

Pioneers of Instrumentation: Floyd McCall of McCrometer

The following is the transcript of an interview conducted on November 24, 2003, with Floyd McCall, founder of McCrometer. This interview is part of the series of Pioneer of Instrumentation interviews being conducted by Flow Research. The interview took place near Hemet, California, where McCrometer is based.

Participating in the interview were Floyd McCall (FM), Kerry McCall (KM), and Jesse Yoder (JY). Kerry McCall is the president of McCrometer.

We would like to thank Kerry McCall and others at McCrometer for reviewing the transcript of this interview before it was published. It is being published here for the first time.

Interview with Floyd McCall, Founder of McCrometer

Floyd McCall: I think while my memory is working today I'll probably have to be helped along.

Jesse Yoder: OK. I'd like to tell Kerry a little bit about Flow Research to start with and then we can start the interview. I started Flow Research in 1998, and I've been doing market research since 1990. And since 1990 I've written sixty or so market studies each and probably 40 articles.



McCrometer's headquarters in Hemet, California

And journals. Did you see the article in Sensors Magazine in October (2003)?

Kerry McCall: No, the last one I caught was the Water Industry one.

JY. I had four articles in October. I've actually done a series of individual studies on every type of flowmeter and there is also a study that compiles them all into one, including pressure.

And we are also coming out in a week with a new pressure study that catalogs the worldwide pressure transmitter market

What I'm doing in these interviews is interviewing the founders of companies in technologies to try and document the creative process. I'm trying to document this information while it's still available

So far I've interviewed the founders of Sierra Instruments, Kurz Instruments, and Fluid Components Int'l..

And the interviews are used in our Worldflow Monitoring Service. I'm also writing a book about History and Technology of Flow that this will be used for.

KM: OK, great.

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In the beginning

JY: So let's start. You founded McCrometer in 1955 or 1957?

FM: Yes in 1955

JY: And was it your own, did you do it yourself or you did it with Lloyd, is that right?

FM: My brother and I were partners. I was asked to do it at a time when the value of retail water was starting to escalate and the water companies couldn't buy enough water meters. With the reputation that I had in the agricultural implement developing new equipment there, they offered me a position to develop a flowmeter that would be more accurate and reliable than what they had in the past.

JY: What were they using at the time?

FM: Well what they were using principally? Sparling and ... I don't recall the names. There were several major companies that furnished flow measurement devices but they go under a different set of laws that are negotiable type laws where they settle the dispute of water billing through a negotiation processes.

And the reliability of the water meters only aided in that deal. So that was ...how things operated at that time. And then become the importation of the Colorado River water and all that was more brackish and difficult chemically to handle because their materials were aluminum and others things that deteriorated quite rapidly under the more salt content in the water caused excessive deterioration. So that was their reason. At the time they asked me to develop something new. I was totally up to the experience and unfamiliar with the flow measurement detail even though I was very experienced in irrigation and flow measurement on my own ranch. I was familiar with that and built up a reputation of developing products and because of their great need to have an im-

proved flow measurement device they offered me a contract if I would build something new they would buy it.

And so that was the basis of starting this, so, from that I started research, the history, the make-up and all the things about flow measurement and so I developed a different approach to build a flowmeter and so the original flowmeters were individually calibrated. They were tested and calibrated. The first thing was to put some power control methods in so that you could build standardization and higher accuracy.

And I decided early in the development to do that. So this whole measurement was of a new concept at first. All sizes were all alike with interchangeable parts and along with that I built a standardization of design so the parts of a four-inch meter would fit a six and eight or a ten. They all use the same parts. So I learned that in the agricultural end of it to build standardization throughout. That way so I developed a configuration where you'd use outside of the propeller they were all the same. So I developed that concept of an instrument. It was a propeller meter and then the secondary problem was the accuracy of it. The helical design is somewhat different and appears to be more accurate. So that has proven out to be true that that design was a magnetic coupling and nothing to bind the system worked out very well, so that was the fundamental approach. So I developed a prototype and put it in the field for testing for several years and from that became the final configuration, which was very close to the original configuration. So all water flow measurements then built around the concept of standardization of parts and common calibration that all six or four inch meters all were exactly the same. And today that is still unique. That has never been copied by other people. So that, instead of building individual concepts where you

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have a standard configuration so that when you go to the field, all parts of the same size are interchangeable. And so that was the concept that I was successful with.

JY: Did your flowmeter have an impeller in it?

FM: The original flowmeter had a propeller, yes.

JY: Impeller?

KM Yeah, it's really impeller. Yeah but the market slang was propeller so that's what we called it.

Impeller or propeller?

FM: The name is used interchangeably in the industry. Some call it an impeller and some call it a propeller. Except for our company they vary in the speed in the same flow. They don't then develop the art to trim them so they would have a common speed. And I think that's the reason they are so successful in the marketing deal because you didn't have to have each one individually calibrated. They were all interchangeable parts in the same size. And that was the unique part of the design. The other part was the material concept of erosion-resistant materials and then proving of the flow profile within the unit was also a part of that and that was built around a standardized configuration.

JY: So you are aware I'm sure that there are other impeller meters; turbine meters have an impeller?

FM: Yes, the configuration has an impeller on it. The name is more or less interchangeable. There is the turbine or the propeller meter and that's a matter of choice of the words you use.

A difference in design

JY: Do you have any idea what that the difference is between your propeller meter design

and some of the other concepts?

FM: The difference between them is the speed control of the propellers. For a certain size meter, you can have a common speed for all sizes. I mean for all the same size you have one speed propeller and all the propellers would run at the same speed. So you have the same flow.

JY: So how did you do that? How did you accomplish that?

FM: That's accomplished by the trimming of the discharge end of the propeller. That's the place where you can control the velocity of it and slight trimming on the trim of the discharge.

JY: What do you mean by the trim of the discharge?

FM: Well the aft-end of the propeller.

KM: It's a three-bladed helix. The design concept was to play with the helix to find a way to manipulate the speed.

JY: Three blades?

KM: Three blades, right. And with a helical lead dimension.

FM: Originally we had sixes and fours and threes and where the cleaning process of threes was run in more debris but the accuracy was an effect on the thing. The helical link on diameter is critical. For the flow diameter you need to have a proportional size of it to have a full rangeability. You can have the same accuracy but it won't have the rangeability if you don't have the diameter in a certain place on the thing.

KM: He's talking the original design of the rotor and the helix to get a universal speed for the common flow range in the markets. The second was the productions, trimmings stan-

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standardization of the prop so that it had interchangeability which gave you field serviceability.

FM: Oh, and that give was for field servicing. You didn't have to recalibrate it if you field service. And that was something new so that you could field service.

JY: You didn't have to recalibrate it?

KM: No, because the major assemblies were all standard, were standard and interchangeable.

All the parts were interchangeable. And we're the only ones that will do that and, why I don't know. Our patent has run out on that and I don't know why it is not followed through. I have some reasons and belief that people that use them have a reason but not the manufacturer. So that gets off into another issue.

Is calibration necessary?

JY: Well, don't you have to periodically recalibrate your meters? Don't all flowmeters have to be calibrated periodically?

FM: No, the answer is no.

JY: OK.

FM: You can take one that has been out 20 years and you can have a blade broken off and everything and it will be identical.

JY: What if you want to test just to make sure it is measuring accurately, can you do that?

KM: Yeah, lots of people do that now. So, but the experience is 10-20 years you don't have any appreciable change. That's part of the robust design.

FM: So when it's properly trimmed and developed it has the same calibration all the time

JY: OK.

FM: And things that cause damage to it never changes the accuracy of the propeller or turbine whichever you wish to call it.

The V-Cone meter

JY: And the V-Cone meter?

KM: No, the V-Cone came later. This is the propeller meter.

FM: The propeller meter is what I started.

JY: You still have that propeller meter?

FM: Yes, we still have the propeller meter.

JY: And the V-Cone is a different product?

KM: Right, the second major product.

JY: When did you develop the V-Cone?

FM: The second meter is a V-Cone development came by really by accident. The marketing people wanted a by-pass system (shunt line) where you measure a proportion of the flow with a propeller meter. The idea was to use a large meter with a small propeller. And that was the request of the marketing, but in the development, that had become an obvious thing. You had a differential pressure meter and so that....

KM: It was to create a differential for your shunt line for your small domestic meter to measure large volume.

JY: What's a shunt line?

KN: A shunt line is a device where you take a big meter have a restriction, it diverts a proportional amount to a smaller line size. And then use a small meter to measure a big line.

It's done with variable area meters. It's done with...

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JY: Thermal – Mass flow controllers

KM: That's right.

KM: Right, yeah. So that's the same thing. So what there was a desire to see if you could use a small meter with a big line to measure water.

JY: Oh, I see.

KM: So he had to create the differential pressure to behave in a specific way to the shunt to make it more....

JY: The shunt line is the by-pass line?

KM: Yeah. And that's part of the original patent is the by-pass line and but then it also came as differential pressure, a vortex meter and everything else that came with playing was the different shapes to create a differential pressure to manipulate the flow to behave in a consistent manner so that whatever device you are using to measure, it works more ideal.

JY: And so the V-Cone has a shunt line?

KM: No, that was the original concept that led to experimentation. But the experimentation by measuring the differential pressure became a much more precise way.

JY: Oh, so you never developed a meter with a shunt line?

When the V-Cone came about

KM: Not as a commercial, only as a prototype.

JY: Oh, OK. What year did you develop the V-Cone?

KM: We started in 1985.

FM: Was it 1985?

KM: 1985, but the first commercial version was patented in '87.

JY: Are the patents in your name or in Lloyd's

name?

KM: His brother Lloyd was retired in 1984. The original propeller meter patent had both your name and Lloyd's name on it.

FM: Yeah, that's right.

JY: Did you start the company with Lloyd?

FM: Yes, I had a twin brother.

JY: Oh a twin brother?

FM: He was involved in it in the sales development end, but I was primarily responsible for the engineering concept of it.

KM: He had previously done several agricultural equipment patents, so. And they had a joint venture relationship, the brothers, they had a partnership in all their business deals.... agriculture and then the flow measurement.

JY: Lloyd was involved in sales but not in the creation of the product?

KM: He was not involved with the V-Cone, Lloyd was primarily involved in sales in the early all the way till his retirement in '83, the end of '83.

JY: And he passed along. And what year was that?

KY: It was it could have been 1997. Somewhere between 1997 and 1999.

JY: And how many members of the family are there?

FM: Well I have one sister and one twin brother, an older sister. And then she is the only one that is alive somewhat there. She's also become an Alzheimer patient.

JY: But you seem to have many sons and daughters and

FM: Yes, I have two older children that are

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girls and two younger boys come quite a bit later. So I have two young boys. He's the president of McCrometer and the other one is a United Airline pilot.

JY: What about Gregg?

KM: Gregg is my cousin. He's Lloyd's...

JY: Lloyd's son, OK.

FM: Right, . But he didn't like to fly and I flew during WWII as a navigator and so that attracted my other son as a flying type and so.

JY: Is he still an airline pilot?

FM: Yeah, for United airlines.

What?

KM: Yeah, he's for United Airlines right now.

JY: And what about the daughters, where are they.

FM: Well they both live in Hemet and they teach school. They're both teachers. The younger daughter has got to finish an upper doctorate degree on teaching, teaching new methods of instruction. So that's her project now. And the other one is a musician and she has left the University to go back to high school so she'd have a different lifestyle. So, she's principally been in the musical field as a piano player. And so that's her experience.

JY: And what are their names, the daughters?

FM: What are the names...

FM: Oh Joyann's the oldest person and Lynnette is two and then Kerry is number three and Robin is number four.

JY: Oh Robin the airline pilot?

KM: Right.

JY: OK. And are there any other family mem-

bers involved in the company?

KM: There's the direct family is myself and Gregg. There's actually two others that have a connection through marriage .

JY: And who is that?

KM: Greg Glen Voss, he is VP of sales. He's Gregg's cousin.

McCrometer today

JY: OK. And how many companies or employees does McCrometer have?

KM: About 170 right now.

JY: OK and is Esther Wong in the family or is she just.....

KM: No, she's been a long-time employee.

JY: Fifteen years?

KM: Or more, I would say twenty-something.

JY: She doesn't look it. She looks like she is 30 or something.

FM: You think we married them. When we hire them they stay on forever.

KM: Yeah we have a lot of very long time employees, from 1986. My father is a consultant that is still with us, working with the design engineer.

JY: How many design engineers do you have doing research and development?

KM: Primarily two right now, Dr. Bob Peters and Dr. Richard Stevens. He is from Scotland originally.

JY: Do you communicate with other people in the flowmeter industry at all?

KM: Somewhat... At industry things like the Measurement Control Automation Association.

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Outside of McCrometer's headquarters in Hemet, California, giving a new definition to the term "metered mail." Is anyone going to the mailbox?

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JY: You're in that right, MCAA?

KM: Right. And we did acquire the Water Specialties company in.

JY: 2001?

KM: Yeah, 2001 was the close date and it started before that.

JY: What products did they have?

KM: They had a propeller meter too but it was primarily a water utilities focus versus irrigation which was our focus. So it was a brand that was complimentary but actually more of a traditional design of classic design of the water propeller/meter.

Growth strategies

JY: OK, and what is your growth strategy?

KM: Our growth strategy? Well the V-Cone is the fastest growing product line. We market to four major industries.

JY: Which are what?

KM: Which are agriculture irrigation, which

we have a very strong position in... Water and wastewater, process industries including chemicals and power pulp paper, and oil and gas production.

Those four and the main, the main product is the V-Cone's fastest growing. We do get continued growth on the propeller and the magmeter.

JY: Oh you have magnetic flowmeters?

KM: The magmeter came with the Water Specialties acquisition.

JY: What happened between 1955 and 1985?

FM: That was generally a development area of the propeller meter and that was a time that we approached it very cautiously. We didn't want to put a bunch of stuff out in the market and recall it.

So we had retired from an agricultural business and we had resources to carry us.

So we took a conscious point not to eliminate what we had accumulated.

JY: When was the first dates to the

KM: The first two dates were in the '70s there where we really started to grow.

FM: In the interim I also served as a county supervisor of this county which is a pretty tough job to carry.

Why growth occurred beginning in 1972

KM: So what, what happened in '72 that made it start to grow?

FM: Well what happened is we changed some marketing profiles to be aggressive and instead of evaluating what we had.

JY: You started aggressively selling and promoting your product?

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FM: Yeah started aggressively sell and...

KM: We focused on agriculture irrigation and water resource management.

FM: But that's when we started to move out aggressively to enlarge our marketplace.

KM: OK, so when was the first \$1M year in sales then?

FM: I think that was mid-70s. Someplace around 1974.

A minor detail in 1978

KM: So do you want to explain what happened in 1978 too that's significant?

FM: Well I don't know what you're referring to.

KM: Well when you sold the company to Ametek. (laughter)

JY: Tell me about that.

FM: Well that was a minor detail, yeah.

We sold the company and that was to protect our estate. If one of us had died during the, that period the way the tax laws in progress at that time would have ruptured our economic livelihood. So we hedged that by selling the company so that's how we protected it and then two years later they changed the law that I didn't need to do that.

JY: So did you buy it back?

KM: No, it was way to profitable for anybody to sell back.

JY: Is it still owned by Ametek?

KM: No it was actually, it's now owned by Danaher.

JY: That's right.

Ametek and Ketema

KM: But it was Ametek in 1978 and 1988 Ametek split in two. One was called Ketema – Ametek spelled backwards -- and in 1996 Danaher acquired McCrometer from Ketema.

JY: So Ketema took McCrometer in 1988?

KM: Right, it was a split of Ametek. But my father was president in 1978 and later also vice-president of Ametek corporate and his brother was vice-president of sales and he retired in 1983. I started basically in late 1982 as a kind of management intern and worked with him a few years before he retired.

JY: How do you feel about working in a family business?

KM: I didn't ever really work in the family business because I was in school. I only worked after it was already sold. So, it had family members in it afterwards but I've always had the professional corporate relationship. I never really had the family experience.

JY: So you don't own the company....so now Danaher owns it.

KM: The V-Cone was invented as part of Ametek so the patent was working for a corporation.

JY: Oh I see.

KM: I had invented that during that time.

JY: What kind of relationship do you have with America Sigma and Hach?

KM: I'd say it's a sister company. We are part of Danaher Devices and what they call strategic growth platforms. We are an entity in that so Sigma and Hach are basically sister companies.

JY: You don't really communicate with them

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very much?

KM: We do on a cooperative basis but it's not a direct reporting or day-by-day kind of thing. We are out own, we are out own subsidiary so we have full responsibility for sales growth, profits.

JY: Do you regret selling the company?

FM: Really not. I think it was best for all. For our age and everything I think we did the right thing. Under the circumstances we did it... I would guess I would love to have owned it now.

Because I still am enthused about developing new products and things and my heart is still in the business. I have four things I'm working on now.

KM: Still developing...

FM: I'm working on and I enjoy doing that and I don't have to take the economic consequences.

JY: Do you ever want someone to talk to about these new ideas?

FM: That is a difficult thing... because the technology is a little different than taught in school.

A new theory about flow profiles

JY: You said you have a new theory. I want to hear that.

FM: Well the new theory is the changing of profile different than other profiles as far as they've been used.

The profile developed by having the core velocity become the dominant velocity of a full cross-section.

JY: What is the core velocity?

FM: It's the center third percent — as it changes its flow through the system it has a different characteristic than the outer surge.

JY: Right. The flow is faster in the middle.

FM: Yeah. The middle and our method of managing that and developing it were continuing to find the characteristics of this new velocity profile that hadn't been studied previously.



Outside McCrometer's headquarters in Hemet, California

JY: What is the new velocity profile?

FM: Well it's dominated by the core velocity or the inner velocity. It seems to dominate its whole flow. As a comparison the rangeability of a venturi you take for an ordinary normal flight it takes six different size orifices to measure the rangeability. And our deal -- all betas or size of the displacement is a full 100% and we can measure that as far as the secondary deal. As far as we can go is 300% so we have if you wanted a full range where the head loss of 15 pounds or 15 inches you can have it and it's the same device. All of these systems will work the full scale on the system and that is the major difference from everything else. I don't know why it isn't attracting more attention. I don't understand it.

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KM: As simpler way of saying it I think is that you have a standard velocity profile component of a fully developed turbulent flow and so most devices assume when you constrict from the outside or some other thing that it is supposed to be uniform relationship differential pressure -- Bernoulli's theorem -- and what you are finding out in fact by actually consciously manipulating it and reforming it into something consistent that a lot of the limitations on the low flow and the high flow are a result of the flow variation versus the instruments or the total system. We focused on how do you play with those velocity components across streams to manipulate them to behave in a way that's most efficient to nature. So it's a fluid mechanical manipulation versus just a mathematical one.

JY: What are the velocity components?

KM: Well the velocity components you take the diameter of cross-section, there are various streams of velocity there. The center is the fastest, approaching the boundary layer is the slowest. So by constricting that you exaggerate that relationship. The traditional way is just to deal with it mathematically with discharge coefficients, but even that's not as ideal a solution as actually rearranging the core and getting it to behave creating new vortices thus a new stream profile downstream that gives you the pressure relationship to the true flow instead of varying as the flowrate varies.

FM: One of our meters will replace 3 orifice meters.

JY: Wow.

FM: To make it the same stand on that you'd have to have that many.

KM: You'd have to have cut-off points on high and low flow because the pressure fluctuates too much or it's not particularly readable. So that

artificially limits the range that theoretically should be quite broad..

JY: Does the V-Cone have a venturi in it?

The V-Cone: An inside-out venturi

KM: It's basically an inside-out venturi. It's taking a cone in the center of the pipe and with a long shape and curving it back and measuring the pipe, the downstream pressure in the center of the pipe with a hollow point going back up in the tube. And what that is on a practice purpose is that you get the range and you also get installation effects of piping bends and elbows you get a true measurement. You don't get an offset to the discharge coefficient. So that's why you can close couple it to elbows.

FM: Well we can go right up against an elbow and measure very accurately.

KM: And that's a function of just the conical shape remanipulating the core and the velocity profile to behave in a consistent way regardless of what's upstream.

JY: What is the accuracy of your meter?

FM: It's less than a half of a percent.

JY: OK.

FM: And I think that has to do with instrumentation, I think it is more accurate than that.

JY: And what is the accuracy of your propeller meters?

FM: Well the rating that's required by the marketing deal is 2% but it's less than 1%.

JY: OK.

FM: And so that's and have new things involved or maybe cut that in two.

JY: OK and Kerry, I have a question for you, is there anything that FCI and Kurz and Sierra

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all have the same pattern. The son is the president.

JY: Dan McQueen is president of FCI and John Olin's son Matt is president of Sierra and you're president of McCrometer. How do you feel about that as far as did you ever have a desire to do something else?

KM: Well I didn't have some other strong dream I wanted to pursue. I didn't also plan to end up here either, so. It's sort of a half way position. I think the different is that I've never been president of a private family company. I mean I was president as a subsidiary of Ametek first and straight on since.

JY: Right. OK.

KM: So even though it looks like it is family-owned in it, I've never really experienced that because it has always been under a corporate entity.

JY: Right.

KM: So I think that's the difference compared to the other sons that end up running.

JY: Do you have a Master's degree or a PhD?

KM: I've got a bachelor's degree in business. I haven't finished an MBA. I'm about a year and a half into that.

I started off on assisting him on engineering side. So I have as much engineering exposure as I do business.

JY: Does Gregg really have two g's on the end?

KM: Yes.

JY: And how did that happen?

KM: I don't know, you'd have to ask his mom.

So, Gregg's been in international sales and

marketing. He's been in marketing for quite a few years. He's been there actually longer than I have and he has a Master's Degree in International Business from Thunderbird.

JY: I'd like to ask a few other questions that are a little bit different from the ones that we've been asking.

FM: Yes, all right.

His greatest contribution to the field of flow

JY: What do you feel your greatest accomplishment is as far as your contribution to this field of flow?

FM: I think it's to develop a new flow profile that has never been measured before. I think it's historically new and I think revolutionary.

KM: So that's basically the V-Cone....

FM: And that's basically the V-Cone. And that to me is probably at the top of the list.

What is your favorite color?

JY: What is your favorite color?

FM: I think principally red. I don't know. It would be along the red lines.

KM: Our products have always been blue or green.

FM: Our products always have been blue. But I don't think red is a good marketable color but I think it's an attractive color. I do enjoy that.

JY: Is there anything that you had wanted to say that you haven't said in the interview? I know that you had prepared some material.

FM: Well I think I've had a unique life experience that's highly diversified. From agriculture to flying in the Marine Corps as a navigator and bombardier and in the Pacific theater was a very unique experience. I've had quite a few

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unique experiences following that in agriculture. We did research and development for the development of new varieties of grains and also I did the first DVT testing in the United States on DVT I observed the bad characteristics of it and reported it but it proceeded anyway.

JY: When was that?

FM: Oh around 1950 or earlier, maybe 1948 or 1949.

JY: And what is your academic background?

FM: My academic background is engineering. I got three and a half years in and then the war came along. So that changed that and I did take up and continued to study fields most in the agricultural sciences and physical sciences.

JY: Did you ever get your bachelor's degree?

FM: No I never did.

JY: And where did you go to school?

FM: The last one I went to was Fullerton College.

JY: Where is that?

FM: Kind of in the middle of Los Angeles. That's a fairly respected school.

JY: Would you like someone to write your biography?

FM: I would have interest in that, yes.

JY: Would you like me to write it?

FM: Well I think you might find it interesting and you're easy to communicate with.

JY: Thank you.

FM: I do worry about my memory losses.

JY: I don't detect that at all. You appear very

clear to me.

FM: There is, I have things. It's here one day and gone the next and so some days I have a very difficult time remembering more current events. Long time events are rather stable but short-term just completely goes away at times. And that is kind of related to my sight. I don't have any sight on the right. I see on both sides but only see to the left.

JY: Right, I understand that.

FM: And I don't know if there is any correlation there or not but there is a memory since a stroke a year ago. It plays tricks on you all the time. It is stable at times and at times it goes away. Some of that is tied with the increased hearing loss but I'm not hearing things and I don't comprehend what I hear and so I have fought that problem for a little over a year now. It was a year ago October and I had that experience so, but it does fluctuate from week to week and day to day sometimes. So I'm still fighting that and other things. But I do have quite a few agricultural patents that I enjoyed putting together and the wall here is filled up with the plaques I got in serving government and all those things and that was an educating experience at the time. So I have enjoyed all of that and some of it like recognition of some of the work and. I was the head of the criminal system as a Southern California area and so forth and developing new techniques to chase the bad guys.

So I have had multiple experiences and so they just seem to happen along in a certain series and they didn't seem to get into conflict with my other activities. I was a chairman of the board of Hemet Federal Bank for 20 years and I took it from a hundred million to a billion which was the biggest in the county and that was an interesting experience. I've been active on school boards and county government and state government and federal government.

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Pioneers of Instrumentation: Floyd McCall of McCrometer

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Nixon appointed me to committees on some things. Well it was the welfare laws. I've been an advisor to Ted Kennedy.

JY: Right, you told me that last night.

FM: So, I've had just a series of what I thought was experiences unique in a person's life and....

Born in a log cabin

FM: But I had the same experience as Lincoln. I was born in a little log cabin. It was a miner's cabin that my parents had and I was born in a little log cabin in Colorado.

JY: Was that in 1918 or 1924?

FM: 1920.

JY: 1920, OK.

FM: 1920 was when I was born.

JY: My father was born in 1918.

FM: So my period in Colorado was until three but then I still have memories of that but it was unique in some ways. My dad gave me a car when I was seven on the basis if I could keep it running I could have it. So I kept it running. And of course the ranch was big enough to run around. There was nothing illegal about it but it was a Model T car so I learned a lot about machinery and how it worked.

A boy genius from the beginning

JY: OK. So you were a boy genius from the beginning?

FM: I was creative from a very young age. My biggest disappointment was when I invented the electric motor; it was already operational at the time. In high school I helped with the development of the first air conditioning on cars where you hang a water cooler on the window

of a car and that's how they cooled it going across the desert. There was a group that went ahead and did some marketing on that.

It worked very well. I made it out of an old mailbox. And I decided to hang it on the window and the cool air blew in. I was doing that in high school.

JY: I want to thank you very much.

Floyd McCall: A Pioneer of Instrumentation

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