more competitive.

R.M.

That's great. What would you say would be your greatest accomplishment through your career?

R.J.

You mean related to air conditioning, refrigeration or just in general?

R.M.

Both.

R.J.

Well I'd say the greatest accomplishment I had probably was taking over the head ship of the mechanical engineering department in Minnesota and changing it from a, I'd say a third rate department into what became rated nationally as one of the first four in the country in a few years. And it was there when I retired and is still there. So not getting highly competent staff members. This is the best thing you can do is a department is to hire the right people to come in and teach. And I got international authorities like Ernst Eckerd who became probably one of the top two or three people in the world and heat transfer. And this took over a very important part of the mechanical engineering department. And of course my interest in heat transfer as a general subject probably developed through my involvement in the heating, refrigeration, and air conditioning too.

R.M.

That great. In that industry, what would you say would be the greatest?

R.J.

Well I think my help in merging the two societies and there were others that were very much involved. People like Art Hess in California. But between us we were able to get it done. And beyond that getting involvement of ASHRAE in international affairs which are much more important now than they were at that time. And probably in a minor way the initial development that I did and heat pump systems and chairing the committee on heat pumps and writing papers on the solar energy assist heat pump systems in which actually the first one built was built by Frank Bridgers.

R.M.

That's interesting. That's great. That was in New Mexico.

R.J.

Right.

R.M.

Well anything else we haven't talked about that you'd like to address or discuss regarding ASHRAE and the industry?

R.J.

Not really except that I think it still is a, an important and growing industry of growing importance that dominates many developments that people don't fully realize. If you had, well this is repetition in part but if you had no food preservation systems or if you had no air conditioning or heating systems what would the country be like or the world?

R.M.

That's right. What would it be like and that's a good question and your involvement in those early years certainly laid a lot of groundwork to do something. And certainly it's nice to see that ASHRAE has grown over the years and has become so large. I want to thank you very much for your time.

R.J.

It's a pleasure to be here and to talk with you.

R.M.

And for your commitment.