

ASHRAE Leadership Recall (formerly Leadership Recalled)
Transcription

Audio Interview of: Cecil Boling

First President of ASHRAE (1959)

Date of Interview: ca 1988-1989

Interviewed by: Group of people (Frank Coda, Bill Coker, Steve Comstock, Lou Flagg).

So you were active in the formation of ARI too.

Cecil Boling

Somewhat. Not as much as I was in ASHRAE.

Who were you working for when you-

Cecil Boling

Dunham Bush. I was always with Dunham Bush. I put Dunham and Bush together largely, so I was with them from way back.

Steve Comstock

Well what we'll do is, let me explain, the purpose of what we are trying to do is capture as many of ASHRAE's presidential members on tape with their views of how ASHRAE has changed over the years. Their reflections on what ASHRAE was like when they were president and when they were active in the organization on the committees. How the industry changed and some of those trends, so our objective will be to get as much information on tape and then we'll, after we go back then we can have that transcribed and work with it a little bit more. And with the objective being to have a whole series of interviews ready for the 100th anniversary of ASHRAE which will be 1994. All of us will just, if any of us have any questions or comments let's just ask. Maybe we should start with how did you get involved in the industry Mr. Boling?

C.B.

Well, I graduated from college in the Depression and there wasn't any business in my business. I graduated Civil Engineer, MIT, and there, to hell there weren't any jobs. Well I had a job with Jackson Moreland Engineers in 32' and it lasted about six months, when I graduated and then I had no job. And I was offered, I then was working for Jackson Moreland Engineers and George Mason who was president of Kelvinator at that time approached Jackson Moreland Engineers and wanted to know, they made the Temp-Rite water coolers. You may remember this, it's still made. But it was a flooded, pot type cooler and of course when it broke, it froze up and it was a hell of a mess. So they asked us if we could develop a cooler, a water cooler that would be fool-proof. We said we would try and I was assigned the job. That is what I worked on, even then it wasn't civil engineering for Jackson Moreland. I went to the library and did all our research and another fellow and I developed the cast aluminum water cooler, casting of tubes in aluminum so that you could space the aluminum around the tube sufficiently if you could freeze it, it would extrude the ice out of the water, backwards out of the water. But I couldn't make it cheap enough so it didn't get into production and later... So then, an outfit wholesale business, so I had lost my job and Melchior Armstrong Dessau; which is a wholesale company, and a very small one then, approached me and hell I had to go to work for them because I didn't have anything to do. And from then I stayed with them until 40' and then I set up my own company in engineering and sales. And that's how, and that was still in refrigeration. That is how I got into it.

Lou Flagg

Melchior Armstrong Dessau was basically in the refrigeration business?

C.B.

Entirely. Wait a minute, no, Mr. Dessau also had a salmon business but basically anything that I was in was refrigeration. In fact, I was the one who developed his company. We had a lot of branches when I left him.

Comstock

When did you join the ASRE?

C.B.

37'. I was very active in ASRE. In Philadelphia when I was there, that is where I joined and then when I moved to New York I was chairman in ASHRAE in New York. I don't remember..40', 1940.

Flagg

Who were some of the contemporaries in ASRE in those early days?

C.B.

Dan Wile. I am thinking now just refrigeration.

Flagg

Dale Westmiller.

C.B.

Who?

Flagg

Dale Westmiller.

C.B.

Oh, yes, Dale. I'm thinking the flake ice machinery guy. He was very-

Comstock

Crosby Field?

C.B.

Crosby Field was very prominent and fought the merger like hell. Several of the fellows from Frick. I can't just think of their names now.

Comstock

Milton Garland?

C.B.

Yes. He was there then and is still there by the way as a consultant. Milt must be 90 now. ... York was, gosh I can't think of his name right now. A lot of the York people and fellows that are now with another outfit there in New York were active then but I just can't think of their names.

Flagg

You mentioned the merger, what was some of, when did this idea of merger first-

C.B.

We had a lot of overlapping between ASHAE and ASRE. I think it was 15 or 20 percent overlapping. And what the hell both of them, I wanted to attend ASHAE and ASRE meetings too so it was a heck of a problem for the companies. So we formed originally way back, we each had a committee at ASRE and a committee at ASHAE to try to avoid overlapping meetings and overlapping schedules you know, to help benefit the companies. The companies, Trane, Carrier, everybody was against sending people to so many meetings you see, so from that it gradually evolved into many discussions, off the record discussions, why don't we put these organizations together. So that finally came to a head and we appointed a committee on each society to investigate and come up with a recommendation on it. I believe that we had three from each society, if I remember right. We had many, many meetings. We met in Chicago because it was the most central place. I happened to be a member of the Union League there and we met there. Many meetings, I don't know how many meetings.

Flagg

Do you remember who chaired that committee?

C.B.

Hmm?

Flagg

Do you remember who chaired that committee?

C.B.

Well it was both myself and Elmer Queer. I became almost a pal of Elmer's, if you know what I mean, over those months.

Flagg

You were operating as co-chairs?

C.B.

I guess, I don't know. We always got along anyway.

Flagg

Crosby Field fought the merger you said.

C.B.

My god.

Flagg

Why did he fight it?

C.B.

Well because as everybody in ASHAE knew -they had no problem. Everybody knew that air-conditioning would dominate so of course ASHAE, their members had no worries, but ASRE, of course, knew that air conditioning would dominate and they would be lost, maybe, so that is where the battle was.

Flagg

Did the issue of the ASRE handbook come up in that discussion?

C.B.

Oh yeah, if I remember right, I don't think I missed anything. Crosby, who was a very good friend of mine by the way, as you know, was the first guy to come up with the flake ice machine and licensed them to York, but Crosby was a very brilliant person, very brilliant, and very much interested in the welfare of ASRE. Many of the arguments we had, we ended up always good friends. A very fine person but he was worried and fearful. And, of course, ASHRAE has had their problems on the R, as you know.

Flagg

Did guys like Bud Palmatier and Walter Grant.

C.B.

Oh yes. Oh Walter was of course.. I know Walter very well. By the way, several Carrier people down here, Bill McGrath, you know, lived here and we saw a lot of one another. He died just a few months ago. In fact, we had just been up together, we were invited by, what's the president before you?

Barney Burroughs.

C.B.

Barney called each of us and invited us to the meeting that he was coming to at Ft. Meyers. I called Bill when we went up there and had a hell of a good time. Bill died right after that. There are several Carrier people here.

Comstock

When I was over at the ARI meeting, I had lunch with Raymond Cohen and he is at the Herrick Laboratories at Purdue University and I mentioned that I would be coming here this afternoon and he said you would know Bill Fontaine.

C.B.

Very, very well. He was the head, still is I think.

Comstock

Director Emeritus.

C.B.

Yeah, yeah. Oh, he's director, he's retired. Well, oh that Bill and I ran a lot of meetings down there at Herrick Laboratories.

Comstock

What was some of the research? Was ASRE involved in cooperative research?

C.B.

Not then. They have done a lot more since then. Herrick Lab was largely supported by Herrick of Tecumseh Products. He's a, well again I think he is dead but his family owns Tecumseh Products basically, and he put up millions of dollars into Purdue and Herrick Lab.

Flagg

You probably know John Haynes.

C.B.

Oh, yes, from Minneapolis.

Flagg

A Purdue graduate. He was instrumental in making contributions to the Herrick Lab.

C.B.

Yes, from Minneapolis-Honeywell. From Honeywell now. Oh yeah, we knew John. John's wife when he died married Jack Everett.

Flagg

You knew Jack?

C.B.

Oh of course. Well they were down here at Cape Coral and they used to come down here and have lunch with us. We would get Bill McGrath

and Jack and, what was her name?

Billie.

C.B.

Billie. That's right, and we all get together for lunch.

Comstock

What was some of the research issues, the research that would be going on? What were some of the research issues that was facing the industry?

C.B.

Let me think. Well of course, my big interest was heat transfer and there was a lot of that, tube to tube and heat transfer. In the heat transfer field many items of research.

Flagg

Were you having it done at the Cleveland Laboratory of Power Research?

C.B.

No.

Flagg

You had it done through organizations like Purdue?

C.B.

Yes.

Flagg

Did you have anything to do with the move of the lab from Cleveland to Kansas State University?

C.B.

I was in on that.

Flagg

You were in on that. I thought you might be.

C.B.

Yes, there was a great lot of discussion about that. I had forgotten all about that. The meetings I went through on that, that is right. You forget these things you know. But, that was a good move.

Comstock

What was the background.

C.B.

We had our own, what was it, set-up of some type there. I can't remember all the details.

Flagg

Was it a complete air-conditioning unit with a capability of doing all kinds of experiments?

C.B.

Yes, but it was better off to be put into a college like Kansas State. That had been a very good move.

They have done a very good job.

Flagg

It is still there. I saw it.

C.B.

Yes. I remember when we moved. It was a big hassle.

Comstock

Giving up the lab?

C.B.

Yes.

Comstock

What was the basic reason for giving up the lab?

C.B.

Well, we just felt that some college could do a better job and I think that is the way it has been. I think it has made it easier for ASHRAE to get contributions because it is a college backed and sponsored program. It is really one of the big reasons we did it. It was for that reason.

Flagg

So you had the experience with ASHVE of running the lab before the merger so you knew what the costs were and you knew what the benefits and disadvantage were.

C.B.

That is right.

Comstock

What was the technology of the time? What were some of the issues?

Coda

I would like to have in the record. What were the particular technological issues that were facing us at the time you were president of the Society? Today, you know we have energy and indoor air quality and chlorofluorocarbons and the ozone layer, what were the problems back in your day.

C.B.

Let me think a minute, I'm sorry. I don't really, most of it was design problems as far as I can recall.

Flagg

Were we involved in reworking the psychometric charts?

C.B.

Yes, that was done during my era. Oh yeah, that's right. Who was it in the Society who did a hell of a good job on that? Somebody at one of the colleges. Who was that, Mr. Flagg? You would know him right quick.

Flagg

Yeah, I would but I can't pull the name out of the hat at the moment.

C.B.

He did a lot to bring in what is now our psychometric chart.

COMSTOCK

Threlkeld?

C.B.

No, I don't think so.

Flagg

Another one you had going were the refrigerant tables. Seems like we always had a problem with redeveloping refrigerants.

C.B.

Yeah, that was a steady thing.

Flagg

What were the problems, we just kept, it seems like we just kept needing more data and kept adding new compounds.

C.B.

Of course, at the time I was active in ASRE, Freon had come in you know and it was all being changed. I went through the early days, the 30s, of the change over from sulfur dioxide and methyl chloride to Freon. In my older days we did a lot of carbon dioxide work. If you recall, I remember Boston Morgan for instance was a job that I was on at one time was a carbon dioxide job. We redid that. That was way back in the 30s. So it was refrigerants were one of the items at that time. I guess that was the biggest item because the Freon's were just coming in, but ammonia, of course, was strong and I think always will be.

COMSTOCK

What were some of the changes in the psychometric charts that you had mentioned?

C.B.

Just extension and make them more complete.

Flagg

Did we do the high altitude ones at that time maybe?

C.B.

I think so but I am not sure.

Bill Coker

One of the things I remember in Bernard Nagengast's recent article *History of Refrigerants*. One of the things he talked about was the pressure that come from the media and the public when there was a death due to some...

C.B.

Ammonia explosions.

Coker.

How much pressure really was there that helped develop the current CFCs?

C.B.

There was quite a lot of pressure.

Coker

It was political pressure as well?

C.B.

I would say so. Local political pressure. You know you get a leak, something would break in an ice cream plant down here and there would be a hell of a stink. Not very many deaths really. That is where ammonia got a relatively bad name which was most unfortunate because it is a hell of a fine refrigerant. I don't think you can beat it.

COMSTOCK

You mentioned you were president of ARI.

C.B.

Yeah, later. Later.

COMSTOCK

What was the collaboration between ARI and ASRE?

C.B.

Always very close. Very close. And over my years the biggest thing we wanted in the merger of ASRE and ASHE was the show bit. We went through that whole thing.

Coda

ASRE did not have a show.

C.B.

No, but ASHE did and ARI did and it was a hell of a mess for companies, same old problem, so we went through all that bit and were able to work it out, to put the shows together and that had been a hell of a success. And of course, I don't think anybody can dispute the fact that the ASHAE and ASRE merger has been a hell of a success. What is your membership now?

Coda

Membership is roughly at 50,000.

C.B.

Jesus Christ. When we consolidated we had an overlap of some three or four thousand something like that.

COMSTOCK

What was the total number when you consolidated?

C.B.

When we got through I think it was 11 or 12 thousand. I can't remember because it seems it was around 17 thousand then we had to wipe out the cross overlaps and I believe that brought it down to 12 or 13. I may be wrong.

Coda

When I joined the Society in 1966 and started becoming aware of the membership figures, even in the early 1970s there were only 16 or 17 or maybe 20 thousand members and I worked for a sisters society at that time and the energy crisis came along and while there was room for a lot of people from the membership standpoint of ASHRAE it was a great growth opportunity in the 1970s and early 1980s, but great growth, mostly in the 1970s - and the 80's. It had a tremendous shot in the arm from the energy crisis.

C.B.

You mentioned if I know Jack Everett. Because Jack, during the merger was very active. He was then a consultant. I forget the name of the fellow - he was with in Philadelphia. I have known Jack many years. He was very active and a very capable member of our committee.

Flagg

Charlie Leopold.

C.B.

That's it, Charlie. I did a big job with him at the Pentagon.

Flagg

You were at the Pentagon?

C.B.

Yes. I did the refrigeration with him. But that is a business. Then he left and took over the head of the architectural engineering up at Penn State. Did you know Elmer Queer?

Flagg

Yes, a little bit. I knew Jack Everett a lot better.

C.B.

Elmer was a finer person.

Flagg

I ran into Jack Everett before he went with Leopold when he was working in Washington, D.C. and I was with the industry in Washington D.C. for a couple of years right after World War II.

C.B.

Oh I see.

Flagg

So I met Jack there.

C.B.

You knew Charlie then. Leopold.

Flagg

Yes. And later I ran into Jack.

C.B.

Who was the fellow who worked for Leopold who was president?

Flagg

Walter Spiegel.

C.B.

Another capable guy. Speaking back of the merger of the two societies, it was one battle. Six months ahead of the vote on it in Dallas, I guess I travelled I wouldn't know how many miles and took a hell of a beating, particularly at the meetings in Chicago and New York. But Philadelphia and New York and some at Dallas, but Chicago, they were rough on me.

Flagg

They still are.

C.B.

Yeah I guess.

Flagg

They have their own chapter.

C.B.

I know. That is what I was going to bring up. What a beating you would take from these guys but finally they were relatively friendly. But then down at the count of the ballots I must tell you, I hope I am not off crazy here, if I am talking about something you don't want to hear forget it. In the vote counting all these fellows wanted to be there right at the count and we were all there until 4:30 in the morning counting ballots.

Flagg

Do you remember what the vote was?

C.B.

Oh well, hell it wasn't close. It was about 65 to 35, somewhere in that range.

?

It was not a close vote.

C.B.

Not really no. Crosby Field, he wasn't well and he was right there all night and I had to get up to meet the speakers you know and have breakfast with them at 7:00 and then I had to start the meetings. What a night and a day.

Comstock

Was that the first ASHRAE meeting or was the first official ASHRAE meeting next-?

C.B.

No, that was the vote at the ASRE meeting. I was the last president of ASRE and the first president of ASHRAE. I was so pleased when I got the damn thing over because I was a big pusher in ASRE for the merger. Of course, others were too, don't get me wrong, but I guess I was the biggest pusher. I ought to tell you about one of the, well, with this committee, we set up this black book and set the number of people on the Board of Directors for ASHRAE and how they were elected and all these kinds of things. We went through and set up a complete organization. We called it the black book. The terms of service of the directors and all these kinds of things. Do you know where we had the biggest discussion? The name of the society.

Comstock

What other names were brought up?

C.B.

Oh my God, I couldn't even come to tell you. Environmental Institute, I don't know. We finally said to ourselves, look if we bring any kind of an odd or change name of any kind there will be a hell of an argument. So why don't we stick to history and nobody can argue with us. And that is where we named it. Heating first, refrigeration and air conditioning. And by God, nobody ever complained.

Flagg

The ventilation guys never complained?

C.B.

Never said boo.

Coda

How about the ASHRAE logo? Was that redesigned at that same time?

C.B.

No. I think it just came about because you didn't want to say American Society of Heating, Refrigerating, and Air-Conditioning, so you just said ASHRAE.

Flagg

How did the logo come about? Wasn't Andy Boggs involved in the logo?

C.B.

Yes, he was.

Coda

Didn't he draw it up for them?

C.B.

I think so but I am not sure. I can't remember.

Flagg

It was not done by a commercial outfit, it was done by a relative or something.

C.B.

It was something. I know it evolved in the office or somewhere. I can't remember when. Do you still hear from Andy?

Comstock

Oh yeah, he comes to the meetings.

C.B.

Very good. A very nice, good guy.

Comstock

What are some of your reflections of the first ASHRAE meetings when you were instilled as ASHRAE's first president?

C.B.

We had too many God dammed people on the board I can tell you that. And they never got through the meetings, I don't like long meetings.

Flagg

Never got through the meetings, that's wonderful.

C.B.

Boy, I tell you, they were wicked I can tell you that. Everybody wanted to get their say in and you know how those things go. I forget how many at our first board meeting, how many people we had, but it was a hell of a big group. Of course, every year, every six months it went down. I was only president for six months. We had the deal that we would take out all the people who had been elected by ASHAE and ASRE and they would take turns on and off. I was the first president of ASHRAE and Art was second. That is the way it was-- another ASHAE and another ASRE.

?

You cycled the whole thing out right?

C.B.

We cycled the whole thing, that was all in the black book see. You know that black book...

?

Where is that black book?

C.B.

Somebody has it. Andy would know where it is.

?

I never heard of the black book.

C.B.

Well that is what we called it. Now what they might call it in the society, I don't know. I am talking about our committee, we always called it the black book. I bet you it is still around.

?

Well we'll have to ask Doris.

C.B.

Well she'd know. Doris would know.

Doris knows where everything is.

C.B.

That's right, she always did. Probably still does. But I want to finish that, I don't think the ASHRAE set up has been changed hardly at all from that book.

(note: as of June 2014, the "black book" has not been found!)

Flagg

You did a good job.

C.B.

I think we were just fortunate but we had a lot of good people. We had a member from ASHAE you might-- I can't remember his name--I went in there to try and find some old papers. He was one of the officials of one of the big mechanical contractors in New York that was on the committee for ASHAE and very, very capable but he died shortly after our work, within a year or so. Munson--can you help me? Munson or something like that.

Flagg

You are close, very close.

C.B.

It is that range. He was very active in ASHAE and very, very capable. And I can't, it's something like Munson. That's not right. Muncher? Muncher or something.

Flagg

Try Ben. There was a Ben...

C.B.

Ben was his first name.

?

We'll come up with it.

C.B.

Ben was his first name. I can't remember. I guess if I went through all of my papers I could find it. But it had been a very good thing for the industry, ASHRAE. I think almost everybody would agree with that except maybe the small group in Chicago.

Flagg

For your benefit, I think they are coming around. I think they are. Every year, a little bit more, a little bit better. I see great signs.

C.B.

I think you fellows are making a little bit more effort - getting R in there. I mean this and I think it is so easy for you to fall right into air-conditioning and I think you fellows at the office are doing better at getting a little bit more R.

Coda

When you were going through all this merger and whatever, was there a lot of thought being given to what it was going to be like in the future? Did you have any idea of what the Society would be or how it would grow?

C.B.

We thought it would be predominantly air conditioning.

Coda

Did you have any idea, did you think about the numbers, like the other day our long range planning committee had a meeting. They had some sort of scenario of what the society might be like in the year 2000 and someone said there were 120,000 members you know. Did they go through that kind of game?

C.B.

No, we did not, although we expected growth. I don't think we ever thought-- I don't think we had projected at that time that we would project the membership you got now. I don't think we would have. Because our industry really is not a hell of a big industry, as you know, but I think it will just continue to grow myself somewhat.

?

There were a lot of issues and things that I guess 20 years ago or 10 years ago that people wouldn't have thought the society might have been involved in like Legionella and the air quality issues in those days.

C.B.

Oh yeah. That's right. No they wouldn't have thought of that probably.

Flagg

Was ASRE involved at the time the centrifugal compressors came into being?

C.B.

Oh yeah sure.

Flagg

When did that happen?

C.B.

That was Carrier of course.

Flagg

Pre-World War II?

C.B.

Yeah, pre-War II. They didn't go very far until after World War II but they were on the market before.

Flagg

You were associated with Dunham Bush? They were predominantly in the heating field at that time weren't they?

C.B.

And refrigeration.

Flagg

They were in refrigeration?

C.B.

Oh yes. Dunham was heating; Bush was refrigeration.

Flagg

Aha. Okay. And you were on the Bush side. You got that started?

C.B.

I took over Bush and then I consolidated with C.A. Dunham Company to form Dunham Bush. Mr. Dunham, C.A. Dunham Company were in Marshalltown, Iowa. We took over Dunham company in 1956. We were Bush Manufacturing Company and we then changed to Dunham Bush.

Flagg

What kind of design type things were going on in the refrigeration end of the business at that time?

What were we doing--when did the screw compressors come in?

C.B.

I was the first to bring a screw in the picture except in the refrigeration/air conditioning. I went to see, I made a deal with SRM which were the owners of the patent on the screw in Sweden in 62'. I am not sure what that year was but it was early 60s and we put the first screw in refrigeration operation, air condition in a hotel in Miami in 66' and then we went from there. Then I had a five year exclusive and I had another five years added on to that. Now it is open today. And everybody's in the picture today.

Comstock

What was the advantage of the screw compressor at the time?

C.B.

Well, you could use the screw compressor for both low and high temperature. It reacts the same as a reciprocating compressor. The centrifugal compressor is not really very sound for low temperature and the screw can cover the range. In other words, positive displacement. It has been very successful, particularly low temperature.

Flagg

Some talk about the screw being adaptable to R-22 as a replacement for the centrifugal which uses R-11.

C.B.

All of our screw were always way down temperature with R-22. We never put a bit of 502, we never put anything but R-22 in the screws.

Flagg

So the screws are really the good guys today.

C.B.

You won't have any trouble with the screw in any temperature.

Flagg

You must feel good about that.

C.B.

Well, yeah.

Coker

You have made your contributions to no holes in the ozone.

C.B.

Well, that was just God damn luck, I can assure you of that.

Comstock

Any concluding comments?

C.B.

No I would only say that I think the people in the office up there have done a damn good job and I just hope they keep it up. I think they have been very fortunate and had fine officers who have given a lot of time to the organization. And that is what it takes. If you are going to have--if your officers aren't going to take a real deep interest it isn't going to go. It takes the deep interest of both the employees and the officers to make it go. It is unfortunate that it takes a lot of time once the part of the officers to do the job right.

Flagg

I'll affirm that sir.

C.B.

I am not saying that because you are here Mr. Flagg, but I am sure you know what I mean. By the way, would you like a beer? I never even offered you a beer.

Comstock

No thank you.

Coda

You said you went to MIT. Are you a native of the North?

C.B.

No, I was born in Oklahoma and raised in Indiana.

Flagg

How did someone who was born in Oklahoma and raised in Indiana go to MIT?

C.B.

Well, they told me, I went two years to Butler College and I was very good in math and I won a scholarship to Cincinnati University in math. A fellow says, a friend that I was doing some work for because I had to work my way through, a doctor says to me, "Look, if you are that good in math why the hell, why don't you go to the best school in engineering?" I said fine, where is it. I had never heard of it. I went to the library and looked it up and transferred to MIT.

Coda

For the record I want it to show that he is a civil engineer of course he was probably a little bluff in his choice of schools RPI instead of MIT

C.B.

But you know, let me explain something. I took power plant option at civil engineering. I got a switch to mechanical, thermodynamics out of my ears, electrical and all that because of power plants.

Coda

Civils back, I graduated in 1961, I am sure when you graduated they took more of the other engineering subjects than they did as time went on. I probably had more when I graduated.

C.B.

You graduated RPI. That is a good school too. I had so much mechanical that I had a lot of patents, all in heat transfer because of thermodynamics.

Comstock

A couple of those patents...

C.B.

I had the inner fin patent which has been my best. They are still making all kinds of products. The fins within the tubes, heat exchangers.

Flagg

Internal fans on heat exchangers.

C.B.

That is my patent. One of them. The cast aluminum water cooler was my patent. They are still making thousands of those. Any of these restaurants you o in where you push and get a glass of water, nine out of ten are one of those coolers underneath. The inner fin is..

Comstock

What was the advantage of that?

C.B.

That inner fin, water chiller, compare to a bare tube exchange, we could do the same job with about 40 percent less size, 60 percent of the size and we have done it for years.

Flagg

So much better heat transfer.

C.B.

Yes. Oh hell no comparison. We do it with, it is wonderful for after coolers and all that kind of stuff.

Flagg

That was a great one. What was the other one?

C.B.

The cast aluminum water cooler. Those were the two big ones but I have a lot of other minor ones.

Coker

That is where you push the slide in and the ice comes out.

C.B.

That's right. If you freeze it. The ice extrudes back out of the water line. You can freeze the thing, you take the connection off-

Comstock

Can you talk us through how that works?

C.B.

It is designed so that you have enough aluminum between the tubes that it will withstand 15 to 18 thousand pounds per square inch pressure. That is what freezing ice pressure is. By standing that the water has got to go. You know when you freeze water it is going to expand and it goes back in the water line. If you freeze one of them and you take the connection off, here is an icicle sticking you about like that. See?

Flagg

Too expensive. That is too bad.

C.B.

No, later, I didn't finish my story. After World War II, hell, the cost of aluminum went kapoof so I went in business. We set up a plant heat exchanger company and make those by the thousands. I quit counting them after the first million. They are still making them.

Flagg

I just can't imagine with your mechanical talents how in the world you selected civil engineering as a course. You don't have to go into that.

C.B.

I can tell you briefly why. I like to work outside, that is the only reason. Probably yours too.

Coda

That's right I was interested in construction when I first-

C.B.

Yep. I was interested in outside work.

?

I bet you're a hunter. It looks like you're a hunter.

C.B.

I've always hunted. My wife would go on a trip and I would go hunting.

?

This old boy has been staring me down since I sat here.

Flagg

Cecil you are wonderful, thank you.

C.B.

I know, I appreciate you boys coming, sorry to give you all this trouble. You want a coke or anything?

?

No, we got to get back to our meeting.